

# CCD-TR606E

## RMT-706

### SERVICE MANUAL

*AEP Model  
UK Model  
E Model  
Australian Model*



Remote commander is available as a unit. But as individual parts the battery case lid of commander is only available.

**Video8  
Handycam**

**A MECHANISM**

For the block diagram and interface, refer to the separate Service Manual.

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL IV" (9-973-199-11).

#### SPECIFICATIONS

##### Video Camera Recorder

###### System

- Video recording system
  - Two rotary heads, Helical scanning
  - FM system
- Audio recording system
  - Rotary heads, FM system
- Video signal PAL colour, CCIR standards
- Usable cassette
  - 8 mm video format cassette (standard 8 mm)
- Tape speed
  - SP mode: Approx. 20.051 mm (13/16 inches)/second
  - LP mode: Approx. 10.058 mm (13/32 inches)/second
- Recording time
  - SP mode: 1 hour and 30 minutes (P5-90)
  - LP mode: 3 hours (P5-90)
- Playback time
  - SP mode: 1 hour and 30 minutes (P5-90)
  - LP mode: 3 hours (P5-90)
- Fastforward/rewind time
  - Approx. 6 min. 30 sec. (P5-90)
- Image device CCD (Charge Coupled Device)
- Viewfinder Electronic viewfinder (monochrome)
- Lens
  - Combined 10 x power zoom lens
  - f= 6.1 to 61 mm (1/4 to 2 7/16 inches) (44 to 440 mm when converted to a 35 mm still camera)
  - F 1.6 to 2.9
  - Filter diameter 52 mm (2 1/8 inches)
  - TTL autofocus system inner focus wide macro system

- Colour temperature
  - Auto
- Minimum illumination
  - 2 lx (F 1.6)
- Illumination range
  - 2 lx to 100,000 lx
- Recommended illumination
  - More than 100 lx

###### Output connector

- Video output Phono jack, 1 Vp-p, 75  $\Omega$ , unbalanced, sync negative
- Audio output Phono jacks (2: stereo L and R) -7.5 dBs, (at output impedance 47 k $\Omega$ ) impedance less than 2.2 k $\Omega$
- RFU DC OUT Special minijack, DC 5 V
- Headphones jack Stereo minijack
- Remote jack Stereo mini-minijack ( $\phi$  2.5 mm)
- MIC jack Stereo minijack, -66 dBs low impedance with 2.5 to 3 V DC, output impedance 6.8 k $\Omega$  ( $\phi$  3.5 mm)

###### General

- Power requirements
  - On battery mounting surface
  - 6.0 V (battery pack)
  - 7.5 V (AC power adaptor)
- Average power consumption
  - 5.6 W (camera recording) including the viewfinder

— Continued on next page —

**8 VIDEO CAMERA RECORDER**  
**SONY®**



Installation Vertically, Horizontally  
 Operating temperature 0°C to 40°C (32°F to 104°F)  
 Storage temperature -20°C to +60°C (-4°F to +140°F)  
 Dimensions Approx. 109 x 109 x 197 mm (w/h/d)  
 (4 3/8 x 4 3/8 x 7 4/8 inches)  
 Mass About 920 g (2 lb) excluding the  
 battery pack, lithium battery,  
 cassette, and shoulder strap  
 About 1140 g (2 lb 7 oz) including  
 the battery pack NP-55H, lithium  
 battery CR2025, cassette P5-90, and  
 shoulder strap  
 Microphone Electret condenser microphone,  
 stereo type

### AC power adaptor

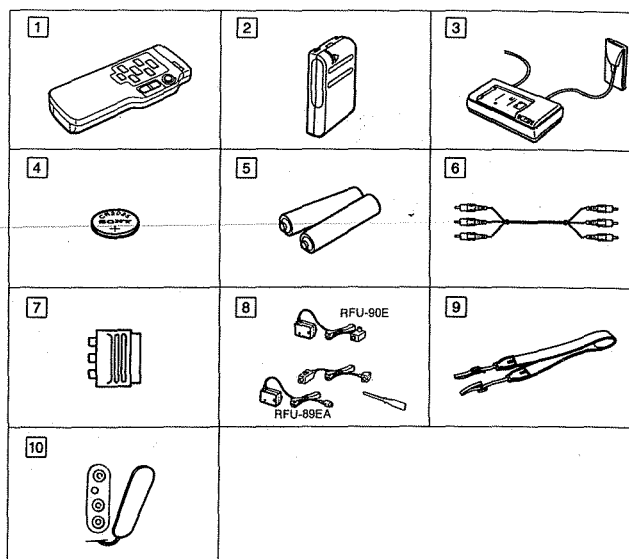
Power requirements 110-240 V AC, 50/60 Hz  
 Power consumption 20 W  
 Output voltage DC OUT: 7.5 V, 1.6 A in operating  
 mode  
 Battery charge terminal: 10 V, 1.3 A  
 in charge mode  
 Application Sony battery packs NP-55H,  
 NP-66H, NP-77H/-77HD  
 Operating temperature 0°C to 40°C (32°F to 104°F)  
 Storage temperature -20°C to +60°C (-4°F to +140°F)  
 Dimensions Approx. 170 x 41.6 x 82 mm (w/h/d)  
 (6 3/4 x 1 11/16 x 3 1/4 inches)  
 including projecting parts and  
 controls  
 Mass Approx. 520 g (18 oz)

Design and specifications are subject to change  
 without notice.

### Note

This appliance conforms with EEC Directive  
 87/308/EEC regarding interference suppression.

### Supplied accessories



- 1 Wireless Remote Commander (1) (p. 44)
- 2 NP-55H Battery pack (1) (p. 5)
- 3 AC-V35A AC power adaptor (1) (p. 5)
- 4 CR2025 Lithium Battery (1) (p. 9)
- 5 Size AA (R6) battery for Remote Commander (2) (p. 10)
- 6 A/V connecting cable (1) (p. 20)
- 7 21-pin adaptor (1) (p. 20)
- 8 RFU-80E or RFU-89EA RFU adaptor (With the RFU-89EA, an aerial selector and a screwdriver are supplied.) (1) (p. 21)
- 9 Shoulder strap (1) (p. 45)
- 10 Jack cover (1)  
(Attached to camcorder)

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following  
 safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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# SECTION 1 GENERAL

This section is extracted from instruction manual.

## SERVICE NOTE

### [SEMICONDUCTOR FOR CORRECTION LIST DISPLAY]

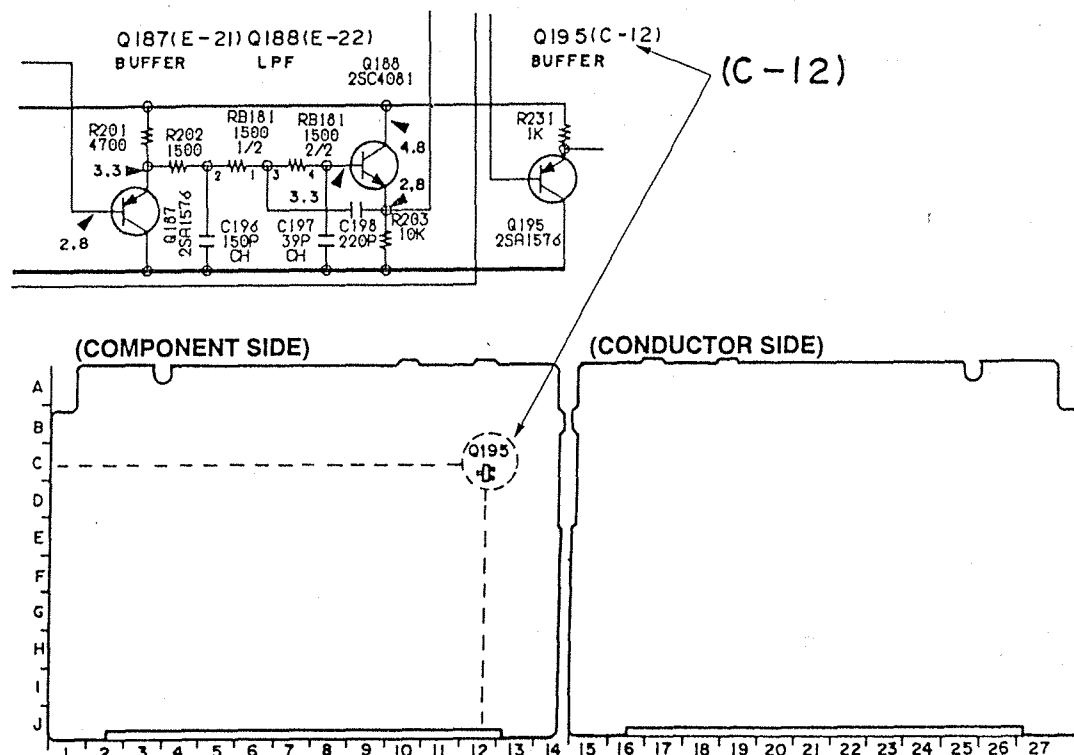
Part code and part name of the semiconductor for correction of the print board is described in the space of each print figure. Use this list when ordering parts.

### [PARTS LOCATION DIAGRAM RELATED TO POWER SUPPLY]

The parts location diagram for the power supply which are often checked and replaced when repairing the fuse and IC link and so on. (See page 60, 94, 100, 121, 122, 124)  
This diagram is useful for repair.

### [SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red as shown below. This enables to find the location on the board easily when servicing.



### [HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

#### Check for Head Clogs During Recording

- ① Use a blank tape, record a short section, then press the stop button to stop.
- ② Set to recording mode again.
- ③ If the [X] mark is flashing in the viewfinder at this time, head clogs are occurred.

#### Check During Playback of a Tape

- ① Play back a pre-recorded tape and display the image on a TV screen.
- ② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

#### Remedy

##### [Cleaning method using a cleaning tape]

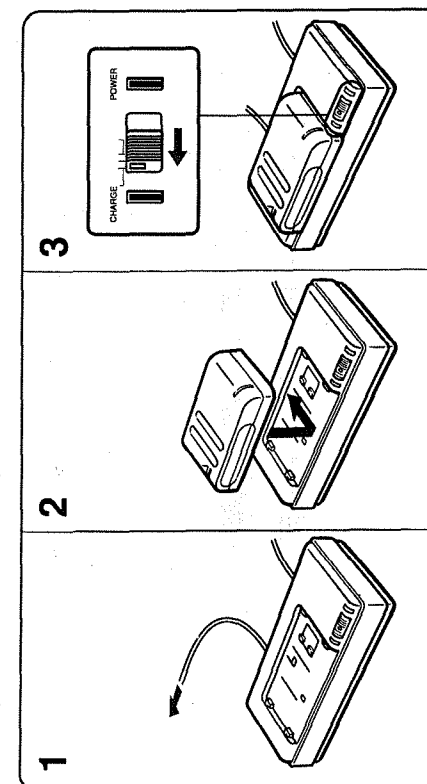
- Use the Cleaning Tape. (Please follow the instructions attached to the cleaning tape.)

### Getting Started Charging and Installing the Battery Pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC-V35A AC power adaptor.

#### Charging the Battery Pack

Charge the battery pack on a flat place without vibration.  
(1) Connect the power cord to a wall outlet. (2) Align the right side of the battery pack with the white line on the AC power adaptor, then slide the battery pack in the direction of the arrow. (3) Set the selector to CHARGE. The CHARGE lamp (orange) lights up. Charging begins. When charging is completed, the CHARGE lamp goes out. Set the selector to the center position and unplug the unit from the wall outlet. Then remove the battery pack and install it on the camcorder. To stop charging, set the selector to the center position.



#### Charging Time and Battery Life

| Battery pack   | NP-55H (supplied) | NP-77H/ NP-77HD | NP-66H |
|----------------|-------------------|-----------------|--------|
| Charging time* | 70                | 140             | 100    |
| Battery life** | 65                | 145             | 105    |

\* Approximate minutes to charge an empty battery pack using the AC-V35A (Lower temperatures require a longer charging time.)

\*\* Approximate continuous recording time (in minutes) indoors

#### Important!

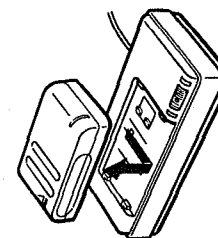
##### Use the battery completely before re-charging!

Before you recharge the battery pack, make sure the battery has been used up (discharged) completely. Repeated charging while some capacity remains causes a lowering of battery capacity. However, the original battery capacity can be recovered if you use the battery completely and charge it fully again.

To use up the battery, remove the cassette and slide the POWER switch to CAMERA with the battery pack attached, and leave the camcorder until the [X] indicator and the red lamp flash in the viewfinder.

### Charging and Installing the Battery Pack

Slide the battery pack in the direction of the arrow (see drawing).

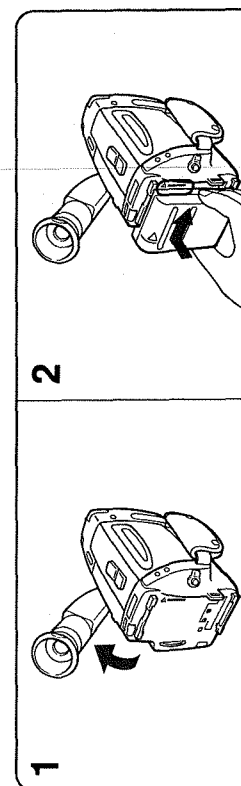


#### Note on charging the battery pack

The POWER lamp will remain lit for a while even if the battery pack is removed and the power cord is unplugged after charging the battery pack. This is normal.

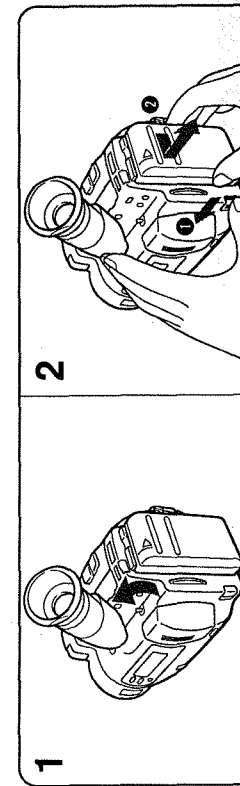
#### Installing the Battery Pack

(1) Lift up the viewfinder. (2) Align the right side of the battery pack with the white line on the camcorder, and slide the battery pack to the right.



#### Removing the Battery Pack

(1) While pressing BATT, slide the battery pack to the left.



## Tips for Using the Battery Pack

This section shows you how you can get the most out of your battery pack.

### Preparing the Battery Pack

**Have Sufficient Battery Pack Power to Do 2 to 3 Times as much Recording as You have Planned.**

"Battery life" indicated in this manual is measured by the continuous recording time of the camcorder, placed at room temperature using a fully-charged battery pack.

### Battery Life is Shorter in Cold Environment

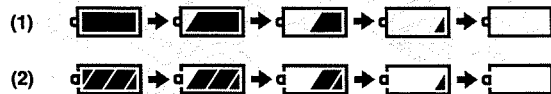
Battery efficiency is decreased and the battery will be used up more quickly if you are recording in a cold environment.

### To Save Battery Power

Turn STANDBY on the camcorder down when not recording to save battery power. (p. 8) [a]  
A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

### When to Replace the Battery Pack

While you are using your camcorder, the remaining battery indicators in the viewfinder (1) and in the display window (2) decrease gradually as battery power is used up.



When the remaining battery indicator reaches the lowest point, the indicator appears and starts flashing in the viewfinder. (p. 8) [b]  
When the indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, slide the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack is replaced.

### Note on the remaining battery indicator

The remaining battery indicator of the camcorder may indicate a different remaining capacity from that of the NP-77HD battery pack (not supplied). The indicator of NP-77HD is more accurate.

### Note on the Rechargeable Battery Pack

#### The Battery Pack Heats Up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern.

#### Battery Pack Care

- Remove the battery pack from the camcorder after using the battery pack, and keep it in a cool place. When the battery pack is attached to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF, which shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

#### How to Use the Switch on the Battery Pack

This switch is provided so that you can mark the charged battery pack. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up (or in whichever direction you want to remind yourself). (p. 8) [c]

## Tips for Using the Battery Pack

### The Life of the Battery Pack

The battery pack can be fully charged and discharged about 500 times under normal temperatures. If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

### Charging Temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

### Note on Charging

#### A Brand-new Battery Pack

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

#### Before Recharging a Used Battery Pack

- Make sure to use up the battery before recharging.
- If recording is completed before the indicator appears in the viewfinder, you should remove the tape, slide the POWER switch to CAMERA, turn STANDBY up, and leave the camcorder until the battery indicator flashes rapidly.
- When you use the AC-S10 power adaptor or the DC-S10 car battery charger, you can use the discharging function.
- Charging the usable battery pack causes a lowering of battery capacity. Battery capacity can be recovered if you fully discharge and charge the battery pack again.

#### After Long Storage

Recharge the battery pack after a long period of storage. If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged. Charge it again, but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

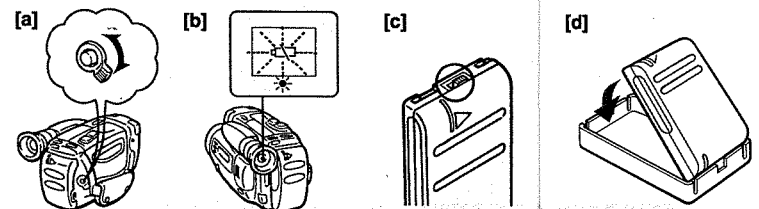
### Note on the Terminals

If the terminals (metal parts on the back) are not clean, the battery duration will be shortened.

When the terminals are not clean or when the battery pack has not been used for a long time, repeat installing and removing the battery pack. This improves the contact condition. Also, wipe the + and - terminals with a soft cloth or paper.

### Be Sure to Observe the Following

- To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals. Carry the battery pack attaching to the terminal cover. [d]
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor convert the battery pack.
- Do not expose the battery pack to any mechanical shock.

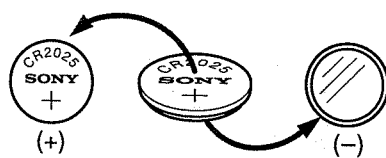


## Inserting the Supplied Batteries

Your camcorder is supplied with a lithium battery and two size AA (R6) batteries. The lithium battery is for the camcorder and the size AA (R6) batteries are for the Remote Commander.

### Inserting the Lithium Battery into the Camcorder

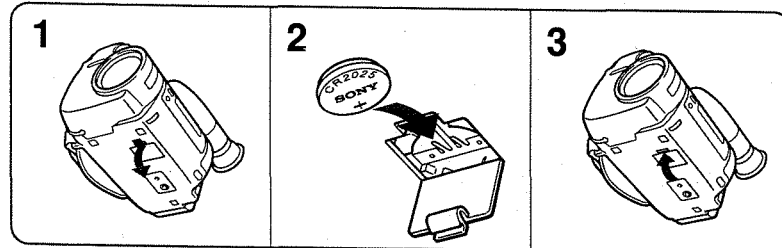
The lithium battery has a positive (+) side and a negative (-) side as illustrated below. Be sure to install the lithium battery with the positive side facing out.



### Inserting the Lithium Battery

To activate the clock, you must insert a lithium battery.

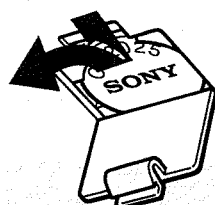
(1) Open the lid of the lithium battery compartment on the bottom of the camcorder. (2) Install the lithium battery with the positive (+) side facing out. (3) Close the lid.



### To Remove the Lithium Battery

Push the Battery upward once and pull it out from the holder.

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date and time.

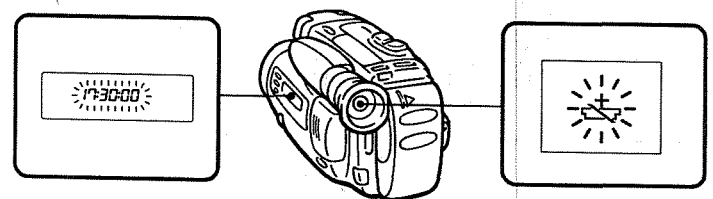


## Inserting the Supplied Batteries

### Lithium Battery Life

The lithium battery for the camcorder lasts for about 1 year under normal operation. When the battery becomes weak or dead, the date or the time indicator and the indicator flash in the viewfinder for about 5 seconds and the date or the time indicator keeps flashing in the display window when you set the POWER switch to CAMERA.

In this case, replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.



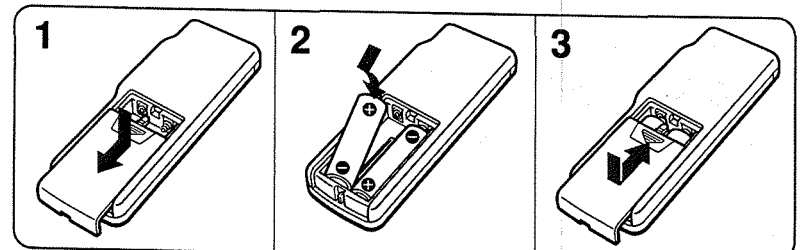
### Caution

Keep the lithium battery out of the reach of children.  
Should the battery be swallowed, consult a doctor immediately.

### Inserting the Size AA (R6) Battery into the Remote Commander

To use the Remote Commander, you must insert two size AA (R6) batteries. Use the supplied size AA (R6) batteries.

(1) Remove the battery cover from the Remote Commander. (2) Insert both of the size AA (R6) batteries with correct polarity. (3) Put the battery cover back onto the Remote Commander.



### Battery Life

The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

### To avoid damage from possible battery leakage

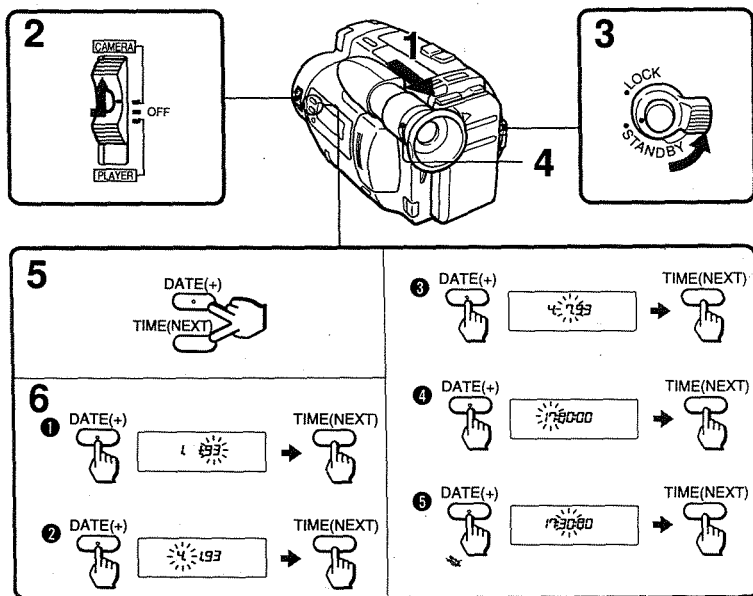
Remove the batteries when you will not use the Remote Commander for a long time.

### WARNING

The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

## Setting the Date and Time

You need to set the camcorder's date and time to record the correct ones onto your video. Before setting the clock, make sure a power source and lithium battery are installed.  
(1) Pull out the viewfinder until it clicks. (2) While pressing the small green button on the POWER switch, slide it to CAMERA. (3) Turn STANDBY up. (4) Turn the viewfinder lens adjustment ring so that the "STBY" indicator in the viewfinder comes into sharp focus. (5) Press DATE (+) and TIME (NEXT) simultaneously for 3 seconds. (6) Adjust the digits of the year, month, day, hour and minutes by pressing DATE (+) and TIME (NEXT). To set the year to 1993, there is no need to press DATE (+) in 6-1. Note that when you keep DATE (+) pressed, the digits advance faster.



### To Correct the Date and Time Settings

Press TIME (NEXT) repeatedly until the minute digits stop flashing. Then repeat steps 5 and 6.

### To Check the Preset Date and Time

Press DATE (+) to display the date indicator in the viewfinder and the display window. Press TIME (NEXT) to display the time indicator. When you press the same button again, the indicator goes off.

### Note on the setting of the year

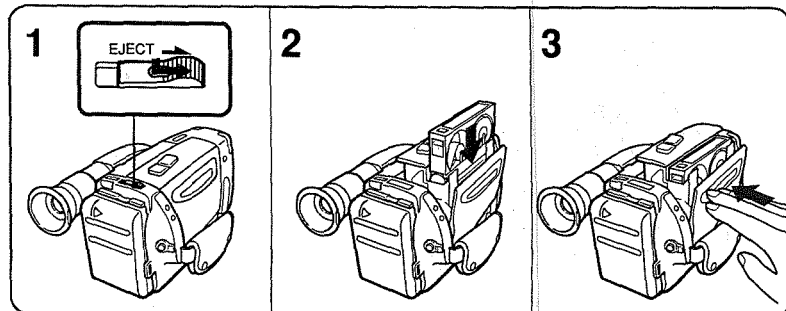
When you set the year, each time you press DATE (+) the digits change as follows:

1993 → 1994 → ... → 2023

## Inserting a Cassette

Make sure that the power source is installed.

(1) While pressing the small blue button on the EJECT knob, slide it in the direction of the arrow. The cassette holder automatically lifts up and opens. (2) Insert a tape with the window facing out. (3) Close the cassette holder by pressing the "PUSH" mark on the cassette holder.



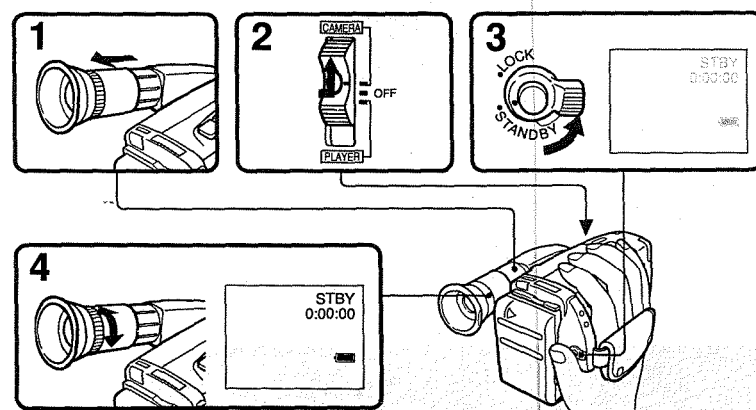
### To Eject the Cassette

While pressing the small blue button on the EJECT knob, slide it in the direction of the arrow.

## Adjusting the Viewfinder Lens

Before you use the camcorder for the first time or after someone else has used it, focus the viewfinder lens. Make sure that the power source is attached to the camcorder.

(1) Pull out the viewfinder until it clicks. (2) While pressing the small green button on the POWER switch, slide it to CAMERA. (3) Turn STANDBY up. (4) Turn the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus.

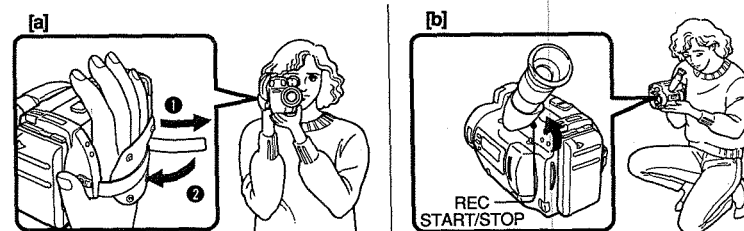


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## Hints for Better Shooting

For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. [a]
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting recording angle. Lift the viewfinder up for recording from a low position. (You can lift it up to 90 degrees.) Press REC START/STOP with your left thumb. Do not pull out the viewfinder when you record in a low position. [b]

### Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder (p. 42). When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 6.5 mm (9/32 in.) Otherwise, the screw may damage the inner parts of the camcorder.

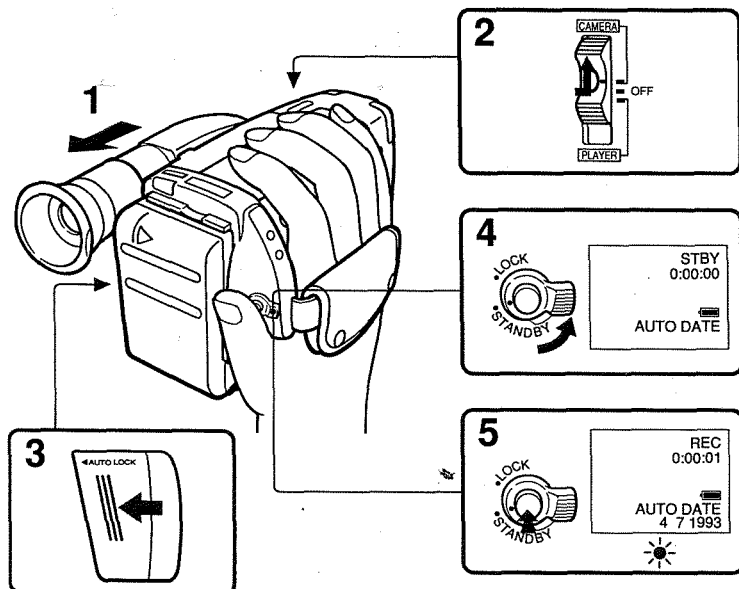
## Camera Recording

Make sure that the power source is installed and a cassette is inserted. If you set the date (p. 11), the date is automatically recorded for 10 seconds after you start recording (AUTO DATE feature). This feature works only once a day.

Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working perfectly.

(1) Pull out the viewfinder until it clicks. (2) While pressing the small green button on the POWER switch, slide it to CAMERA. The lens cover opens. (3) Close the AUTO LOCK cover. Now all the camera functions activate automatically (i.e. focus, shutter speed). (4) Turn STANDBY up. (5) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder.

You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE in the menu system (p. 31) according to the length of your planned recording before you start.



## To Stop Recording Momentarily

Press START/STOP again. The "STBY" indicator appears in the viewfinder (Standby mode).

## To Finish Recording

Turn STANDBY down and slide the POWER switch to OFF. The lens cover closes. Then, eject the tape (p. 12).

## Notes on Standby mode

If you leave the camcorder in Standby mode for 5 minutes, the camcorder goes off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down once and turn it up again. To start recording, press START/STOP.

## Note on the tape counter

The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press RESET.

## Note on the AUTO DATE feature

You can change the AUTO DATE settings by selecting ON or OFF in the menu system.

- The AUTO DATE feature works once a day. However, the date may automatically appear more than once a day when:
  - you reset the date and time.
  - you eject and insert the tape again.
  - you stop recording within 10 seconds.
  - you set AUTO DATE to OFF once and set to ON again in the menu system.
- Once the AUTO DATE feature turns off the date display 10 seconds after the start of recording, the date and time are displayed as follows:
  - If the date display setting has been made, the date is displayed.
  - If the time display setting has been made, the time is displayed.
  - If neither display setting has been made, nothing is displayed.

## Note on BEEP Feature

A beep sounds when you turn the power on or when you start recording and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder. Note that the beep sound is not recorded on the tape.

If you do not want to hear the beep sound, set BEEP to OFF in the menu system (p. 32).

## If you wear glasses

You can bend back the eyecup to get a better view of the viewfinder.

## When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

## When there is a strong wind

Set WIND to ON in the menu system (p. 32). The noise from the wind will be reduced. The indicator appears in the viewfinder.

After recording, set WIND to OFF. If you leave it ON, the sound may be recorded unnaturally.

## Note on recording

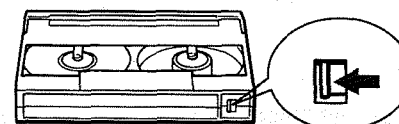
When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.

## Recording mode

This camcorder records in the SP mode (approximately 20.051 mm/second) and in the LP mode (approximately 10.058 mm/second) and can play back in the SP mode and LP mode. The quality of the playback picture in the LP mode, however, will not be as good as that in the SP mode.

## Preventing Accidental Erasure

To prevent accidental erasure, slide the tab on the cassette to expose the red mark. If you try to record with the red mark exposed, the and indicators flash in the viewfinder, and you cannot record. To re-record on this tape, slide the tab back out covering the red mark.



## Camera Recording

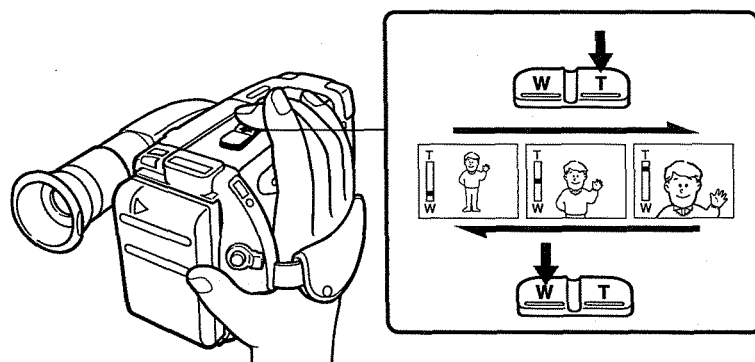
## Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene. You can also use the zoom to focus manually or to decide on a shooting angle before you start recording.

For more professional-looking recordings, use the zoom function sparingly.

"T" side: for telephoto (subject appears closer)

"W" side: for wide-angle (subject appears farther away)



## Zooming Speed (Dual speed zooming)

Press the power zoom button firmly for a high-speed zoom, press it softly for a relatively slow zoom.

## When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, press the "W" side of the power zoom button until the focus is sharp. You can shoot a subject that is at least 1 m (about 39 3/8 inches) away from the lens surface in the telephoto position.

## Manual focusing in macro

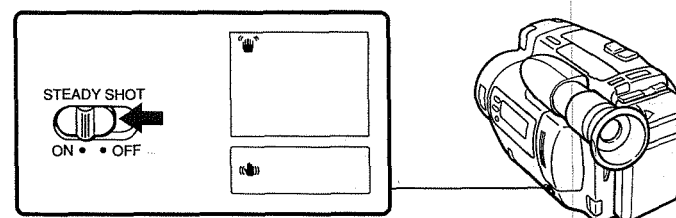
You can also shoot with manual focus while doing close-ups (p. 27).

## Getting a Steady Picture

You can use the Steady Shot function to compensate for camera-shake. Set STEADY SHOT to ON. The indicator appears in the viewfinder and the indicator appears in the display window.

Use Steady Shot:

- When you zoom in
- When you shoot scenery from a car window
- When you shoot scenes while moving



## To Release Steady Shot Function

Set STEADY SHOT to OFF.

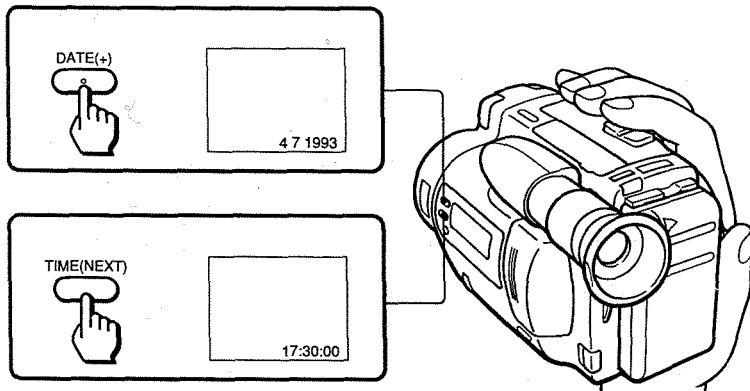
## Notes on using Steady Shot

- To conserve the battery, set STEADY SHOT to OFF when you don't need it. When it is set to ON, battery power is used up more quickly.
- Steady Shot will not correct excessive camera movement.
- When you shoot stationary objects with a tripod, set STEADY SHOT to OFF.

## Camera Recording

### Recording the Date or Time

While you are recording, press DATE (+) or TIME (NEXT). The date or time displayed in the viewfinder is recorded with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.



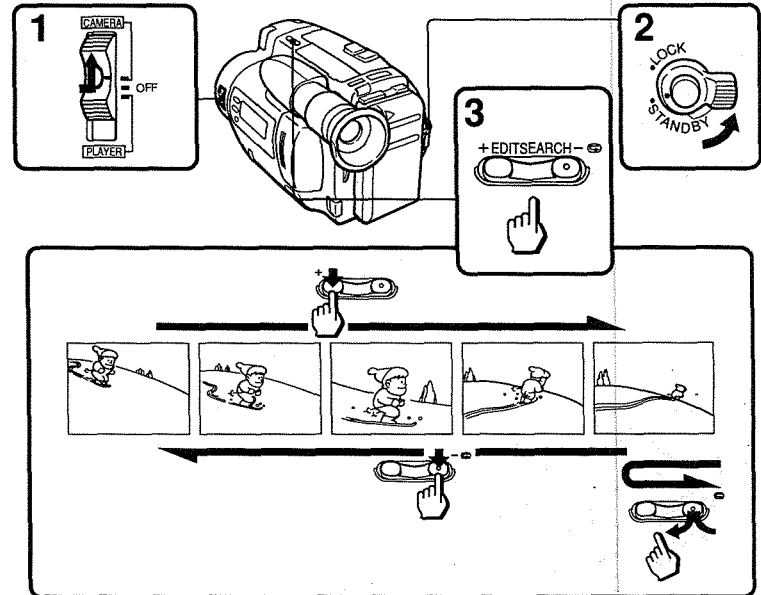
### To Stop Recording with the Date and Time

Press DATE (+) or TIME (NEXT) again. The date or time indicator disappears. The recording continues.

### Checking the Recorded Picture in the Viewfinder

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder.

(1) While pressing the small green button on the POWER switch, slide it to CAMERA. (2) Turn STANDBY up. (3) Press the - (EDITSEARCH) momentarily; the last few seconds of the recorded portion plays back (Rec Review). Keep pressing EDITSEARCH to play back the last recorded portion (Edit Search).  
+ side: to view the forward playback picture  
- side: to view the reverse playback picture



### Monitoring the Sound while Viewing the Playback Picture in the Viewfinder

Connect headphones (not-supplied) to the PHONES jack. Play back the tape in PLAYER mode (p. 22).

### To Stop Playback

Release EDITSEARCH.

### To Begin Re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the tape, the transition between the last scene you recorded and the next scene you record will be smooth.

### Note on using EDITSEARCH

You cannot hear the recorded sound during Edit Search.

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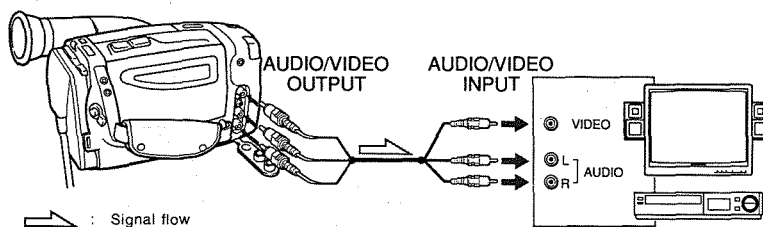
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## Connections for Playback

You can use this camcorder as a VCR by connecting it directly to your TV for playback. There are two ways to connect the camcorder to your TV.

### Connecting to a TV or a VCR with Audio/Video Input Jacks

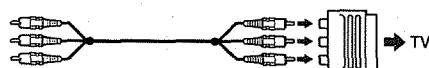
Connect the camcorder to the TV by using the supplied connecting cable. Set the TV/VCR selector on the TV to VCR. When connecting the camcorder to VCR, set the input selector on the VCR to LINE.



If your TV or VCR is a monaural type, connect only the white plug for audio on both the camcorder and the TV or the VCR. With this connection, the sound is in monaural.

### If your TV has a 21-pin connector (EUROCONNECTOR)

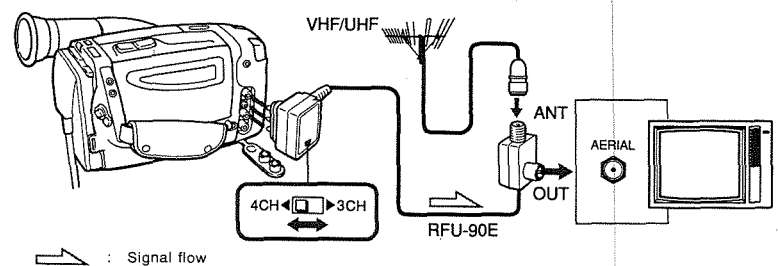
Use the supplied 21-pin adaptor.



### Connecting to a TV without Audio/Video Input Jacks

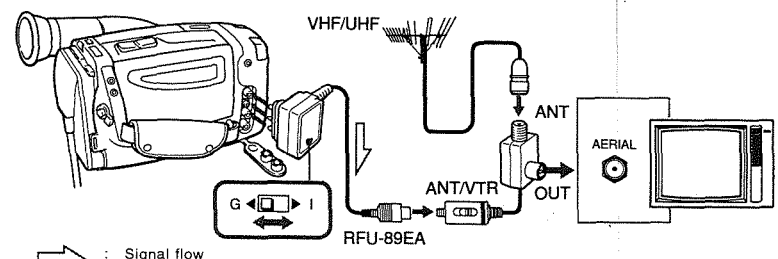
#### For Customers Supplied with the RFU-90E

Connect the camcorder to the TV by using the supplied RFU adaptor. Set the channel selector on the RFU adaptor to 3CH or 4CH whichever is not used in your area. Turn on the TV and select the 0 position. Tune the TV so that you can get picture and sound from the camcorder.



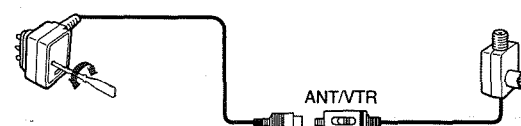
#### For Customers Supplied with the RFU-89EA and an Aerial Selector

Connect the camcorder to the TV by using the supplied RFU adaptor. Set the I/G selector on the RFU adaptor according to the TV system of your country. Set the ANT/VTR selector on the aerial selector to VTR. Turn on the TV and select a programme position that is not used to receive a TV station. Tune the TV so that you can get a picture and sound from the camcorder.



### If the Playback Picture is Deteriorated

Set the ANT/VTR selector on the aerial selector to ANT. Tune the TV between UHF channels 30 and 39, so that the TV shows no picture and a steady rustling sound or no sound is heard. Set the ANT/VTR selector on the aerial selector to VTR. Turn the RF channel setting screw of the RFU adaptor slowly with a screwdriver, so that a playback picture is clearly displayed on the TV screen.



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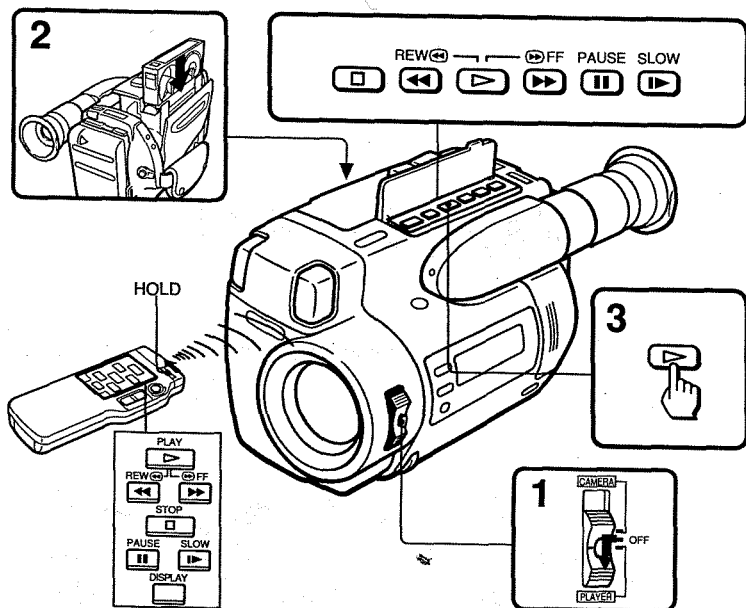
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## Playing Back a Tape

### Playing Back a Tape

You can monitor the playback picture in the viewfinder. You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR (p. 20). You can use the supplied Remote Commander to control playback, if you want. Before using the Remote Commander, slide the HOLD switch in the opposite direction of the arrow.

(1) While pressing the small green button on the POWER switch, slide it to PLAYER. (2) Insert the recorded tape with the window facing out. (3) Press ▷. Playback starts.



To stop playback, press □.  
To rewind the tape, press ◀◀.  
To advance the tape rapidly, press ▶▶.  
To play back at 1/5 speed, press I▶.

#### When you use the Remote Commander

Make sure COMMANDER is set to ON in the menu system (p. 32), and the HOLD switch on the Remote Commander is not working. When you do not use the Remote Commander, slide the HOLD switch in the direction of the arrow to prevent any misoperation.

### Various Playback Modes

#### To view a still picture (Playback pause)

Press II during playback. To resume playback, press II or ▷.

#### To locate a scene (Picture search)

Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

#### To monitor the high-speed picture during advancing the tape or rewind (Skip scan)

Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

#### To view the picture in a sequence of stop-motion images

Press EDITSEARCH in Playback pause mode. If you keep pressing EDITSEARCH, you can view the picture plays back in the forward (+) or reverse (-) direction.

#### Note on playback

- Streaks appear and the sound is muted in the various playback modes.
- When Playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.

#### To display the viewfinder screen indicators on the TV

Press DISPLAY on the Remote Commander. To erase the indicators, press it again.

#### To select the playback sound

Change the "HiFi SOUND" mode setting in the menu system (p. 32).

### Advanced Operations

## Using Alternative Power Sources

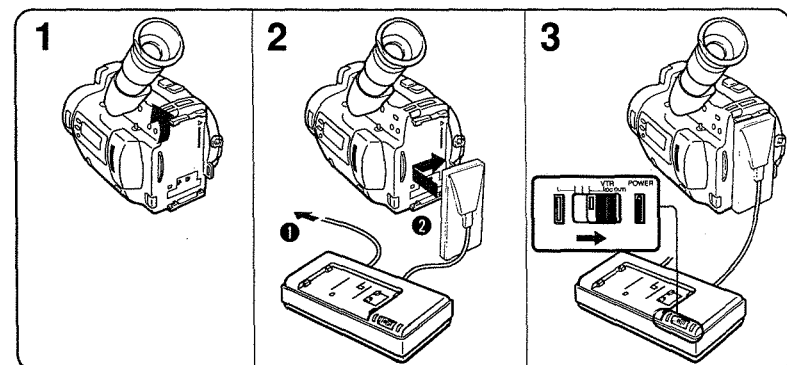
You can choose any of the following power sources for your camcorder: battery pack (p. 6), house current, and a 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

| Place      | Power source             | Accessory to be used                                    |
|------------|--------------------------|---------------------------------------------------------|
| Indoors    | House current            | AC-V35A AC power adaptor (supplied), AC-S10             |
| Outdoors   | Battery pack             | NP-55H Battery pack (supplied), NP-77HD, NP-77H, NP-66H |
| In the car | 12 V or 24 V car battery | DCP-77 DC pack                                          |

### Using House Current

To use the supplied AC-V35A AC power adaptor:

(1) Lift up the viewfinder. (2) Connect the AC power cord to a wall outlet. Connect the connecting plate to the battery mounting surface of the camcorder. (3) Set the selector to VTR (DC OUT).



#### Notes on the AC power adaptor

- The camcorder cannot be operated while charging the battery pack.
- The camcorder cannot be operated unless the selector is changed to VTR (DC OUT) position.
- Keep the adaptor away from the video equipment if video operation is disturbed.
- The POWER lamp will remain lit for a while even if the unit is unplugged after use. This is normal.

#### To remove the connecting plate

The connecting plate is removed in the same way as the battery pack. (p. 6)

### Using a Car Battery

Use the DCP-77 DC pack (not supplied). Connect the cord of the DC pack to the cigarette lighter socket of the car (12 V or 24 V). Connect the DC pack to the battery mounting surface of the camcorder.

#### To remove the DC pack

The DC pack is removed in the same way as the battery pack. (p. 6)

### Options for Charging the Battery Pack

#### AC-S10 AC power adaptor:

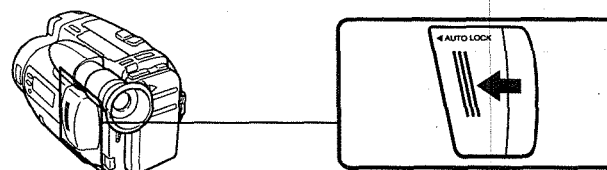
You can charge a battery pack whether it is used up or not with this adaptor because it has a discharging function.

## Selecting Automatic or Manual Adjustment Mode

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for creative recording.

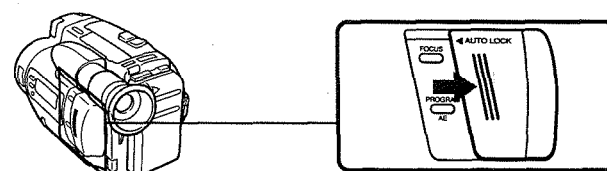
### Automatic Adjustment Mode

Close the AUTO LOCK cover. In automatic mode, the camcorder adjusts the focus automatically. It also sets the shutter speed to 1/50.



### Manual Adjustment Mode

Open the AUTO LOCK cover. In manual mode, you can adjust the focus manually, and select from four PROGRAM AE modes to fit the shooting situation. Even if in manual mode, the settings you didn't adjust manually remain the same as when in automatic adjustment mode.



#### About the previous settings

Manual settings are saved in the following case:

- When you resume automatic mode after you make manual adjustments and then select manual mode again.
- When you set the POWER switch to OFF.

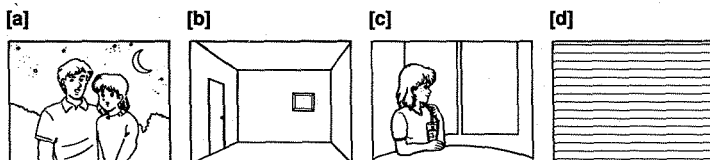
However, manual settings are cancelled once 5 minutes pass if you have removed the battery.



## Focusing Manually

### When to Use Manual Focus

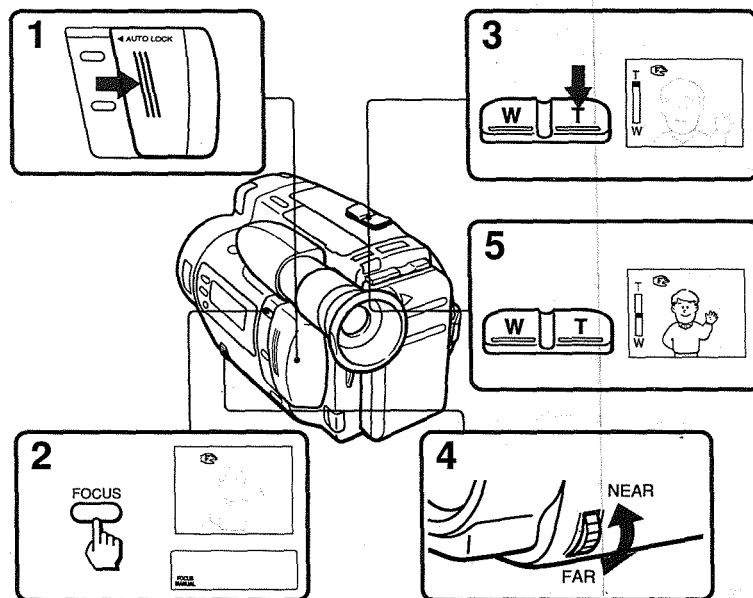
In the following cases you should obtain better results by adjusting the focus manually.



- Insufficient light [a]
- Subjects with little contrast — walls, sky, etc. [b]
- Too much brightness behind the subject [c]
- Horizontal stripes [d]
- Subject through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting light
- Shooting a stationary subject when using a tripod

### Focusing Manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length. (1) Open the AUTO LOCK cover. (2) Press FOCUS. The indicator appears in the viewfinder and FOCUS MANUAL indicator appears in the display window. (3) Keep pressing the "T" (telephoto) side of the power zoom button until the zooming stops. (4) Turn the focus dial to achieve a sharp focus. (5) Set the desired shot length.



#### To Reactivate Autofocusing

Press FOCUS again, or close the AUTO LOCK cover. The indicator in the viewfinder and FOCUS MANUAL indicator in the display window disappear.

#### Shooting in relatively dark places

Shoot at wide-angle after focusing in the telephoto position.

#### Note on the focus dial

The focus dial does not have a stop position.

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## Using the PROGRAM AE Function

You can select from four PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can get a Portrait effect (the subject is in focus and the background is out of focus), capture high-speed action, or record night views.

### Selecting the Best Mode

Select one of four modes, referring to the following.



#### Portrait mode

- A still subject such as a person or a flower
- Zooming in on a subject in the telephoto mode
- A subject behind an obstacle such as a net

#### Sports mode

- Outdoor sports scene such as football, tennis, golf or skiing
- A landscape in a moving car

#### High-speed shutter mode

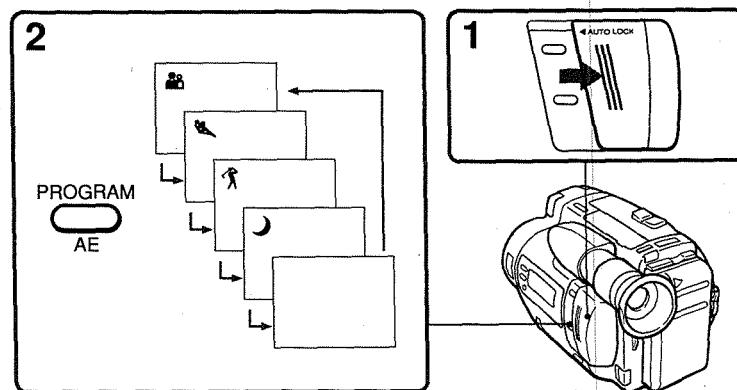
- A golf swing or a tennis match in fine weather with the ball captured clearly
- Playing back certain scenes with high-speed movements in a clear, sharp picture

#### Twilight mode

- Recording night views, neon signs or fireworks

### Using the PROGRAM AE Function

(1) Open the AUTO LOCK cover. (2) Press PROGRAM AE. The indicator of the selected PROGRAM AE mode appears in the viewfinder and the display window.



#### Note on shutter speed

The shutter speed in each PROGRAM AE mode is as follows:

Portrait mode — between 1/50 to 1/2000

Sports mode — between 1/50 to 1/500

High-speed shutter mode — 1/4000

Twilight mode — 1/50

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## Fade-in and Fade-out

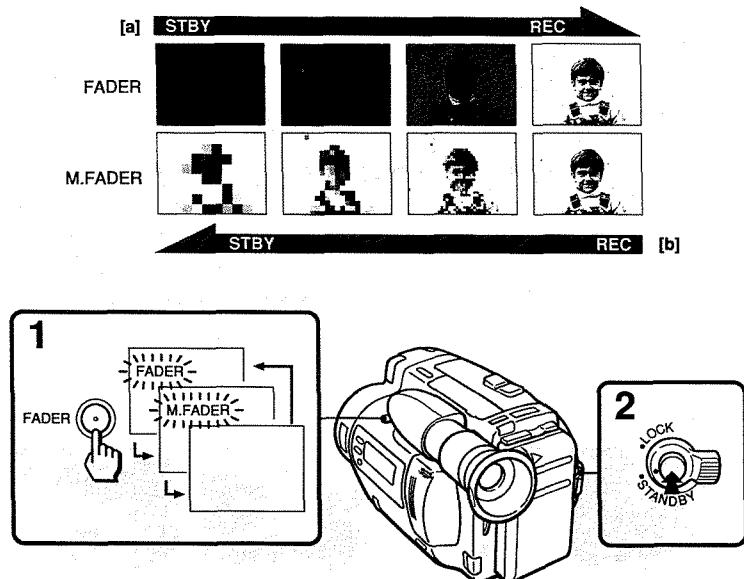
You can fade a picture in or out with sound to give your recording a professional appearance. When fading in, you can make the picture gradually appear from black or mosaic while increasing the sound. When fading out, you can make the picture gradually fade to black or mosaic while decreasing the sound.

### When Fading in [a]

(1) While the camcorder is in Standby mode, press FADER. (2) Press START/STOP. The fade indicator stops flashing and the recording starts fading in.

### When Fading out [b]

(1) During recording, press FADER. (2) Press START/STOP. The fade indicator stops flashing and the picture fades out. Then, recording stops.

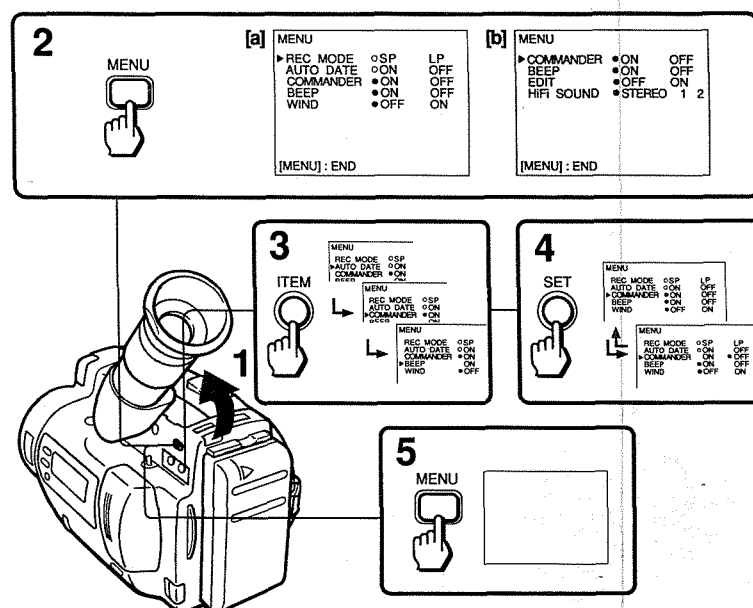


### To Cancel the Fade-in/Fade-out Function

Before pressing START/STOP, press FADER until the fade indicator disappears.

## Changing the Mode Settings

You can change the mode settings in the menu system to further enjoy the features and functions. (1) Lift up the viewfinder. (2) Press MENU to display the menu in the viewfinder. ([a] Menu for CAMERA mode, [b] Menu for PLAYER mode) (3) Press ITEM to move the cursor and select the desired item. (4) Press SET to move the cursor and set the desired mode. If you want to change the other modes, repeat steps 3 and 4. (5) Press MENU to erase the menu display.



### Note on the cursor ○

The settings of items marked with the cursor ○ are retained even when the battery is removed, as long as the lithium battery is in place.

Fade-in and Fade-out / Changing the Mode Settings

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## Changing the Mode Settings

### Selecting the Mode Setting of Each Item

#### REC MODE <SP/LP>

In PLAYER mode, this option is not displayed.  
● Select SP to record a tape in the SP (standard play) mode.  
● Select LP to record in the LP (long play) mode.

#### AUTO DATE <ON/OFF>

In PLAYER mode, this option is not displayed.  
● Select ON to record the date for 10 seconds after recording has started.  
● Select OFF for not recording the date.

#### COMMANDER <ON/OFF>

● Select ON when using the supplied Remote Commander for the camcorder.  
● Select OFF when not using the Remote Commander.

#### BEEP <ON/OFF>

● Select ON to hear the beep sound.  
● Select OFF otherwise.

#### WIND <ON/OFF>

In PLAYER mode, this option is not displayed.  
● Select ON when recording in a strong wind.  
● Normally select OFF.

#### EDIT <ON/OFF>

In CAMERA mode, this option is not displayed.  
● Select ON to minimize picture deterioration when editing.  
● Select OFF otherwise.

#### HIFI SOUND <STEREO/1/2>

In CAMERA mode, this option is not displayed.  
● Normally select STEREO.  
● Select 1 or 2 to play back a dual sound track tape.

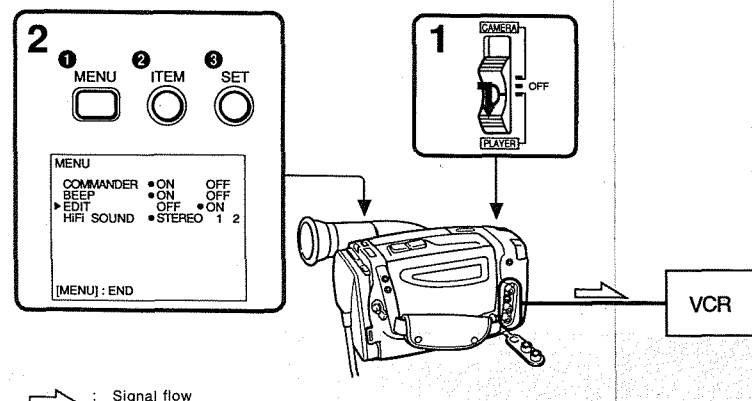
## Editing onto Another Tape

You can create your own video programme by editing with any other 8 mm, Hi8, Hi8 VHS, S-VHS, S-VHS, VHS, VHS, S-VHS, Betamax or ED Betamax VCR that has audio/video inputs.

### Before Editing

Connect the camcorder to the VCR using the A/V connecting cable (supplied). (p. 20) Set the input selector on the VCR to LINE, if available.

(1) Set the POWER switch to PLAYER. (2) Set EDIT to ON in the menu system (p. 32).



Signal flow

If your VCR is a monaural type, connect only the white plug for audio on both the camcorder and VCR.

Changing the Mode Settings / Editing onto Another Tape

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## Editing onto Another Tape

### Starting Editing

(1) Insert a blank tape (or a tape you want to record over) into the VCR. And insert your recorded tape into the camcorder. (2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing, then set the camcorder in the Playback pause mode. (3) On the VCR, locate the recording start point and set the VCR in the recording pause mode. (4) Press **II** on the camcorder and VCR simultaneously to start editing.

### To Edit More Scenes

Repeat steps 2 to 4.

### To Stop Editing Momentarily

Press **II** on the VCR.

### To Stop Editing

Press **□** on both the camcorder and the VCR.

### Use of the EDITSEARCH button

You can play back the tape in normal/reverse direction by keep pressing EDITSEARCH during Playback pause mode. You can also play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

### Note on the EDIT mode

When you set EDIT to ON in the menu system, you can keep picture deterioration resulting from editing to a minimum. However, when you edit or copy to another VCR, avoid using the edited tape for multiple generations of editing. After editing, be sure to set EDIT to OFF.

### Note on the DISPLAY function

If you have displayed the viewfinder screen indicators on the TV, erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

## Additional Information Playback Modes

The playback mode (SP or LP) is selected automatically according to the format in which the tape has been recorded. The quality of the recorded picture in LP mode, however, will not be as good as that in SP mode.

### Note on AFM Hi-Fi stereo

When you play back a tape, the sound is in monaural if:

- You record the tape using this camcorder, then play it back on an AFM Hi-Fi monaural video recorder/player.
- You record the tape on an AFM Hi-Fi monaural video recorder, then play it back on this camcorder.

### Dual sound

You can play back a dual sound track tape. Set HiFi SOUND to "1" or "2" in the menu system. (p. 32)

### Recording mode

When you play back a tape, the SP/LP indicator in the viewfinder shows the recording mode SP/LP.

### Foreign 8 mm video

You cannot play back software recorded on a different TV colour system. Because the TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded software. Refer to page 39 to check the TV colour system of foreign countries.

## Maintenance Information and Precautions

### Moisture Condensation

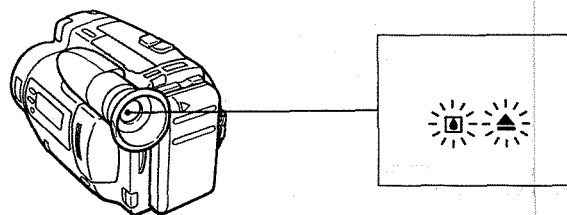
If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

### Inside the Camcorder

When the **■** and **▲** indicators flash in the viewfinder, moisture has condensed inside the camcorder. If this happens, no other functions except for tape ejection will work.

**Eject the tape, turn off the camcorder and leave it with the cassette holder open for at least one hour in a dry place.**

The camcorder can be used again if the **■** indicator does not appear when the power is turned on again.



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## Maintenance Information and Precautions

### On the Surface of the Tape

If there is moisture on the surface of the tape, when the cassette is inserted and a tape transport button is pressed, the **▲** indicator in the viewfinder flashes.

In this case, no other functions except for tape ejection will work. **Eject the tape, turn off the camcorder and leave it with the cassette holder open for at least one hour in a dry place.** The camcorder can be used again if the **▲** indicator does not appear when you insert the cassette and press one of the tape transport buttons.

### On the Lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about one hour.

### How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

- (1) Be sure to tightly seal the plastic bag containing the camcorder.
- (2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

### Video Head Cleaning

To ensure clear pictures, clean the video heads periodically. When playback pictures are "noisy" or hardly visible, the video heads may be contaminated.



- [a] Slight contamination  
[b] Critical contamination

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy", repeat the cleaning. (Do not repeat cleaning more than 5 times.)

### Caution

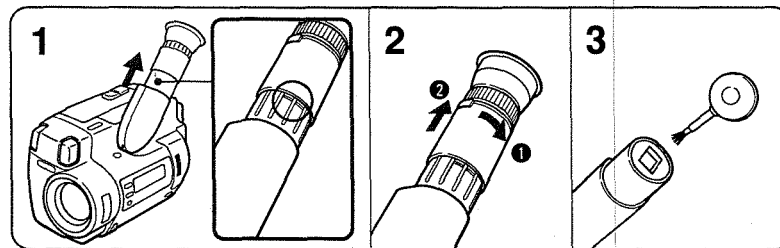
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

### Note

If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

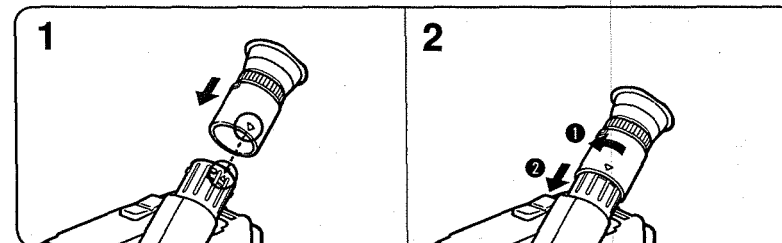
### Removing Dust from inside the Viewfinder

(1) Pull out the viewfinder barrel until the illustrated mark appears. (2) Turn the viewfinder counterclockwise until it stops, and pull it out. (3) Clean the surface with a commercially available blower.



### To Reattach the Viewfinder Barrel

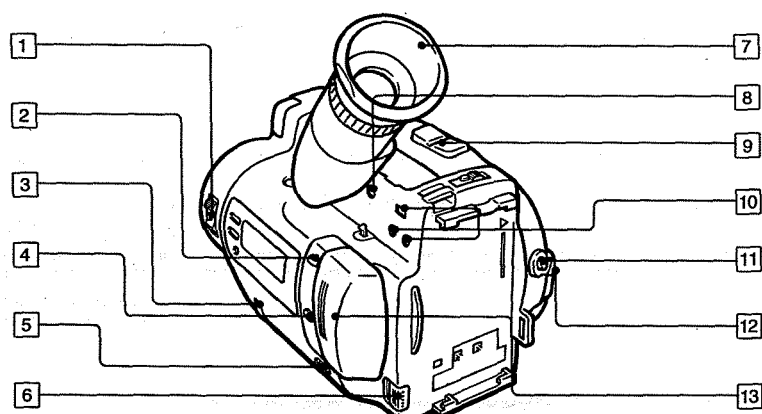
(1) Align the mark on the viewfinder barrel with the mark on the viewfinder and push in the viewfinder barrel until it clicks. (2) Turn it clockwise until it stops and push it in.



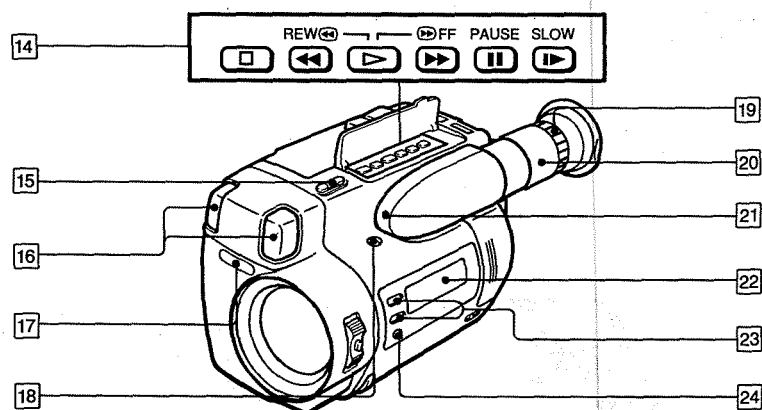
36

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## Identifying the Parts



- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1 POWER switch (p. 14, 22)         | 8 REC START/STOP button (p. 13)   |
| 2 FOCUS button (p. 27)             | 9 Power zoom button (p. 16)       |
| 3 Focus dial (p. 27)               | 10 Menu operation buttons (p. 31) |
| 4 PROGRAM AE button (p. 29)        | 11 START/STOP button (p. 14)      |
| 5 STEADY SHOT switch (p. 17)       | 12 STANDBY switch (p. 14)         |
| 6 BATT (battery eject) knob (p. 6) | 13 AUTO LOCK cover (p. 14, 25)    |
| 7 Eyecup (p. 15)                   |                                   |

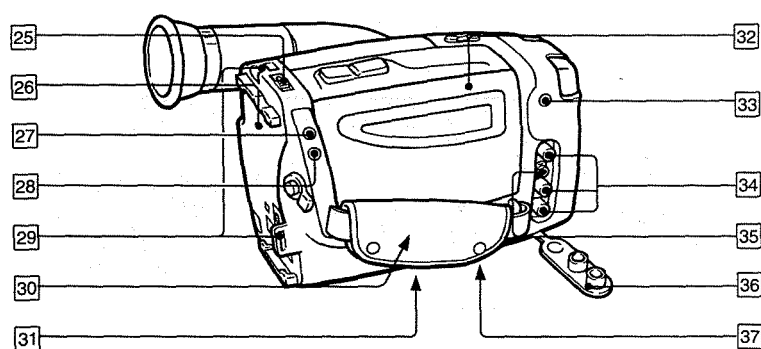


- |                                                   |                                             |
|---------------------------------------------------|---------------------------------------------|
| 14 Tape transport buttons (p. 22)                 | 18 FADER button                             |
| □ (stop)                                          | 19 Viewfinder lens adjustment ring (p. 12)  |
| ◀ REW (rewind)                                    | 20 Viewfinder (p. 12, 14)                   |
| ▶ (playback)                                      | 21 Camera recording/battery lamp            |
| ▶▶ FF (fastforward)                               | 22 Display window (p. 43, 50)               |
| ⏸ PAUSE                                           | 23 DATE (+) and TIME (NEXT) buttons (p. 11) |
| ▶ SLOW (slow playback)                            | 24 RESET button (p. 15)                     |
| 15 EDITSEARCH button (p. 19)                      |                                             |
| 16 Built-in microphone (stereo)                   |                                             |
| 17 Remote sensor (p. 45)                          |                                             |
| Aim the Remote Commander here for remote control. |                                             |

40

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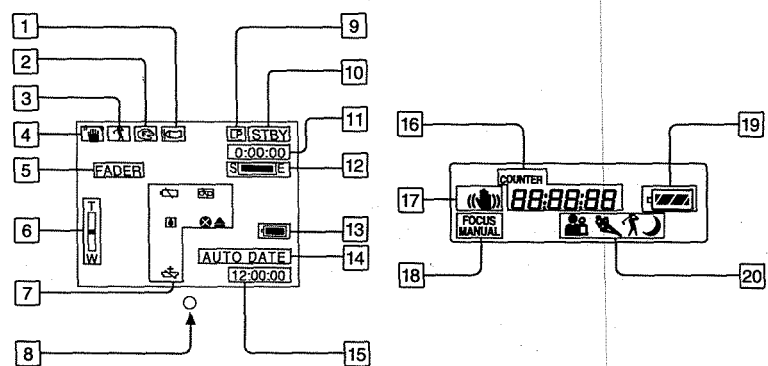
## Identifying the Parts



- |                                                                                                                                                                                                                                                    |                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| 25 EJECT switch (p. 12)                                                                                                                                                                                                                            | 31 Lithium battery compartment (p. 9)              |
| 26 Battery mounting surface (p. 6)                                                                                                                                                                                                                 | 32 Cassette holder (p. 12)                         |
| 27 REMOTE (LANC) control jack                                                                                                                                                                                                                      | 33 MIC jack (PLUG IN POWER)                        |
| ⏏ stands for Local Application Control Bus System. The ⏏ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE. | 34 Audio/Video output jacks (p. 20)                |
| 28 PHONES (headphones) jack (stereo mini jack)                                                                                                                                                                                                     | 35 RFU DC OUT (RFU adaptor DC output) jack (p. 21) |
| 29 Hooks for shoulder strap (p. 45)                                                                                                                                                                                                                | 36 Jack cover                                      |
| 30 Grip strap (p. 13)                                                                                                                                                                                                                              | 37 Tripod receptacle (p. 13)                       |

## Operation Indicators

For details on each indicator, refer to the pages indicated in the parenthesis.



- |                                                                   |                                                     |
|-------------------------------------------------------------------|-----------------------------------------------------|
| 1 WIND indicator (p. 15)                                          | 11 Tape counter (p. 15)                             |
| 2 Manual focusing (p. 27)                                         | 12 Remaining tape indicator                         |
| 3 PROGRAM AE indicator (p. 28, 29)                                | ⏏ → ⏏ → ⏏ → 5min → ⏏                                |
| 4 STEADY SHOT indicator (p. 17)                                   | 13 Remaining battery indicator (p. 7, 50)           |
| 5 FADER indicator (p. 30)                                         | ⏏ → ⏏ → ⏏ → ⏏ → ⏏                                   |
| 6 Power zoom indicator (p. 16)                                    | 14 AUTO DATE indicator (p. 14, 15)                  |
| 7 Warning indicators (p. 50)                                      | 15 Date or Time (p. 11)                             |
| 8 Recording lamp/Battery lamp                                     | 16 Tape counter, time or date indicator (p. 11, 15) |
| 9 Indicates the recording mode when recording/playing back a tape | 17 STEADY SHOT indicator (p. 17)                    |
| 10 Tape transport mode (p. 22)                                    | 18 FOCUS MANUAL indicator (p. 27)                   |
|                                                                   | 19 Remaining battery indicator (p. 7, 50)           |
|                                                                   | ⏏ → ⏏ → ⏏ → ⏏ → ⏏                                   |
|                                                                   | 20 PROGRAM AE indicator (p. 28, 29)                 |

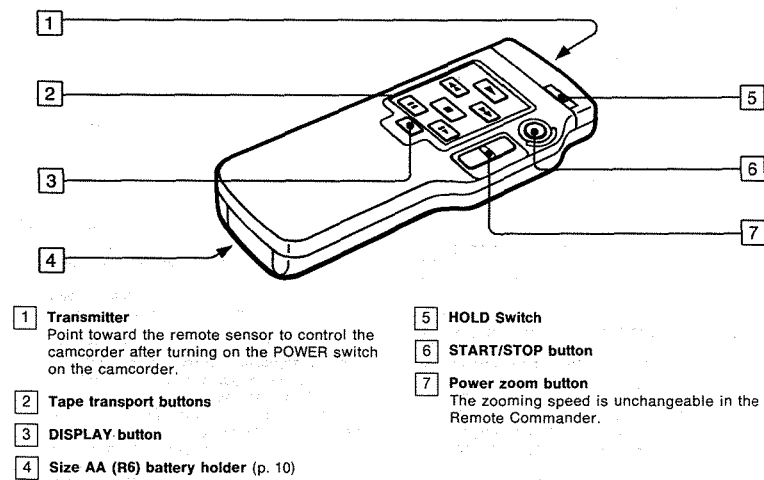
42

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## Identifying the Parts

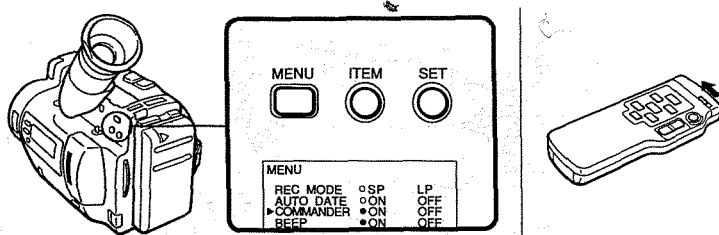
### Remote Commander

The buttons that have the same name on the Remote Commander and on the camcorder function identically.

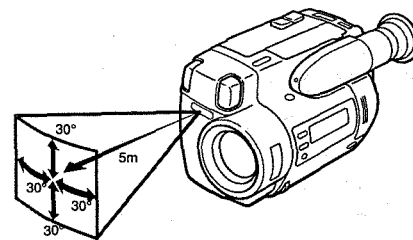


### Using the Remote Commander

Make sure that the COMMANDER mode is set to ON in the menu system on the camcorder, and that the HOLD switch on the Remote Commander is not working.



### Remote Control Direction

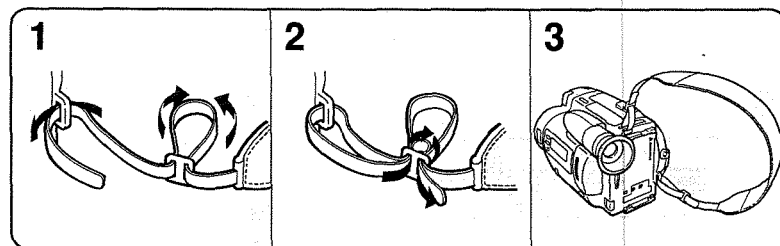


### Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

### Attaching the Shoulder Strap

Attach the supplied shoulder strap to the hooks for the shoulder strap (p. 42).

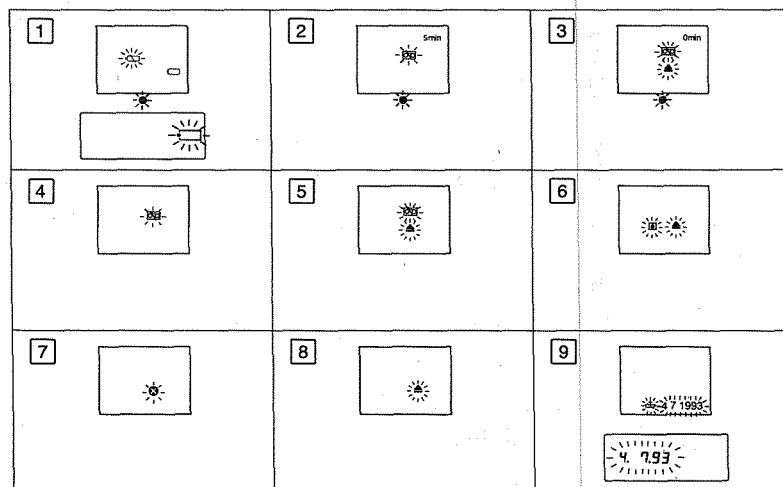


Identifying the Parts

## Indicators in the Viewfinder and the Display Window

### Warning Indicators

If indicators flash in the viewfinder and in the display window or a caution lamp on the camcorder flashes, check the following:

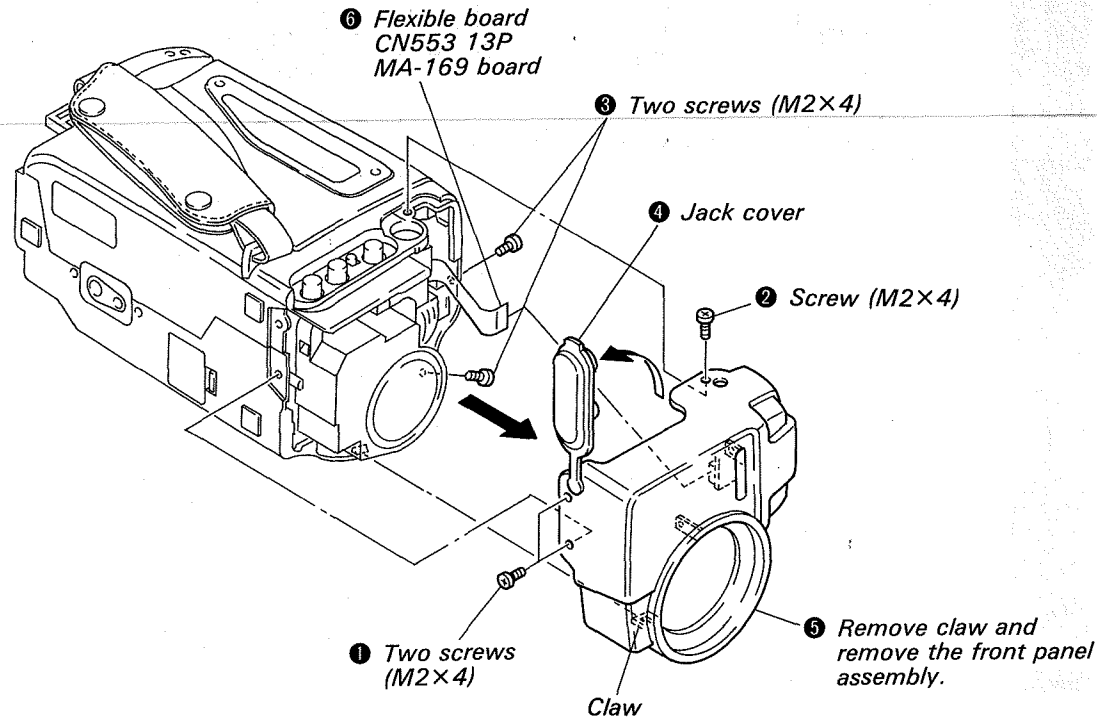


- |                                                                                                              |                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1 The battery is weak or dead.<br>Slow flashing: The battery is weak.<br>Fast flashing: The battery is dead. | 6 Moisture condensation has occurred. (p. 35)                                                                                |
| 2 The tape is near the end.<br>The flashing is slow.                                                         | 7 The video heads may be contaminated. (p. 36)                                                                               |
| 3 The tape has run out.<br>The flashing becomes rapid.                                                       | 8 Some other trouble has occurred.<br>Disconnect the power source and contact your Sony dealer or local authorized facility. |
| 4 No tape has been inserted.                                                                                 | 9 The lithium battery is weak or is not installed.<br>(p. 10)                                                                |
| 5 The tab on the tape is out (red).                                                                          |                                                                                                                              |

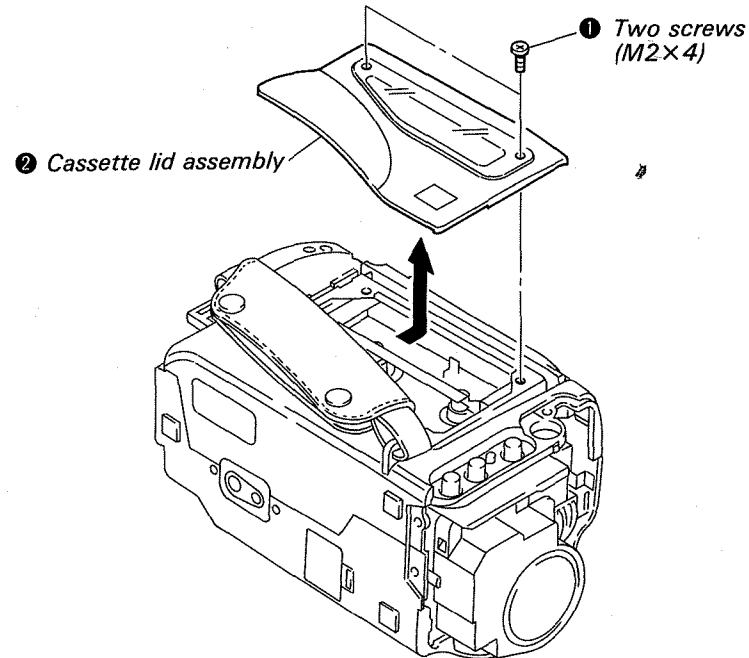
SECTION 2  
DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

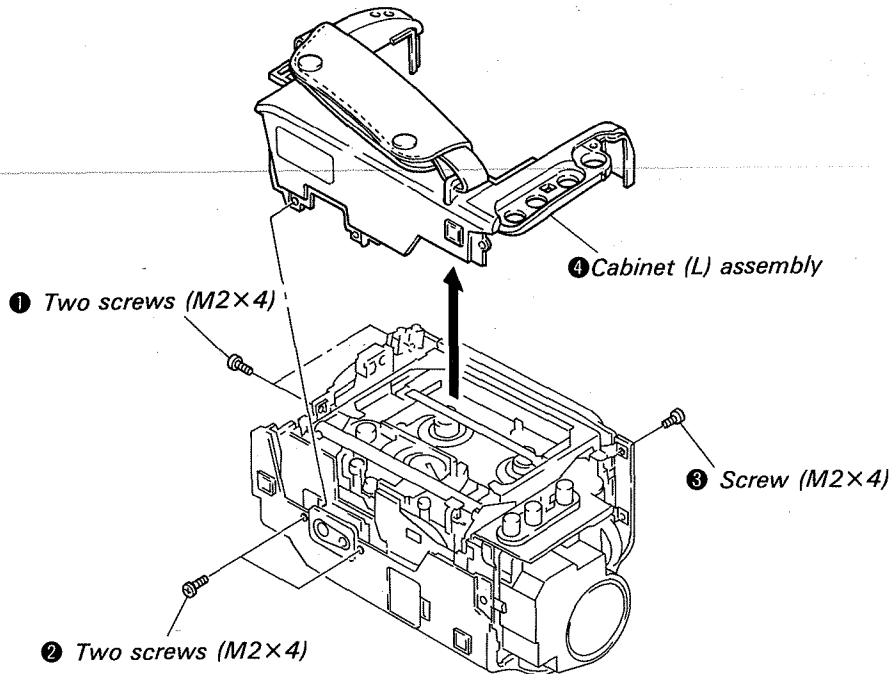
2-1. REMOVAL OF FRONT PANEL ASSEMBLY



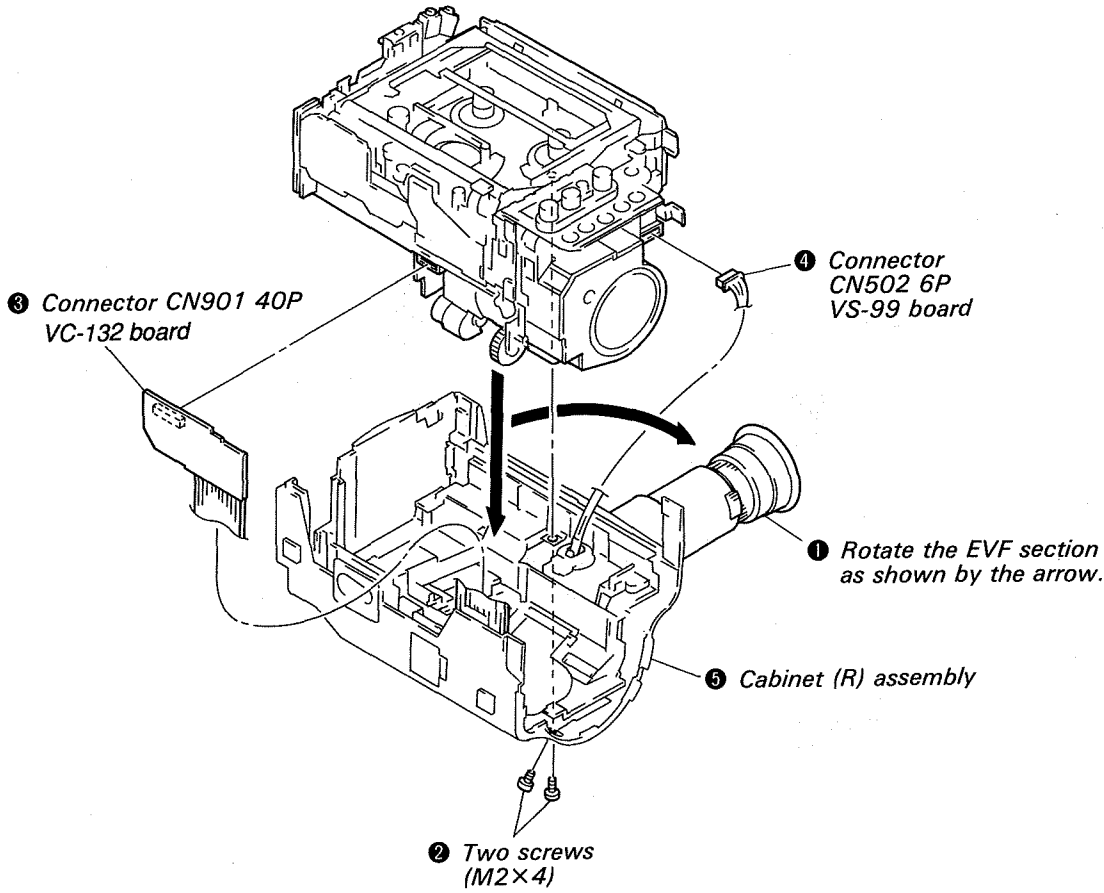
2-2. REMOVAL OF CASSETTE LID ASSEMBLY



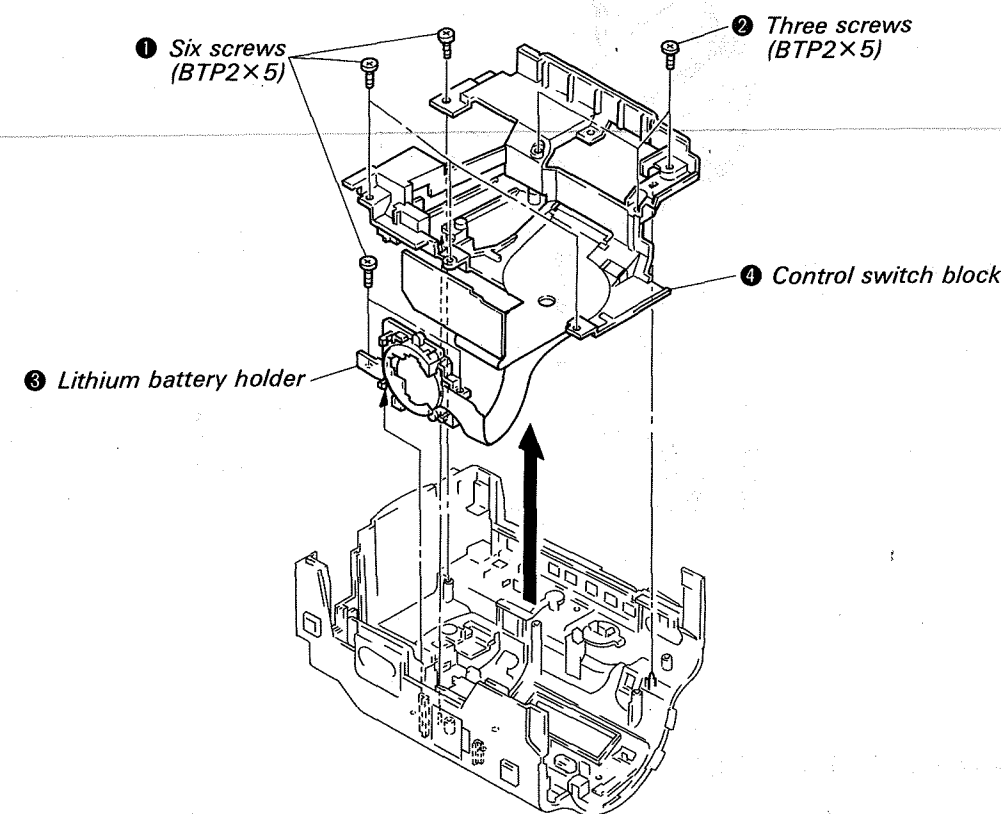
2-3. REMOVAL OF CABINET (L) ASSEMBLY



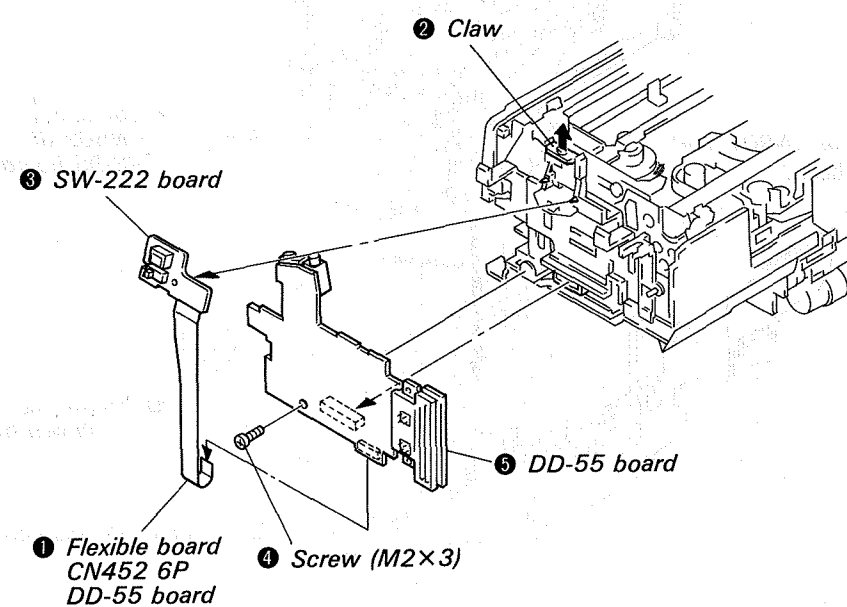
2-4. REMOVAL OF CABINET (R) ASSEMBLY



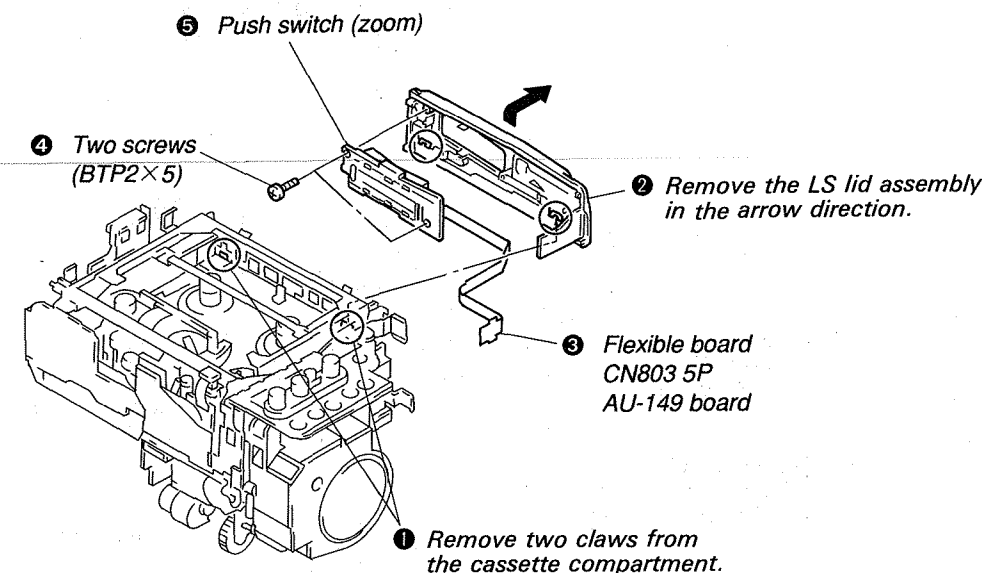
2-5. REMOVAL OF CONTROL SWITCH BLOCK



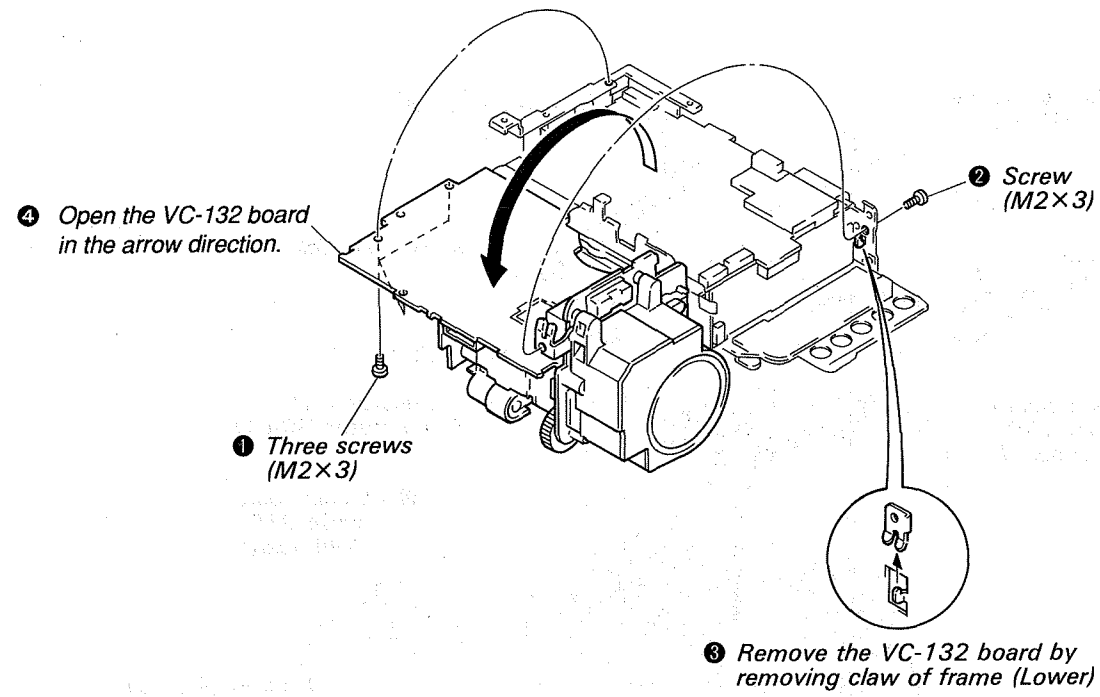
2-6. REMOVAL OF DD-55 AND SW-222 BOARDS



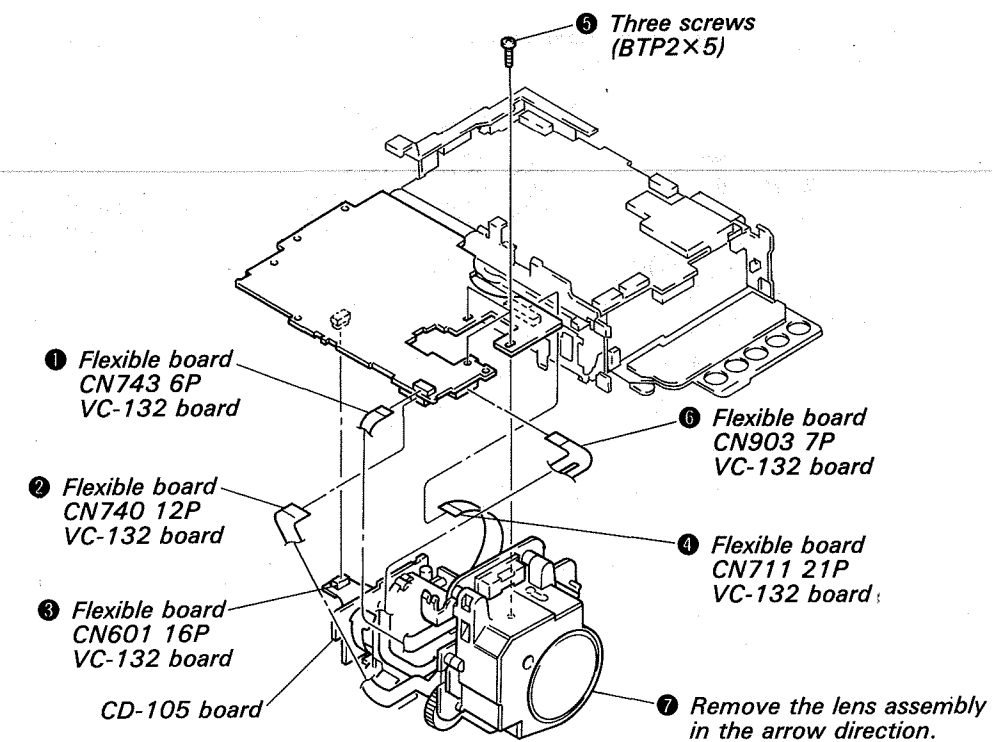
2-7. REMOVAL OF LS LID ASSEMBLY



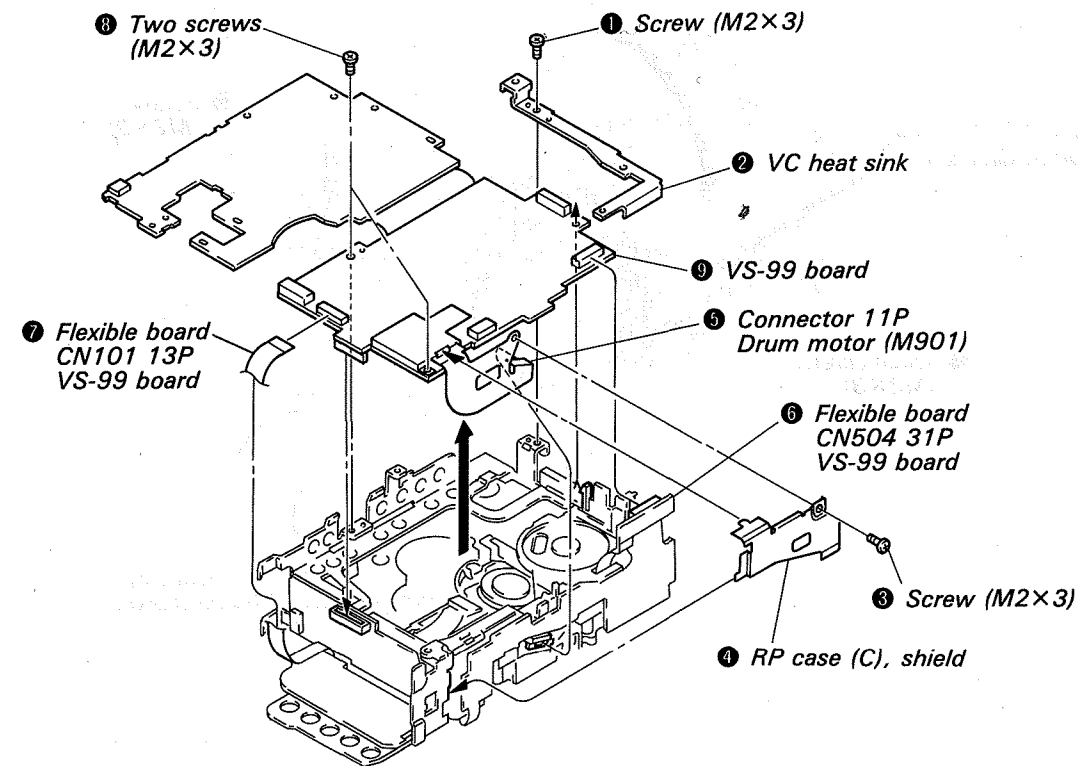
2-8. OPENING OF VC-132 BOARD



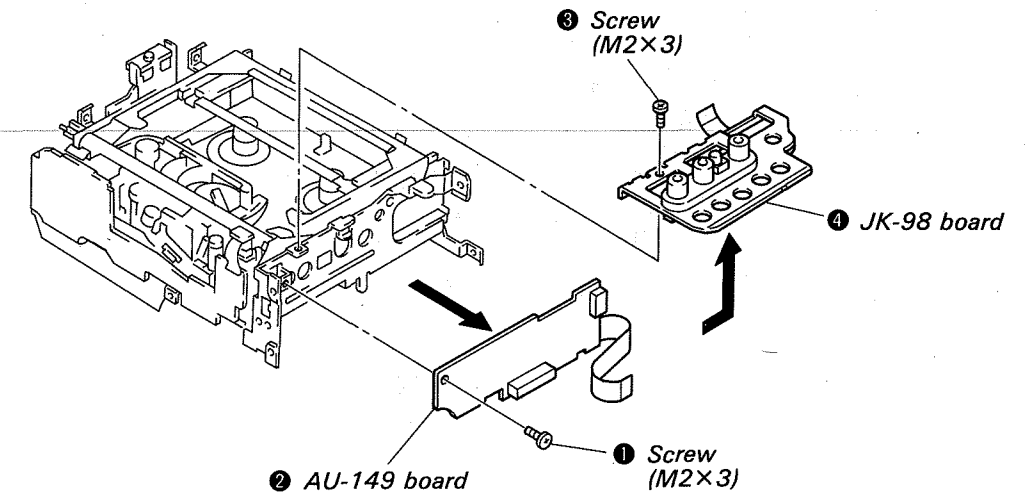
2-9. REMOVAL OF LENS ASSEMBLY (CD-105 BOARD)



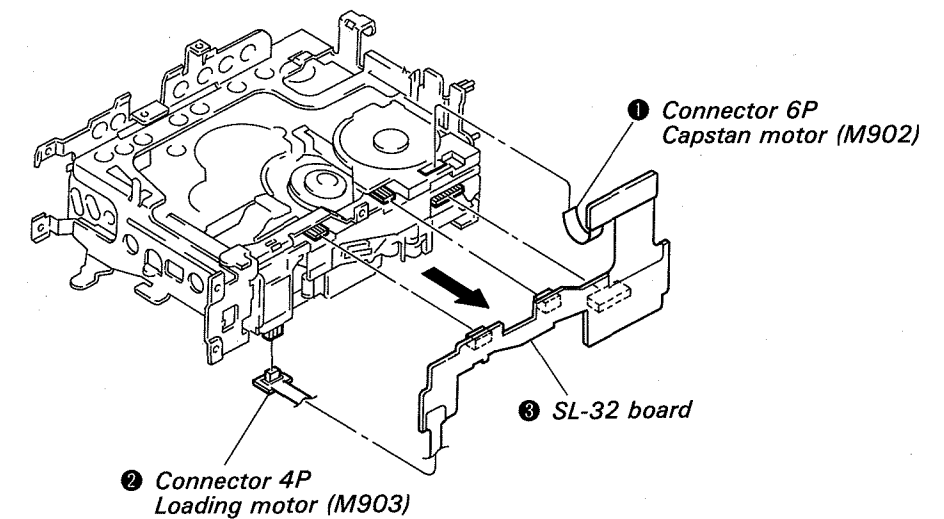
2-10. REMOVAL OF VS-99 BOARD



2-11. REMOVAL OF JK-98 AND AU-149 BOARDS

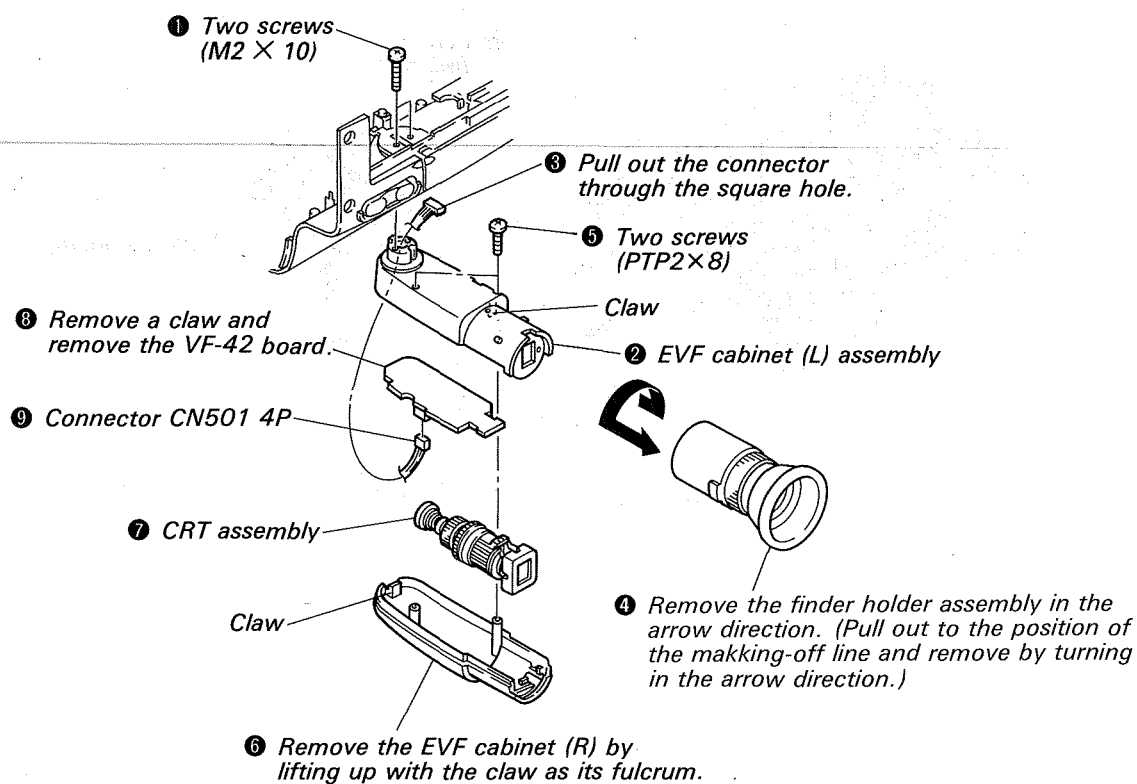


2-12. REMOVAL OF SL-32 BOARD





## 2-13. REMOVAL OF EVF ASSEMBLY (VF-42 BOARD)

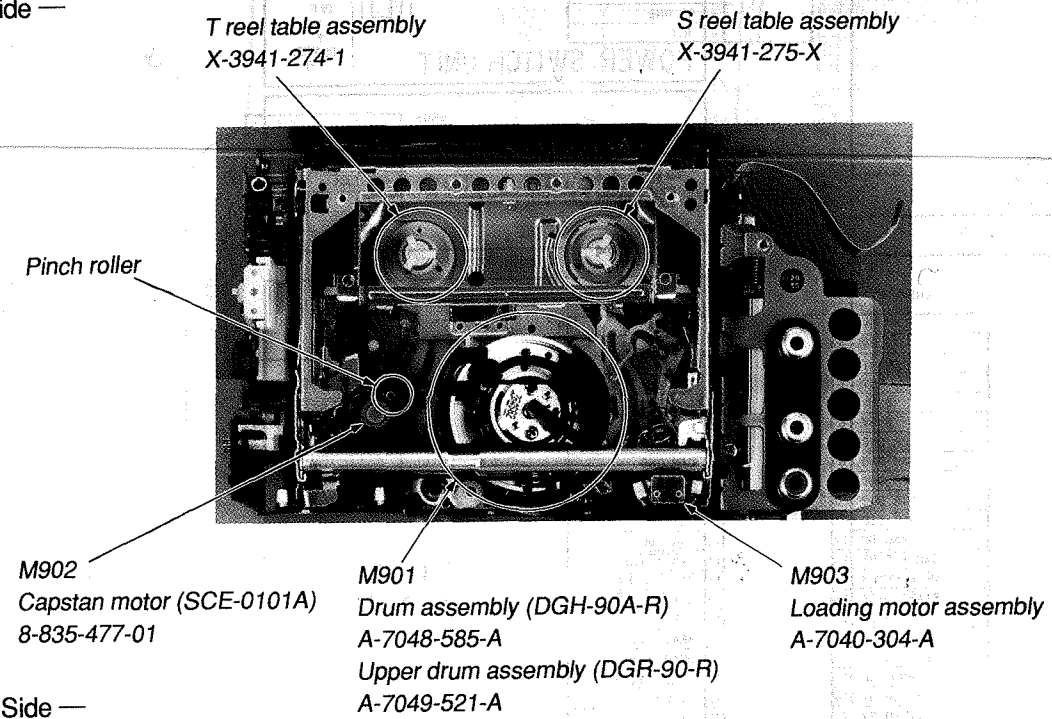




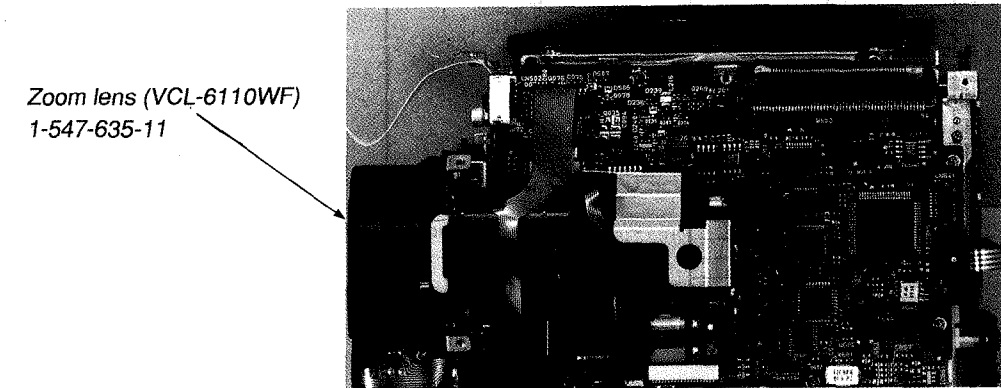
# SECTION 3 DIAGRAMS

## 2-14. INTERNAL VIEWS

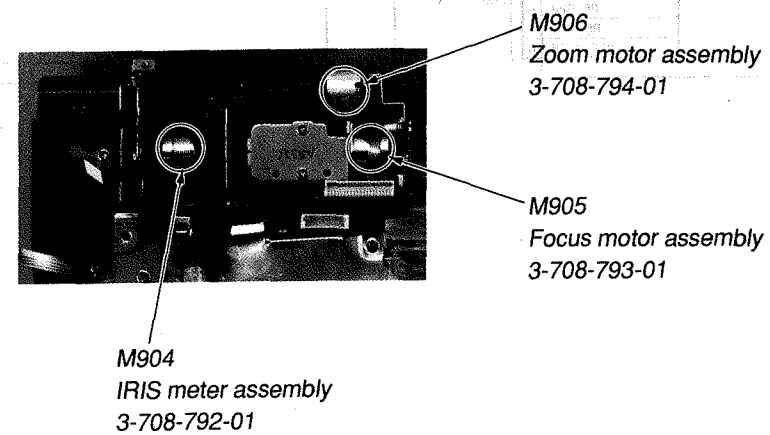
— Left Side —



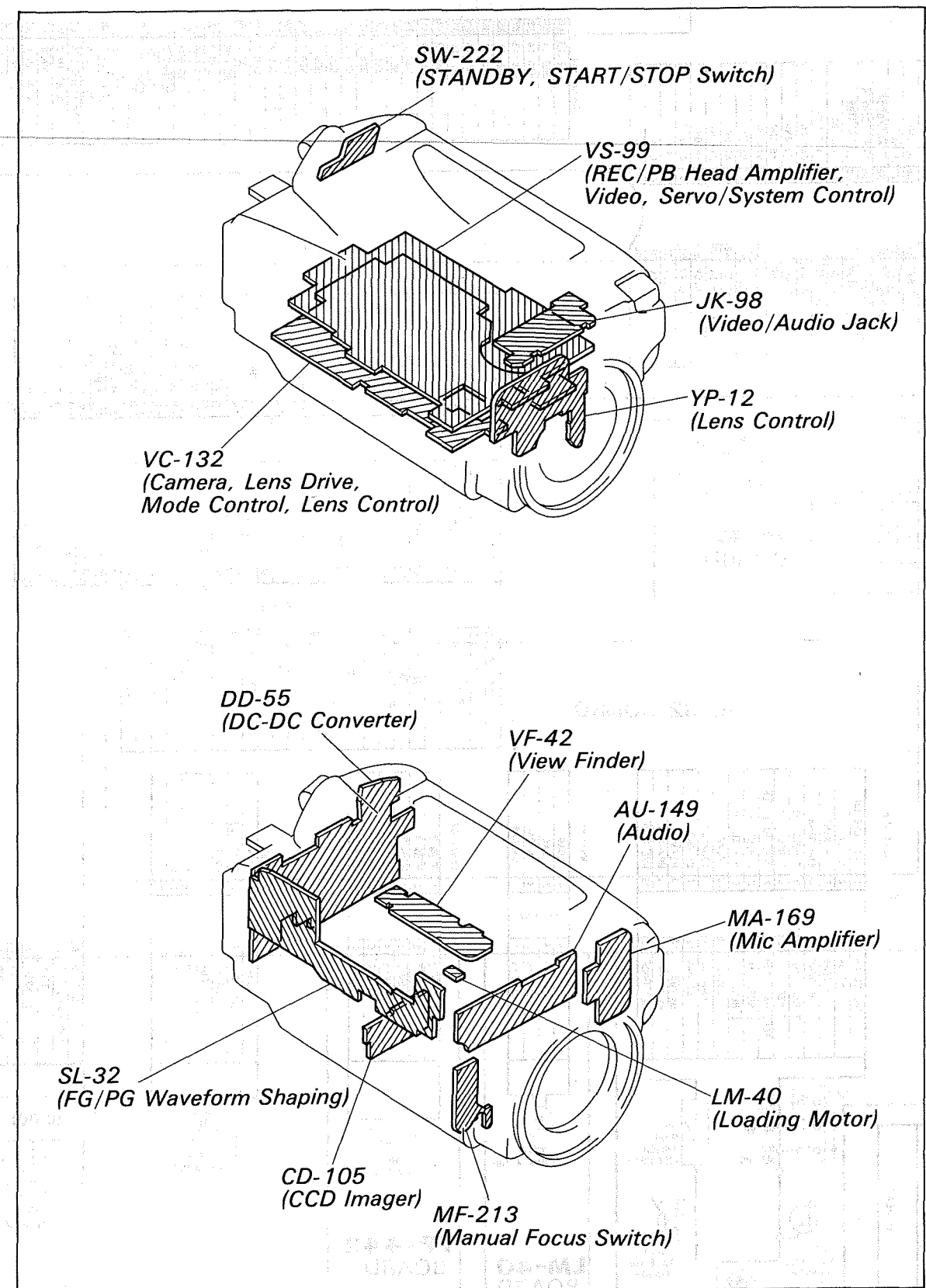
— Right Side —



— Lower Side —

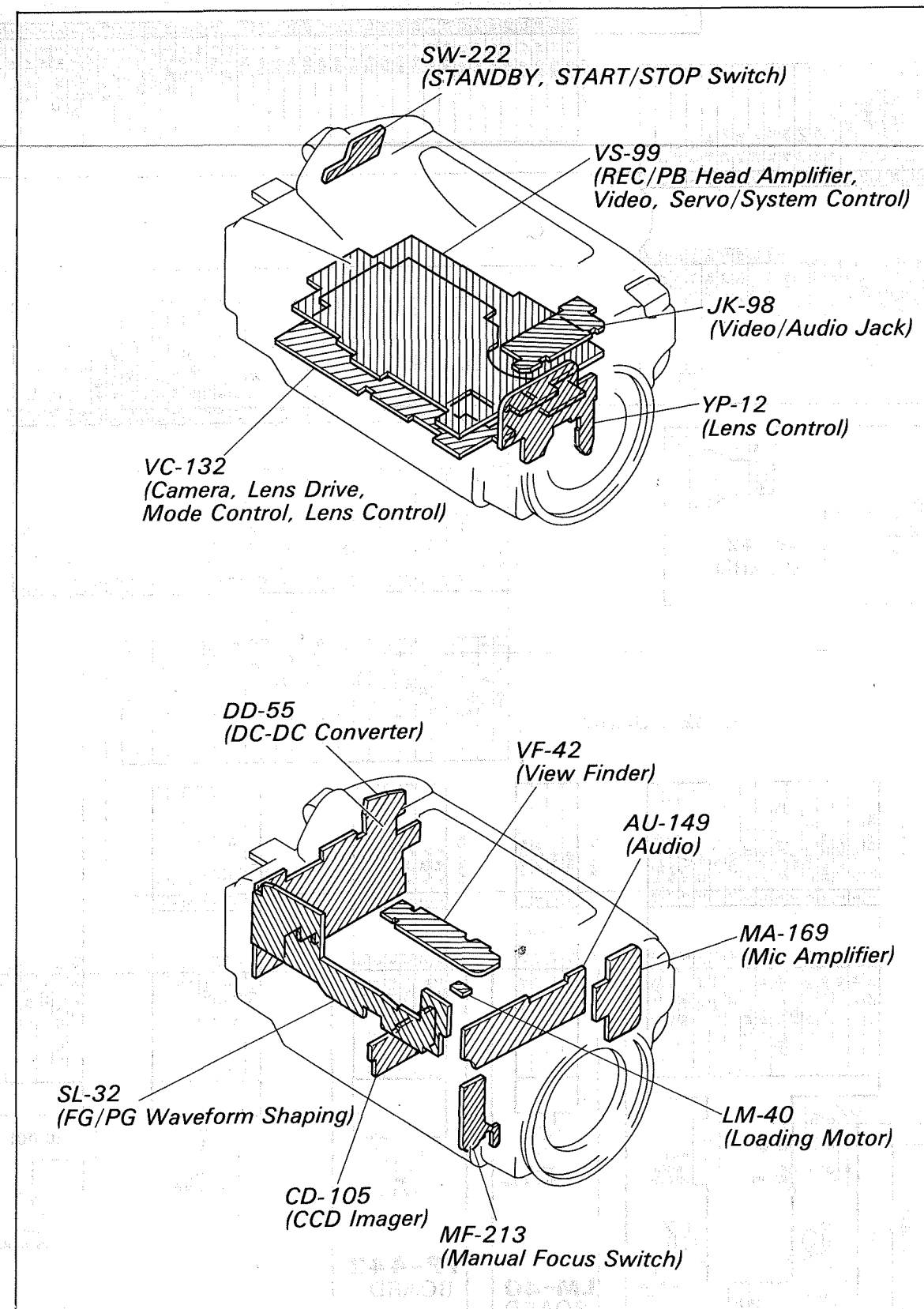


## 3-1. CIRCUIT BOARDS LOCATION

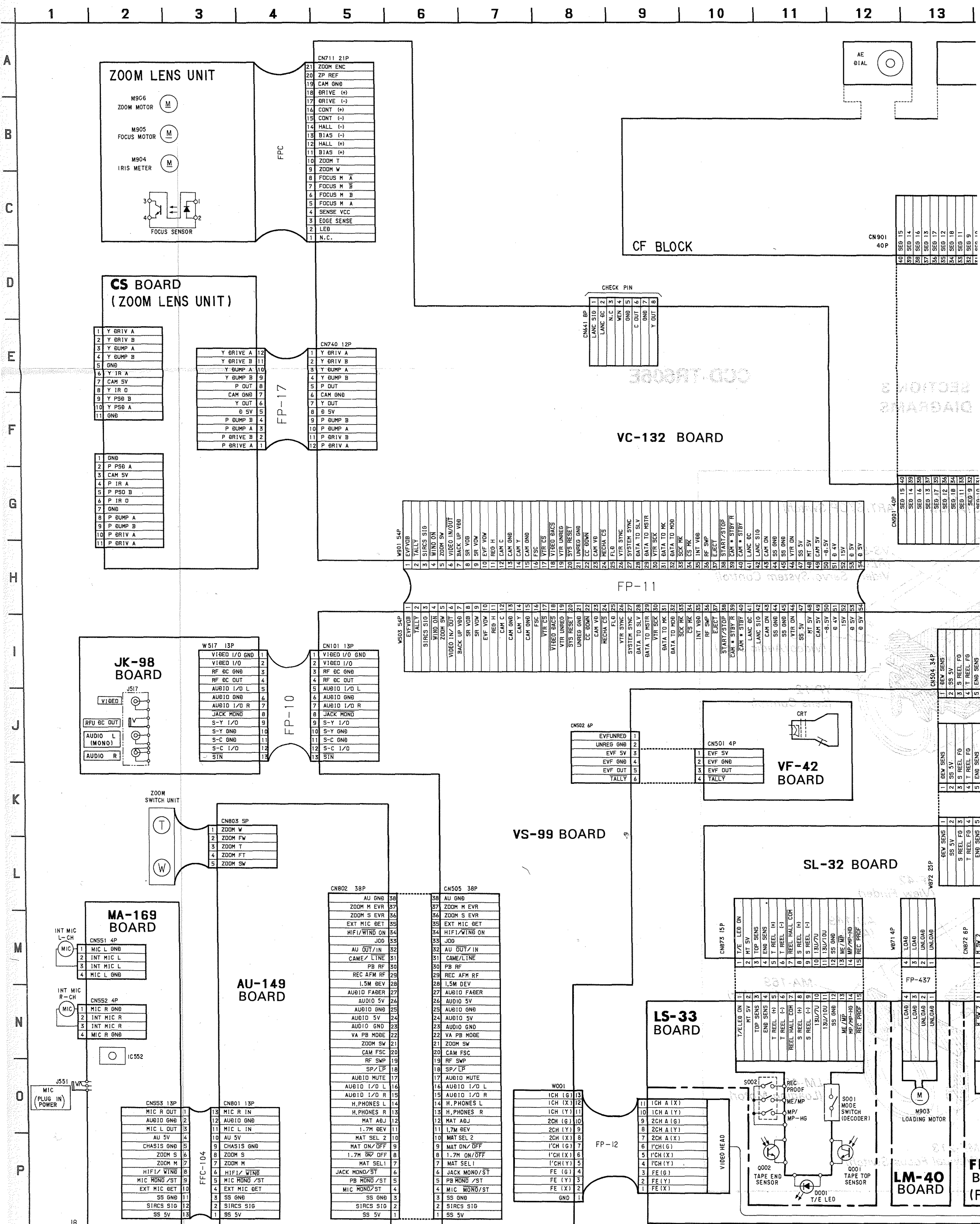


# SECTION 3 DIAGRAMS

## 3-1. CIRCUIT BOARDS LOCATION



4-1. FRAME SCHEMATIC DIAGRAM



LCD 901  
LCD UNIT

YP-12  
BOARD

| W212 6P |         |   |         |  |  |
|---------|---------|---|---------|--|--|
| 1       | C RESET | 6 | YS OUT  |  |  |
| 2       | PS OUT  | 5 |         |  |  |
| 3       | 0 5V    | 4 | 1/2 VCC |  |  |
| 4       | 1/2 VCC | 3 | 0 5V    |  |  |
| 5       | CAM GND | 2 | PS OUT  |  |  |
| 6       | YS OUT  | 1 | C RESET |  |  |

FP-8

| CN743 6P |         |   |         |  |  |
|----------|---------|---|---------|--|--|
| 1        | C RESET | 6 | YS OUT  |  |  |
| 2        | PS OUT  | 5 |         |  |  |
| 3        | 0 5V    | 4 | 1/2 VCC |  |  |
| 4        | 1/2 VCC | 3 | 0 5V    |  |  |
| 5        | CAM GND | 2 | PS OUT  |  |  |
| 6        | YS OUT  | 1 | C RESET |  |  |

|    |               |    |
|----|---------------|----|
| 36 | SEG 17        | 35 |
| 35 | SEG 12        |    |
| 34 | SEG 18        |    |
| 33 | SEG 11        |    |
| 32 | SEG 9         |    |
| 31 | SEG 10        |    |
| 30 | SEG 6         |    |
| 29 | SEG 7         |    |
| 28 | SEG 4         |    |
| 27 | SEG 5         |    |
| 26 | SEG 2         |    |
| 25 | SEG 3         |    |
| 24 | SEG 0         |    |
| 23 | SEG 1         |    |
| 22 | COM 3         |    |
| 21 | SEG 8         |    |
| 20 | COM 1         |    |
| 19 | COM 0         |    |
| 18 | SS GND        |    |
| 17 | COM 2         |    |
| 16 | SS GND        |    |
| 15 | SS GND        |    |
| 14 | BRIGHT B      |    |
| 13 | EVER 5V       |    |
| 12 | BRIGHT A      |    |
| 11 | K AD IN 3     |    |
| 10 | K AD IN 1     |    |
| 9  | AUTO LOCK     |    |
| 8  | LOW ANGLE S/S |    |
| 7  | K AD IN 2     |    |
| 6  | BATE          |    |
| 5  | K AD IN 0     |    |
| 4  | K AD IN 4     |    |
| 3  | LI 3V         |    |
| 2  | BUZ           |    |
| 1  | TIME          |    |

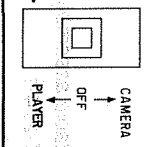
| CN601 16P |         |    |         |  |  |
|-----------|---------|----|---------|--|--|
| 1         | P0      | 16 | V SUB   |  |  |
| 2         | V SUB   | 15 | GND     |  |  |
| 3         | GND     | 14 | -0.5V   |  |  |
| 4         | -0.5V   | 13 | H1      |  |  |
| 5         | H1      | 12 | V2      |  |  |
| 6         | V2      | 11 | H2      |  |  |
| 7         | H2      | 10 | V1      |  |  |
| 8         | V1      | 9  | GND     |  |  |
| 9         | GND     | 8  | V5      |  |  |
| 10        | V5      | 7  | DC IN   |  |  |
| 11        | DC IN   | 6  | V4      |  |  |
| 12        | V4      | 5  | GND     |  |  |
| 13        | GND     | 4  | 15V     |  |  |
| 14        | 15V     | 3  | GND     |  |  |
| 15        | GND     | 2  | CCD OUT |  |  |
| 16        | CCD OUT | 1  |         |  |  |

CD-105  
BOARD

MF-213  
BOARD

| CN971 4P |         |  |  |
|----------|---------|--|--|
| 4        | SS 5V   |  |  |
| 3        | FOCUS 1 |  |  |
| 2        | FOCUS 2 |  |  |
| 1        | SS GND  |  |  |

POWER SWITCH UNIT



SW-222  
BOARD

| V905 6P |            |   |  |  |  |
|---------|------------|---|--|--|--|
| 1       | N.C        | 1 |  |  |  |
| 2       | START/STOP | 2 |  |  |  |
| 3       | CAM * STBY | 3 |  |  |  |
| 4       | CAM * STBY | 4 |  |  |  |
| 5       | SS GND     | 5 |  |  |  |
| 6       | N.C        | 6 |  |  |  |

| CN903 7P |            |  |  |
|----------|------------|--|--|
| 7        | SS 5V      |  |  |
| 6        | FOCUS 1    |  |  |
| 5        | FOCUS 2    |  |  |
| 4        | SS GND     |  |  |
| 3        | SS GND     |  |  |
| 2        | VTR PSW    |  |  |
| 1        | CAM*STBY R |  |  |

|    |               |    |
|----|---------------|----|
| 17 | SEG 17        | 35 |
| 16 | SEG 12        |    |
| 15 | SEG 18        |    |
| 14 | SEG 11        |    |
| 13 | SEG 9         |    |
| 12 | SEG 10        |    |
| 11 | SS GND        |    |
| 10 | SEG 7         |    |
| 9  | SEG 4         |    |
| 8  | SEG 5         |    |
| 7  | SEG 2         |    |
| 6  | SEG 3         |    |
| 5  | SEG 0         |    |
| 4  | SEG 1         |    |
| 3  | COM 3         |    |
| 2  | SEG 8         |    |
| 1  | COM 1         |    |
| 0  | COM 0         |    |
| 18 | SS GND        |    |
| 19 | COM 2         |    |
| 20 | SS GND        |    |
| 21 | SS GND        |    |
| 22 | BRIGHT B      |    |
| 23 | EVER 5V       |    |
| 24 | BRIGHT A      |    |
| 25 | K AD IN 3     |    |
| 26 | K AD IN 1     |    |
| 27 | AUTO LOCK     |    |
| 28 | LOW ANGLE S/S |    |
| 29 | K AD IN 2     |    |
| 30 | BATE          |    |
| 31 | K AD IN 0     |    |
| 32 | K AD IN 4     |    |
| 33 | LI 3V         |    |
| 34 | BUZ           |    |
| 35 | TIME          |    |

FP-699

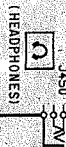
| N.C |            |   |  |  |  |
|-----|------------|---|--|--|--|
| 1   | N.C        | 1 |  |  |  |
| 2   | START/STOP | 2 |  |  |  |
| 3   | CAM * STBY | 3 |  |  |  |
| 4   | CAM * STBY | 4 |  |  |  |
| 5   | SS GND     | 5 |  |  |  |
| 6   | N.C        | 6 |  |  |  |

DD-55  
BOARD

|   |            |   |
|---|------------|---|
| 1 | N.C        | 1 |
| 2 | START/STOP | 2 |
| 3 | CAM * STBY | 3 |
| 4 | CAM * STBY | 4 |
| 5 | SS GND     | 5 |
| 6 | N.C        | 6 |

| CN501 40P |                |  |  |
|-----------|----------------|--|--|
| 1         | CAM 5V         |  |  |
| 2         | -0.5V          |  |  |
| 3         | 0.4V           |  |  |
| 4         | 15V            |  |  |
| 5         | 0 5V           |  |  |
| 6         | 0 5V           |  |  |
| 7         | CAM GND        |  |  |
| 8         | CAM GND        |  |  |
| 9         | VTR GND        |  |  |
| 10        | VTR GND        |  |  |
| 11        | LANC SIG       |  |  |
| 12        | LANC DC        |  |  |
| 13        | CAM * STBY     |  |  |
| 14        | CAM * STBY R   |  |  |
| 15        | START/STOP     |  |  |
| 16        | EJECT          |  |  |
| 17        | HEAD PHONE L   |  |  |
| 18        | HEAD PHONE R   |  |  |
| 19        | HEAD PHONE GND |  |  |
| 20        | VIDEO 5V       |  |  |
| 21        | VIDEO 5V       |  |  |
| 22        | SS 5V          |  |  |
| 23        | 0 5V           |  |  |
| 24        | EVF 5V         |  |  |
| 25        | EVF UNREG      |  |  |
| 26        | UNREG GND      |  |  |
| 27        | UNREG GND      |  |  |
| 28        | VTR UNREG      |  |  |
| 29        | CAM 5V CONT    |  |  |
| 30        | VTR ON         |  |  |
| 31        | CAP ON         |  |  |
| 32        | BRUM VS        |  |  |
| 33        | BRUM VS        |  |  |
| 34        | CAP VS         |  |  |
| 35        | CAP VS         |  |  |
| 36        | MOTOR GND      |  |  |
| 37        | MOTOR GND      |  |  |
| 38        | CAP ERROR      |  |  |
| 39        | BRUM ERROR     |  |  |
| 40        | GND            |  |  |

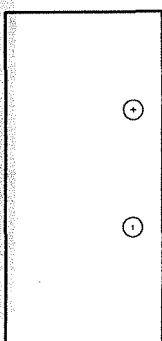
| CN451 40P |                |  |  |
|-----------|----------------|--|--|
| 1         | CAM 5V         |  |  |
| 2         | -0.5V          |  |  |
| 3         | 0.4V           |  |  |
| 4         | 15V            |  |  |
| 5         | 0 5V           |  |  |
| 6         | 0 5V           |  |  |
| 7         | CAM GND        |  |  |
| 8         | CAM GND        |  |  |
| 9         | VTR GND        |  |  |
| 10        | VTR GND        |  |  |
| 11        | LANC SIG       |  |  |
| 12        | LANC DC        |  |  |
| 13        | CAM * STBY     |  |  |
| 14        | CAM * STBY R   |  |  |
| 15        | START/STOP     |  |  |
| 16        | EJECT          |  |  |
| 17        | HEAD PHONE L   |  |  |
| 18        | HEAD PHONE R   |  |  |
| 19        | HEAD PHONE GND |  |  |
| 20        | VIDEO 5V       |  |  |
| 21        | VIDEO 5V       |  |  |
| 22        | SS 5V          |  |  |
| 23        | 0 5V           |  |  |
| 24        | EVF 5V         |  |  |
| 25        | EVF UNREG      |  |  |
| 26        | UNREG GND      |  |  |
| 27        | UNREG GND      |  |  |
| 28        | VTR UNREG      |  |  |
| 29        | CAM 5V CONT    |  |  |
| 30        | VTR ON         |  |  |
| 31        | CAP ON         |  |  |
| 32        | BRUM VS        |  |  |
| 33        | BRUM VS        |  |  |
| 34        | CAP VS         |  |  |
| 35        | CAP VS         |  |  |
| 36        | MOTOR GND      |  |  |
| 37        | MOTOR GND      |  |  |
| 38        | CAP ERROR      |  |  |
| 39        | BRUM ERROR     |  |  |
| 40        | GND            |  |  |



(HEADPHONES)

PS450  
PS451  
PS452

BATTERY TERMINAL



| CN002 6P |          |   |  |  |  |
|----------|----------|---|--|--|--|
| 1        | P0       | 1 |  |  |  |
| 2        | PCM OUT  | 2 |  |  |  |
| 3        | P0 RF    | 3 |  |  |  |
| 4        | RF SWP   | 4 |  |  |  |
| 5        | RF GND   | 5 |  |  |  |
| 6        | REC 2 CH | 6 |  |  |  |

CHECK P.I.N

| CN002 6P |          |   |  |  |  |
|----------|----------|---|--|--|--|
| 1        | P0       | 1 |  |  |  |
| 2        | PCM OUT  | 2 |  |  |  |
| 3        | P0 RF    | 3 |  |  |  |
| 4        | RF SWP   | 4 |  |  |  |
| 5        | RF GND   | 5 |  |  |  |
| 6        | REC 2 CH | 6 |  |  |  |

| CN002 6P |          |   |  |  |  |
|----------|----------|---|--|--|--|
| 1        | P0       | 1 |  |  |  |
| 2        | PCM OUT  | 2 |  |  |  |
| 3        | P0 RF    | 3 |  |  |  |
| 4        | RF SWP   | 4 |  |  |  |
| 5        | RF GND   | 5 |  |  |  |
| 6        | REC 2 CH | 6 |  |  |  |

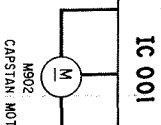
| FP-697 |              |  |  |  |  |
|--------|--------------|--|--|--|--|
| 1      | DEW SENS     |  |  |  |  |
| 2      | SS 5V        |  |  |  |  |
| 3      | S REEL FG    |  |  |  |  |
| 4      | T REEL FG    |  |  |  |  |
| 5      | END SENS     |  |  |  |  |
| 6      | SS GND       |  |  |  |  |
| 7      | MP/ME        |  |  |  |  |
| 8      | T/E LED ON   |  |  |  |  |
| 9      | REC PROF     |  |  |  |  |
| 10     | LOAD         |  |  |  |  |
| 11     | M SW 0       |  |  |  |  |
| 12     | W            |  |  |  |  |
| 13     | M SW 1       |  |  |  |  |
| 14     | N.C          |  |  |  |  |
| 15     | M SW 2       |  |  |  |  |
| 16     | U            |  |  |  |  |
| 17     | CC DOWN      |  |  |  |  |
| 18     | V            |  |  |  |  |
| 19     | 0 PG         |  |  |  |  |
| 20     | COM          |  |  |  |  |
| 21     | TOP SENS     |  |  |  |  |
| 22     | UNLOAD       |  |  |  |  |
| 23     | 0 FG         |  |  |  |  |
| 24     | MT 5V        |  |  |  |  |
| 25     | MT 5V        |  |  |  |  |
| 26     | MP/MP-H0     |  |  |  |  |
| 27     | STBY         |  |  |  |  |
| 28     | MT UNREG GND |  |  |  |  |
| 29     | CAP FWD/ REV |  |  |  |  |
| 30     | CAP VS       |  |  |  |  |
| 31     | CAP FG       |  |  |  |  |
| 32     | MT UNREG     |  |  |  |  |

| CN872 6P |          |  |  |  |  |
|----------|----------|--|--|--|--|
| 1        | M SW 2   |  |  |  |  |
| 2        | M SW 1   |  |  |  |  |
| 3        | M SW 0   |  |  |  |  |
| 4        | DEW SENS |  |  |  |  |
| 5        | SS GND   |  |  |  |  |
| 6        | CC DOWN  |  |  |  |  |

| CN871 7P |           |  |  |  |  |
|----------|-----------|--|--|--|--|
| 1        | PG (+)    |  |  |  |  |
| 2        | PG/FG COM |  |  |  |  |
| 3        | FG (+)    |  |  |  |  |
| 4        | COM       |  |  |  |  |
| 5        | W         |  |  |  |  |
| 6        | V         |  |  |  |  |
| 7        | U         |  |  |  |  |

| CN871 7P |           |  |  |  |  |
|----------|-----------|--|--|--|--|
| 1        | PG (+)    |  |  |  |  |
| 2        | PG/FG COM |  |  |  |  |
| 3        | FG (+)    |  |  |  |  |
| 4        | COM       |  |  |  |  |
| 5        | W         |  |  |  |  |
| 6        | V         |  |  |  |  |
| 7        | U         |  |  |  |  |

| IC 001 |               |  |  |  |  |
|--------|---------------|--|--|--|--|
| 6      | CAP FG        |  |  |  |  |
| 5      | CAP FWD / REV |  |  |  |  |
| 4      | STBY          |  |  |  |  |
| 3      | MT UNREG      |  |  |  |  |
| 2      | CAP VS        |  |  |  |  |
| 1      | MT UNREG GND  |  |  |  |  |



FP-442  
BOARD  
(FLEXIBLE)

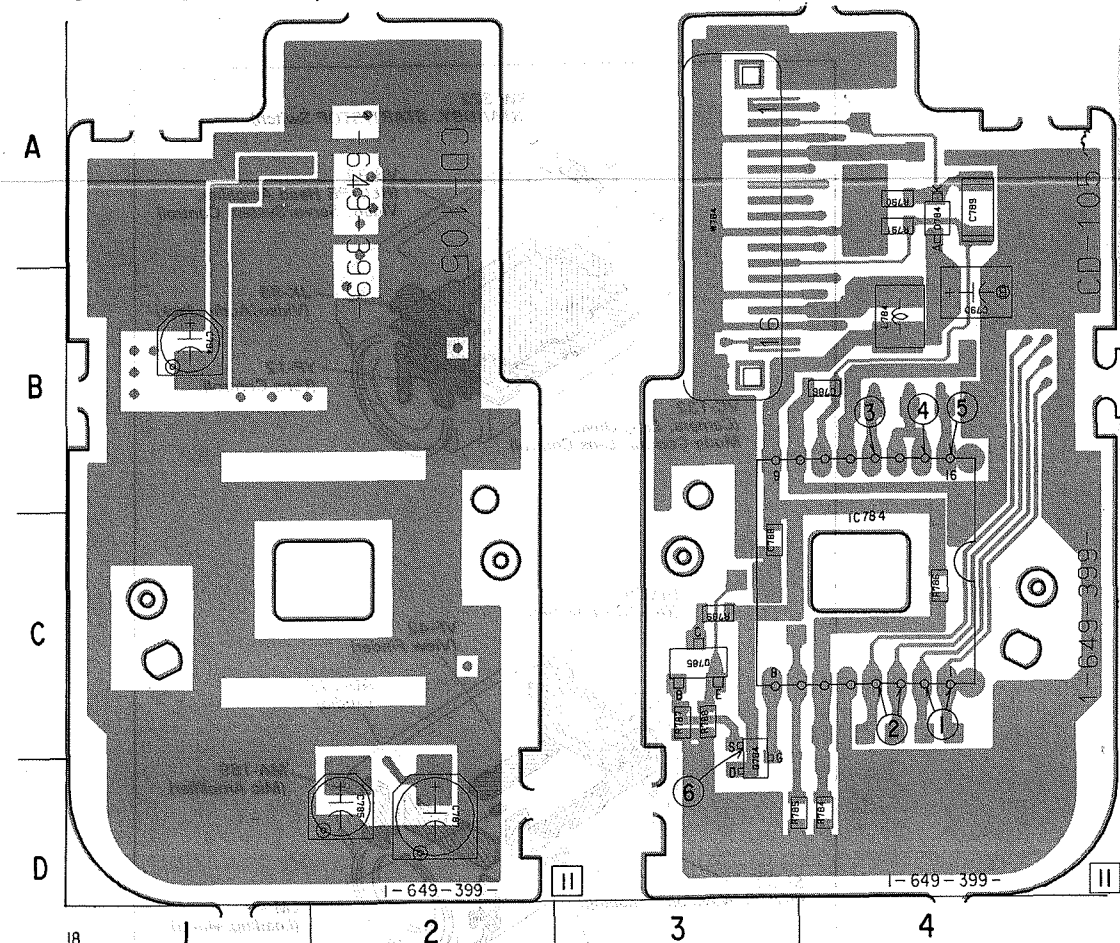
A-MECHA



# CD-105 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CD-105 BOARD: 1,000 series —

## CD-105 BOARD (COMPONENT SIDE) CD-105 BOARD (CONDUCTOR SIDE)

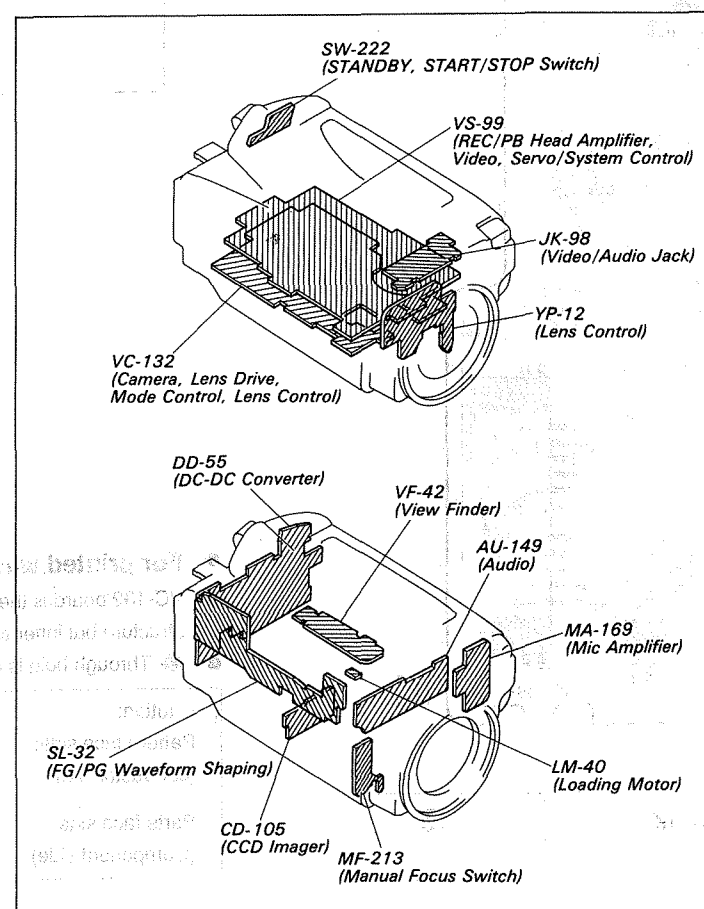


### For printed wiring boards.

- CD-105 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- : Through hole is omitted.

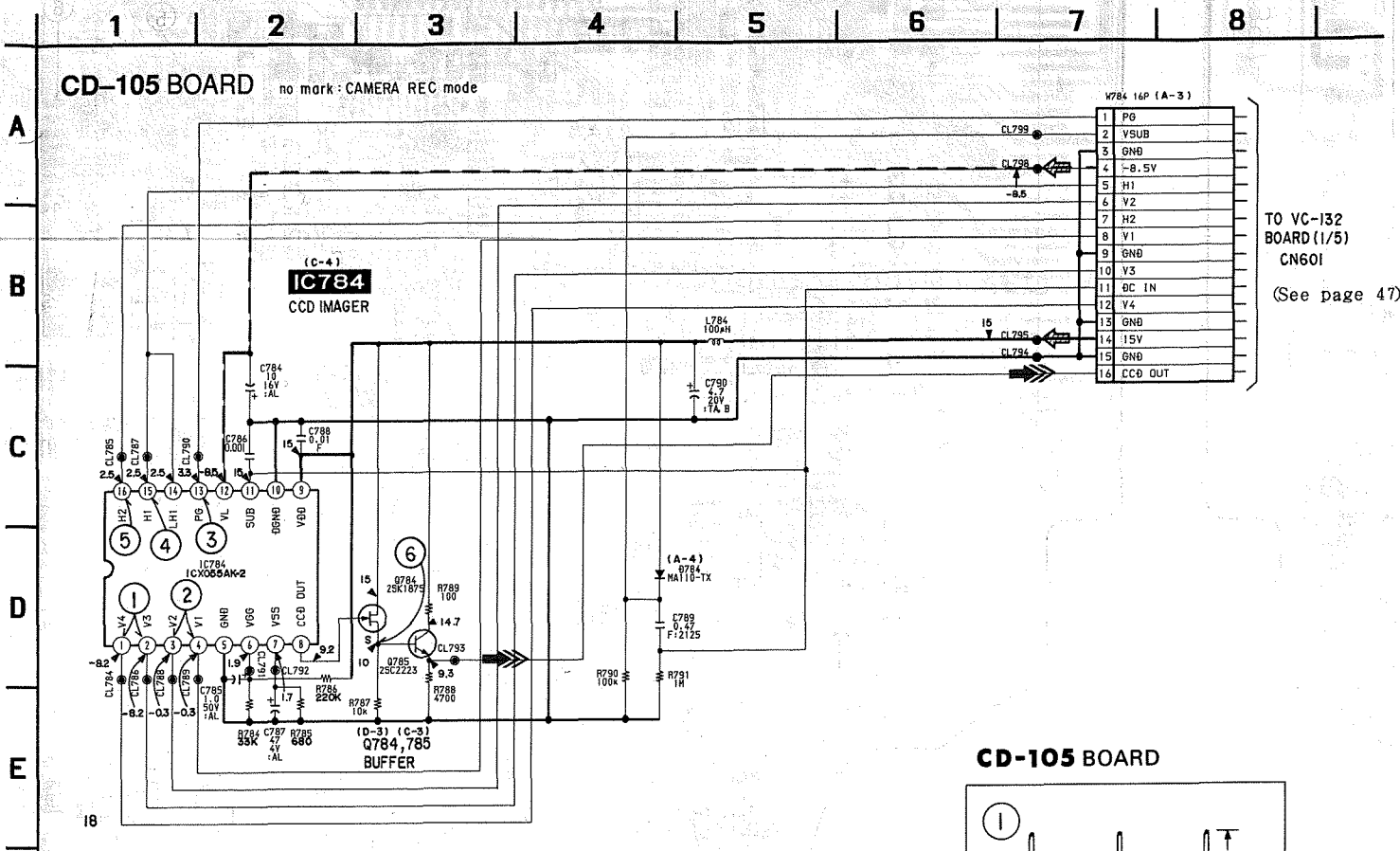
#### Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.  
Parts face side: Parts on the parts face side seen from the parts face are indicated.



# CD-105 (CCD IMAGER) SCHEMATIC DIAGRAM

— Ref. No. CD-105 BOARD: 1,000 series —



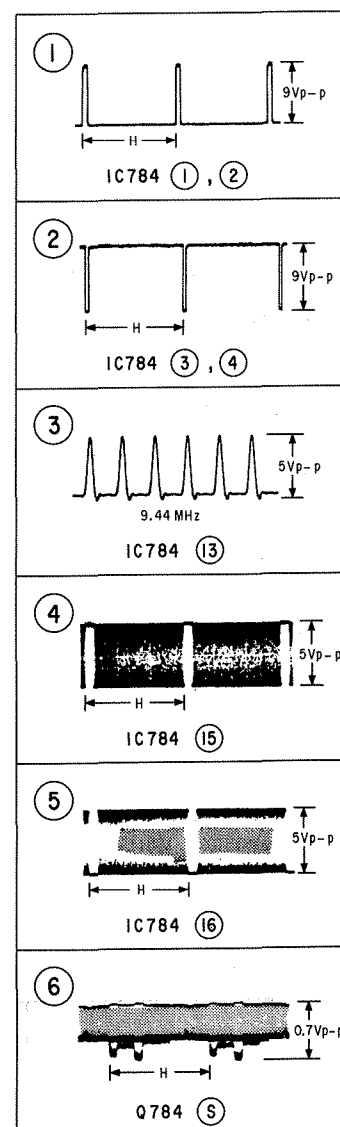
### SIGNAL PATH

|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC |              |   | ➡➡➡      |              |
| PB  |              |   |          |              |

### Note on the CCD imager replacement

- Some of this units require the correction data by the CCD imager (IC784 on CD-105 board), some do not. The correction data is input in F page and addresses 1D to 2C of the camera micro processor (IC653 on VC-132 board), and also written on the CCD data label put on the shield case (upper) of the DD-55 board. The correction data is not required for the CCD imager supplied for repair. Therefore, when replacing the CCD imager to which the CCD data label is put, remove the CCD data label and input 00 to F page and addresses 1D to 2C of the camera micro processor. Refer to the camera adjustment for input method.
- The CCD imager is not mounted for the already mounted CD-105 board supplied as the repair parts. When replacing the CD-105 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure. Also, prevent the receiving light section from dust attached and strong light.

### CD-105 BOARD



## 4-2. PRINTED

### THIS NOTE IS (In addition to

- For printed
- : indica
- : indica
- : Parts
- : Patter which
- (The other lay
- Circled numbe
- (B) or (F), characteristics
- : Throu

#### Caution:

Pattern face side (Conductor Side)  
Parts face side: (Component side)

- For schema
- Caution when
- New parts must
- Be careful not
- because it is d
- All resistors are
- Chip resistor are
- kΩ : 1000Ω, M
- All capacitors are
- 50V or less
- tantalums.
- All variable an
- unless otherwi
- : nonfla
- : fus
- : panel
- △ : interna
- : adjust
- : B+ Lin
- : B- Lin
- ➡➡➡ : IN/OU
- Circled numbe

Note:  
The component mark △ are criti  
Replace only wi

When indicating  
ence number, p  
board name.

**SIDE)**

**RT/STOP Switch)**

JK-98  
(Video/Audio Jack)

YP-12  
(Lens Control)

nder)

AU-149  
(Audio)

MA-169  
(Mic Amplifier)

LM-40  
(Loading Motor)

Switch)



(In addition to this , the necessary note is printed in each block.)

-  : indicated a lead wire mounted on the component side.
-  : indicated a lead wire mounted on the conductor side.
-  : Parts mounted on the conductor side.
-  : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ● : Through hole is omitted.

Pattern face side: Parts on the pattern face side seen from  
(Conductor Side) the pattern face are indicated.

Parts face side:      Parts on the parts face side seen from the  
(Component side)      parts face are indicated.

- Caution when replacing chip parts.  
New parts must be attached after removal of chip.  
Be careful not to heat the minuts side of tantalum capacitor,  
because it is damaged by the heat.

- All resistors are in ohms, 1/4W unless otherwise noted.  
Chip resistor are 1/10W unless otherwise noted.

$k\Omega : 1000\Omega$ ,  $M\Omega : 1000k\Omega$ .

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{pF}$ . 50V or less are not indicated except for electrolytics and tantalums.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

-  : nonflammable resistor.

-  : fusible resistor.

-  : panel designation.

- $\wedge$  : internal component

-  : adjustment for repe

-  : B+ Line

-  B- Line

-  : B-Line.

-  : IN/OUT direction of (+, -) B LINE.
- Circled numbers refer to waveforms.

- Circled numbers refer to waveforms.

The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points. Readings are taken with a digital multimeter (DC 10M $\Omega$ ).
- Voltage variations may be noted due to normal production tolerances.

Diagram illustrating the setup for the lens reference plane. A pattern box is positioned 2m from the front side of the lens of the CCD imager. The lens reference plane is the surface of the IC784 on the CD-105 board.

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

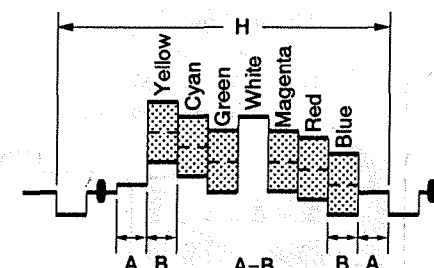


Fig. a (Video output terminal output waveform)

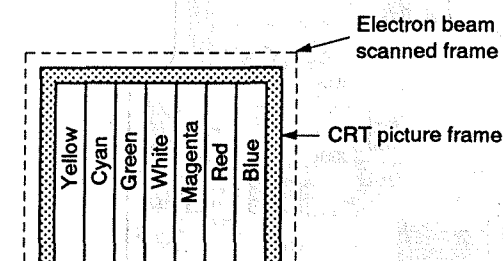


Fig. (Picture on monitor TV)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10M $\Omega$ ).
- Voltage variations may be noted due to normal production tolerances.

**Note :** Refer to "9-1-3. How to set the REC mode in the model without REC switch." in VIDEO SECTION ADJUSTMENTS.

①

IC 784 ①, ②

②

IC 784 ③, ④

③

9.44 MHz

IC 784 ⑬

④

IC 784 ⑮

⑤

IC 784 ⑮

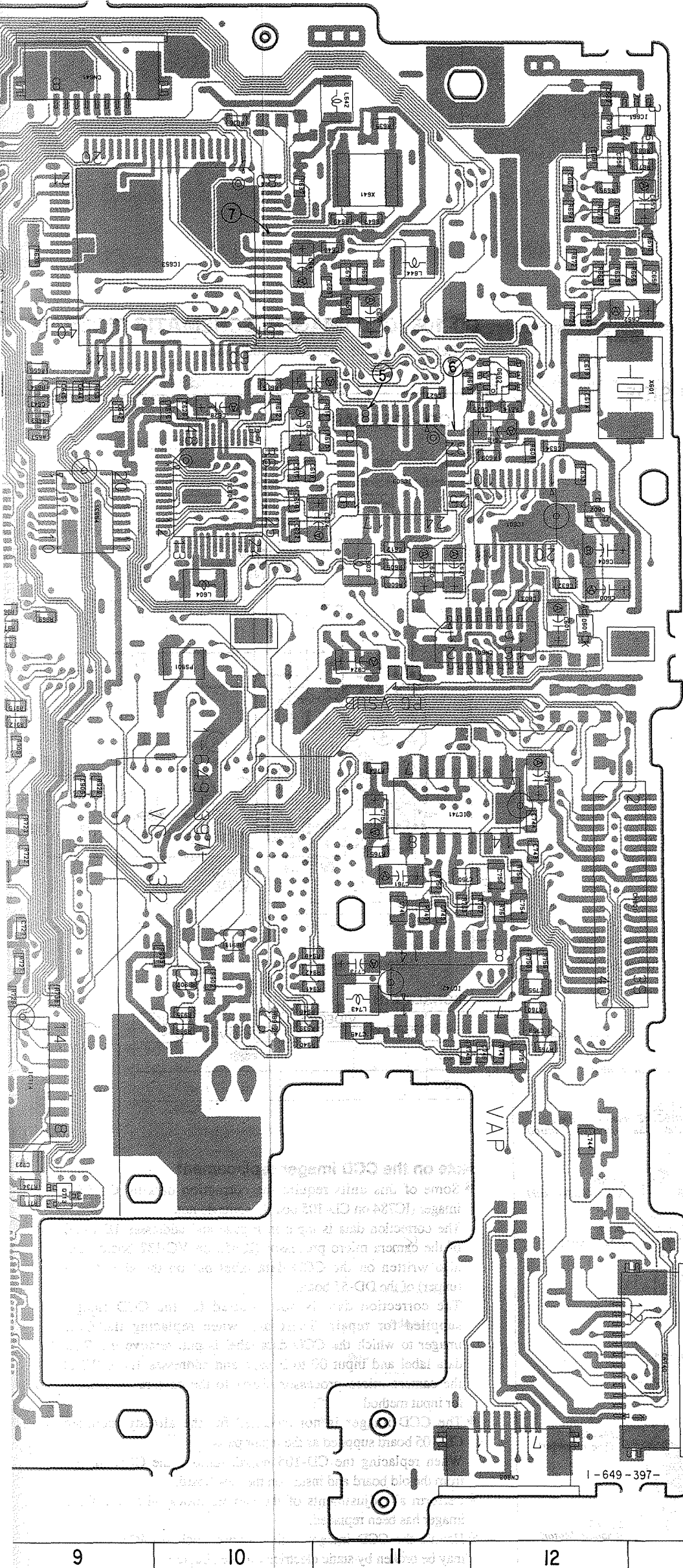
⑥

Q 784 ⑤





CTOR SIDE)



9

10

11

12

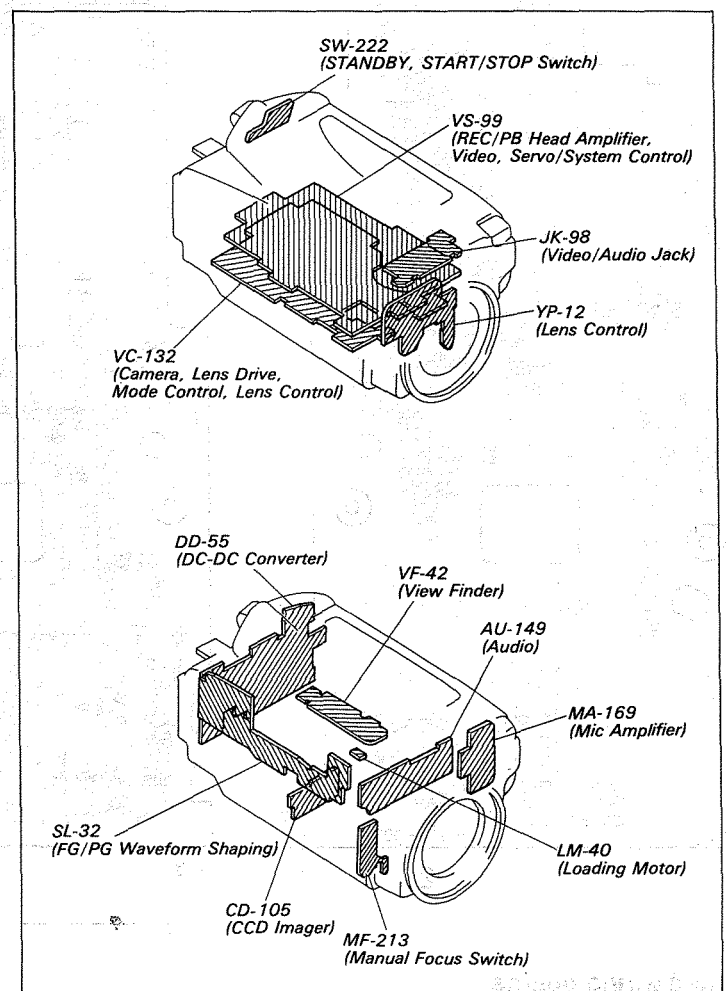
13

- For printed wiring boards.
- VC-132 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ●: Through hole is omitted.

Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the parts face are indicated.



SW-222  
(STANDBY, START/STOP Switch)

VS-99  
(REC/PB Head Amplifier,  
Video, Servo/System Control)

JK-98  
(Video/Audio Jack)

YP-12  
(Lens Control)

VC-132  
(Camera, Lens Drive,  
Mode Control, Lens Control)

DD-55  
(DC-DC Converter)

VF-42  
(View Finder)

AU-149  
(Audio)

MA-169  
(Mic Amplifier)

LM-40  
(Loading Motor)

SL-32  
(FG/PG Waveform Shaping)

CD-105  
(CCD Imager)

MF-213  
(Manual Focus Switch)

I-649-397-

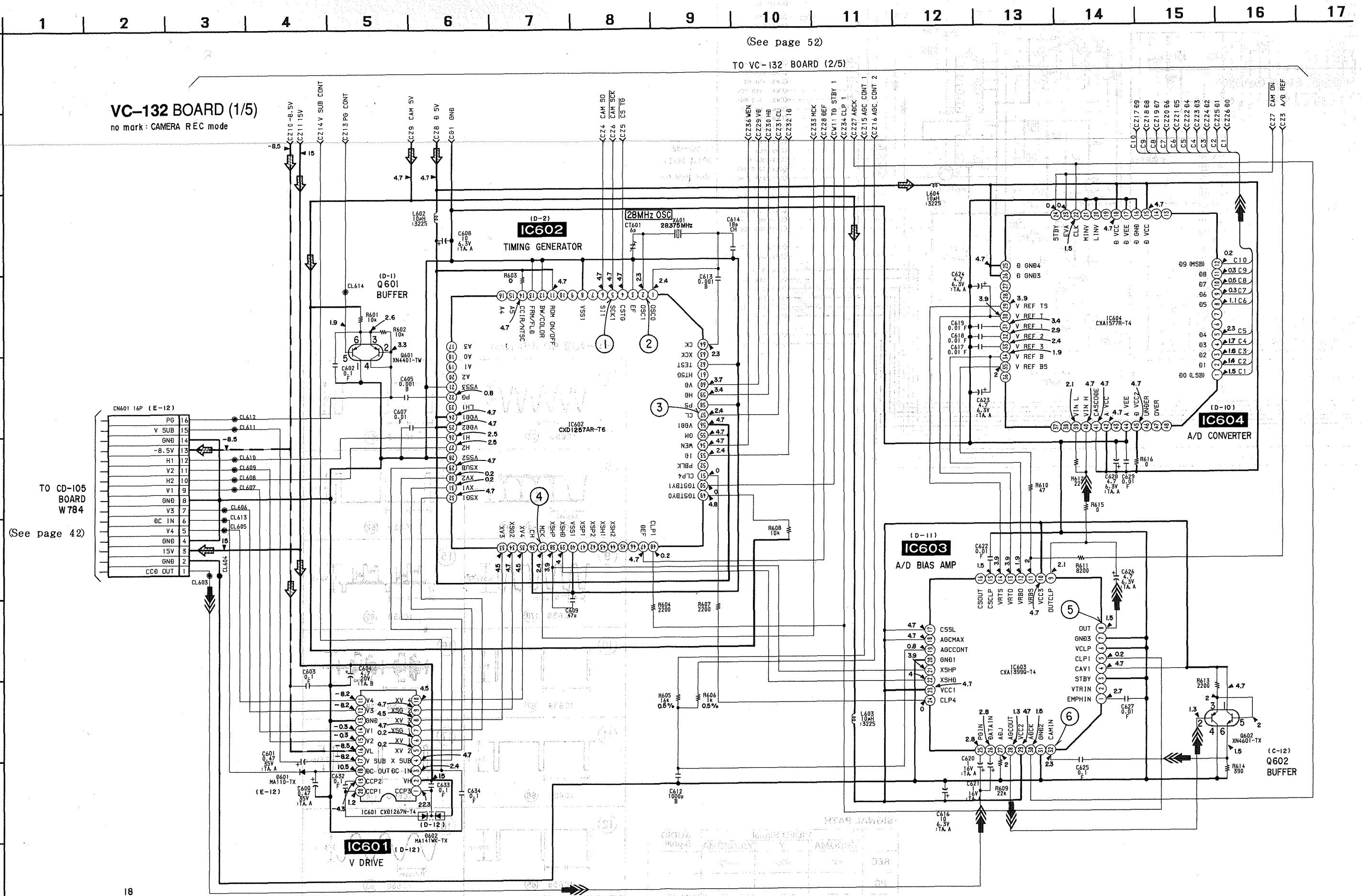
II

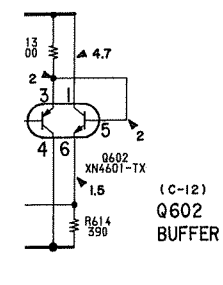


## VC-132 (CAMERA) SCHEMATIC DIAGRAM

— Ref. No. VC-132 BOARD: 2,000 series —

● Refer to page 44 for printed wiring board.





①

1.5  $\mu$ sec

5Vp-p

IC602 (5)

②

28.375 MHz

2.8Vp-p

IC602 (2)

③

14.1875 MHz

5.6Vp-p

IC602 (37)

④

0.1  $\mu$ sec

5.5Vp-p

IC602 (37)

⑤

H

1Vp-p

IC603 (8)

⑥

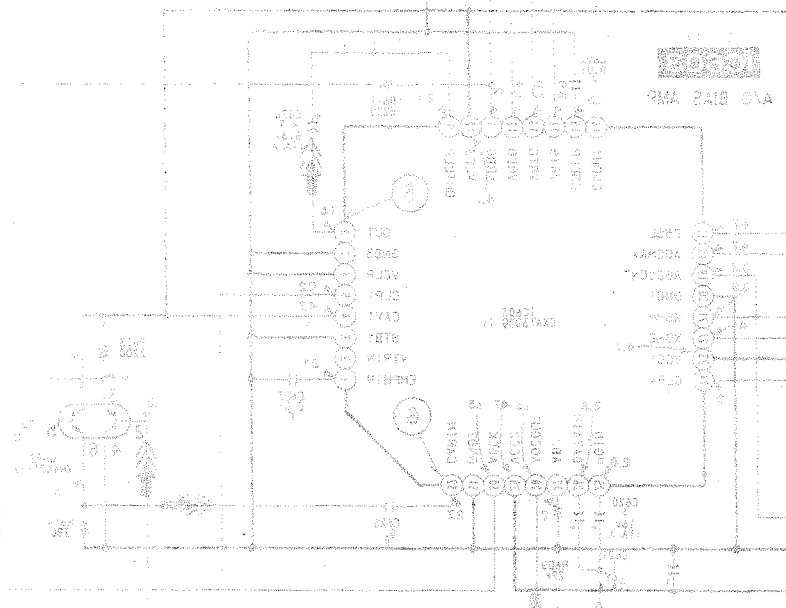
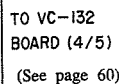
H

0.4Vp-p

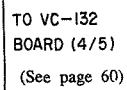
IC603 (32)

|     | VIDEO Signal |   |                                                                                       | AUDIO Signal |
|-----|--------------|---|---------------------------------------------------------------------------------------|--------------|
|     | CHROMA       | Y | Y/CHROMA                                                                              |              |
| REC |              |   |  |              |
| PB  |              |   |                                                                                       |              |





| •SIGNAL PATH |                                                                                       |                                                                                       |                                                                                       |              |
|--------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------|
|              | VIDEO Signal                                                                          |                                                                                       |                                                                                       | AUDIO Signal |
|              | CHROMA                                                                                | Y                                                                                     | Y/CHROMA                                                                              |              |
| REC          |  |  |  |              |
| PB           |                                                                                       |                                                                                       |                                                                                       |              |



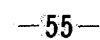
|                                                    |                                              |
|----------------------------------------------------|----------------------------------------------|
| <p>⑦</p> <p>24 MHz</p> <p>IC 653 (73)</p>          | <p>⑬</p> <p>IC 659 (64)</p>                  |
| <p>⑧</p> <p>0.2 μsec</p> <p>IC 659 (84) - (93)</p> | <p>⑭</p> <p>IC 659 (62)</p>                  |
| <p>⑨</p> <p>0.1 μsec</p> <p>IC 659 (78)</p>        | <p>⑮</p> <p>IC 659 (49)</p>                  |
| <p>⑩</p> <p>IC 659 (67)</p>                        | <p>⑯</p> <p>IC 659 (28)</p>                  |
| <p>⑪</p> <p>IC 659 (66)</p>                        | <p>⑰</p> <p>IC 660 (14)</p>                  |
| <p>⑫</p> <p>IC 659 (65)</p>                        | <p>⑱</p> <p>0.27 μsec</p> <p>IC 660 (63)</p> |

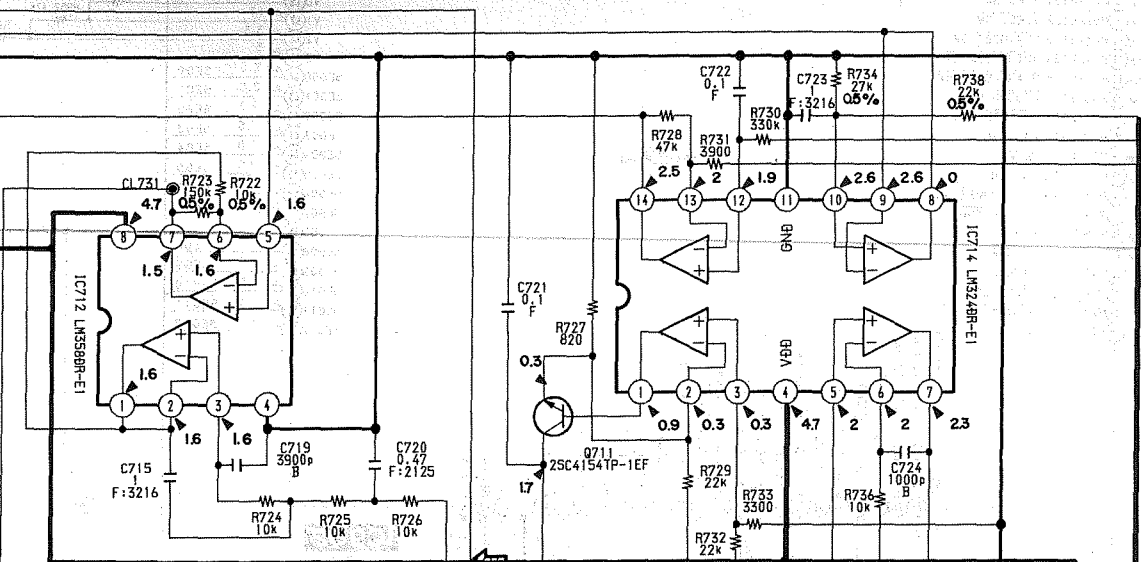
|     | VIDEO Signal |    |          | AUDIO Signal |
|-----|--------------|----|----------|--------------|
|     | CHROMA       | Y  | Y/CHROMA |              |
| REC | ➡            | ➡➡ | ➡➡➡      |              |
| PB  |              |    |          |              |



— Ref. No. VC-132 BOARD: 2,000 series —

• Refer to page 44 for printed wiring board.





**IC712** (F-8)

ZOOM POSITION AMP

(G-8)  
**Q711**  
BIAS CURRENT CONTROL

(G-9)  
**IC714**

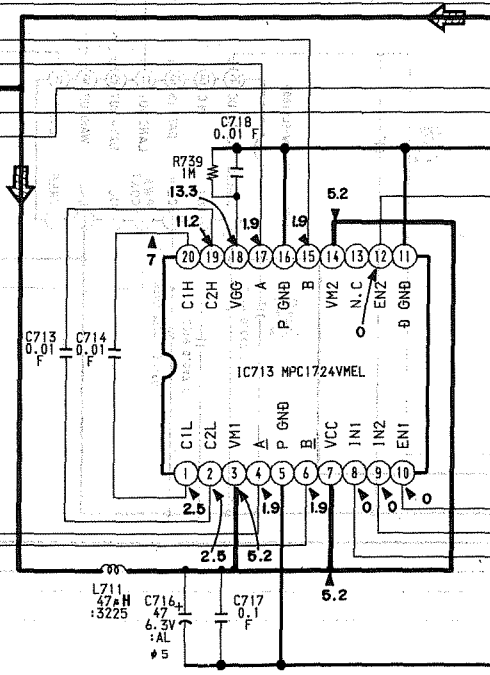
- ①-③ BIAS CURRENT CONTROL
- ⑤-⑦ HALL AMP
- ⑧-⑩ ZOOM POSITION AMP
- ⑫-⑭ IRIS METER CONTROL

- <CY4 REF 2V
- <CY1 HALL GAIN
- <CY2 HALL OFS
- <CY3 ZOOM SPB
- <C01 CAM GND
- <CY9 IRIS PWM
- <CY10 ZOOM POS
- <CY11 ZOOM POS X4
- <CY12 ZOOM REW (W)
- <CY13 ZOOM FWD (T)
- <CY14 HALL OUT
- <CY15 FOCUS ENB FAR
- <CY16 FOCUS ENB LED
- <CY17 ZP PWM

TO VC-132  
BOARD (2/5)

(See page 51)

- <CY5 FOC IN1
- <CY6 FOC IN2
- <CY7 FOC IN3
- <CY8 FOC IN4



(H-9)  
**Q713**  
LED DRIVE

(J-5)  
**Q712**  
DRIVE CURRENT LIMITER

(I-5)  
**IC715**

ZOOM MOTOR DRIVE

— Ref. No. VC-132 BOARD: 2,000 series —

- Refer to page 44 for printed wiring board.



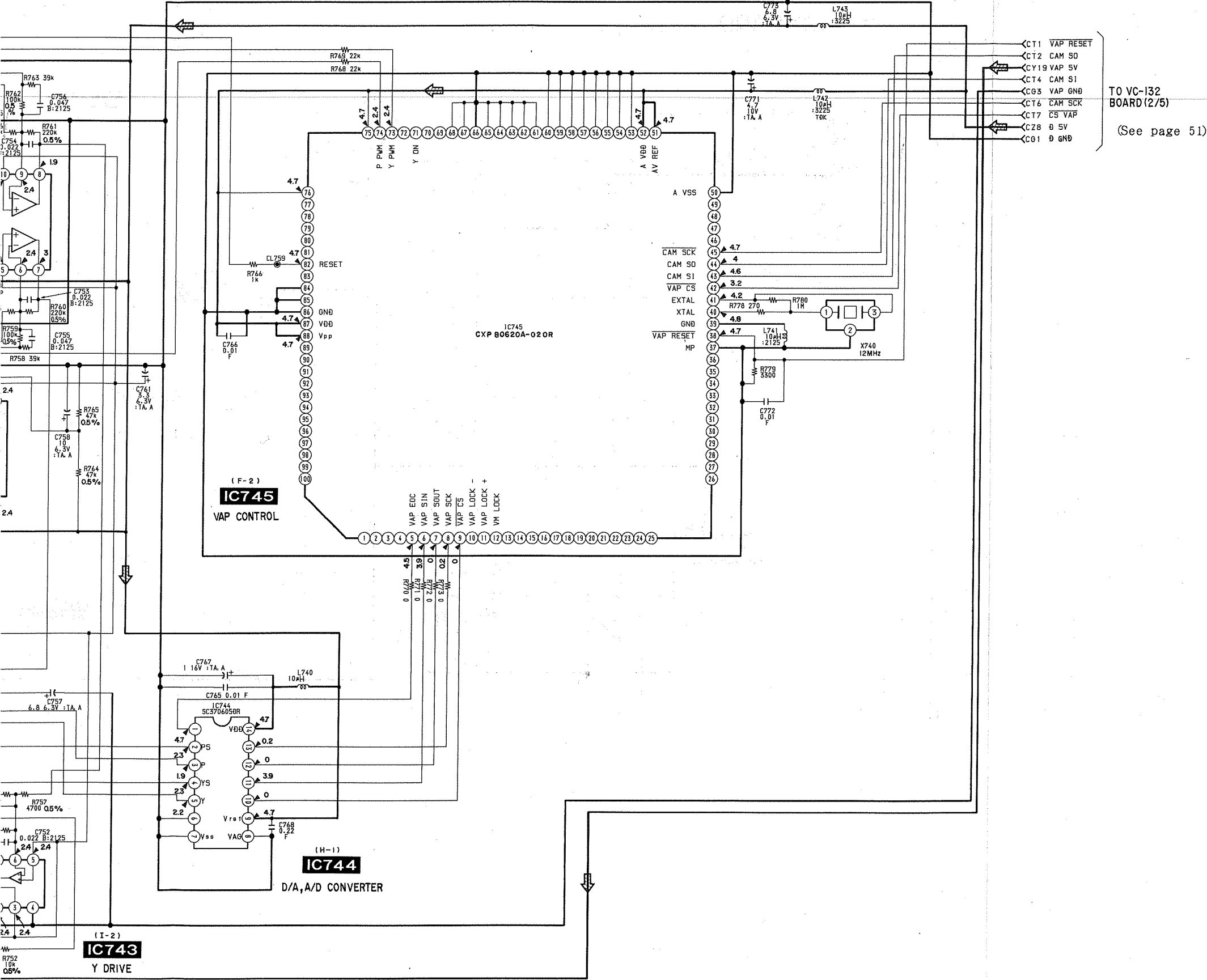


● Refer to page 44 for printed wiring board.



ed wiring board.

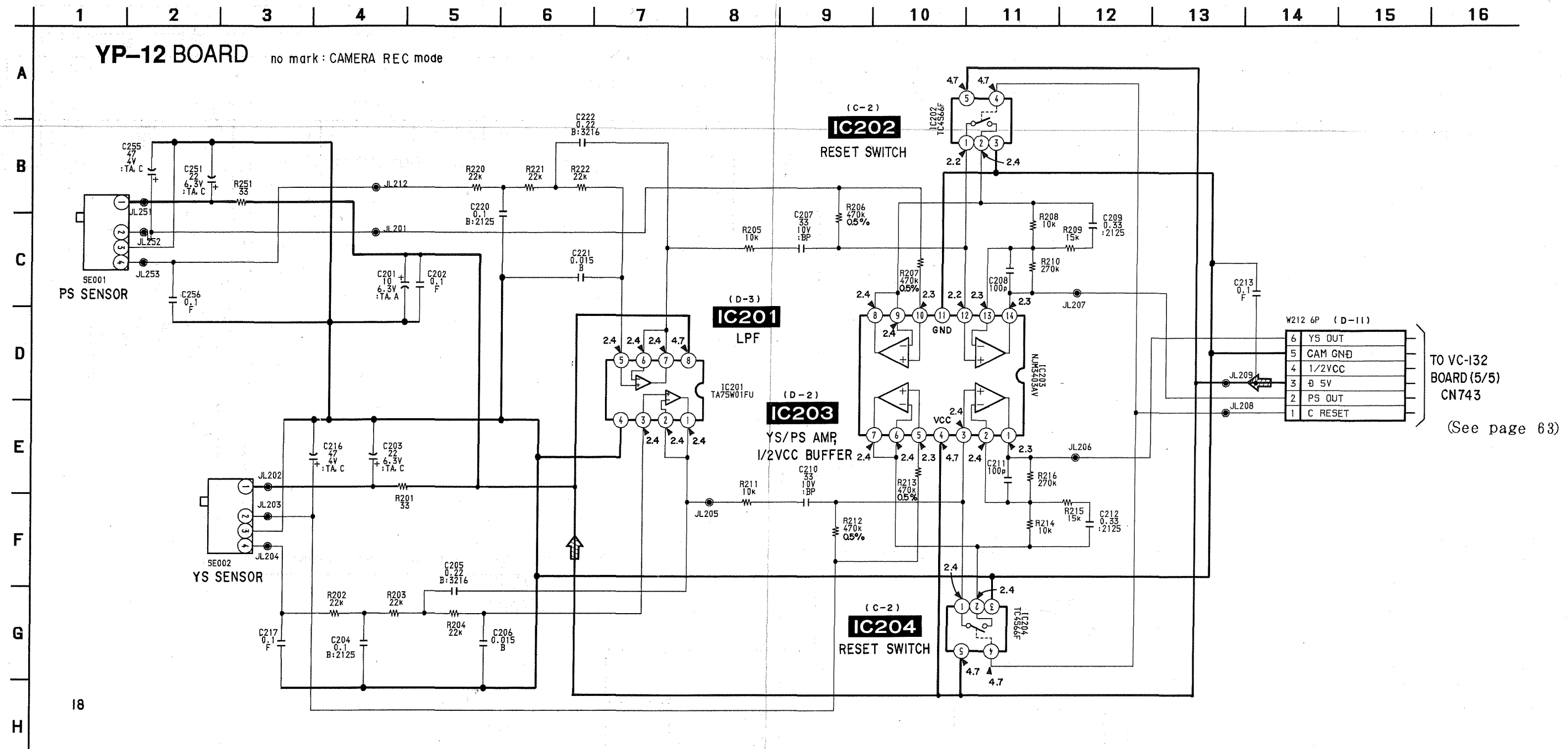
7 8 9 10 11 12 13 14 15 16 17 18 19





YP-12 (LENS CONTROL) SCHEMATIC DIAGRAM

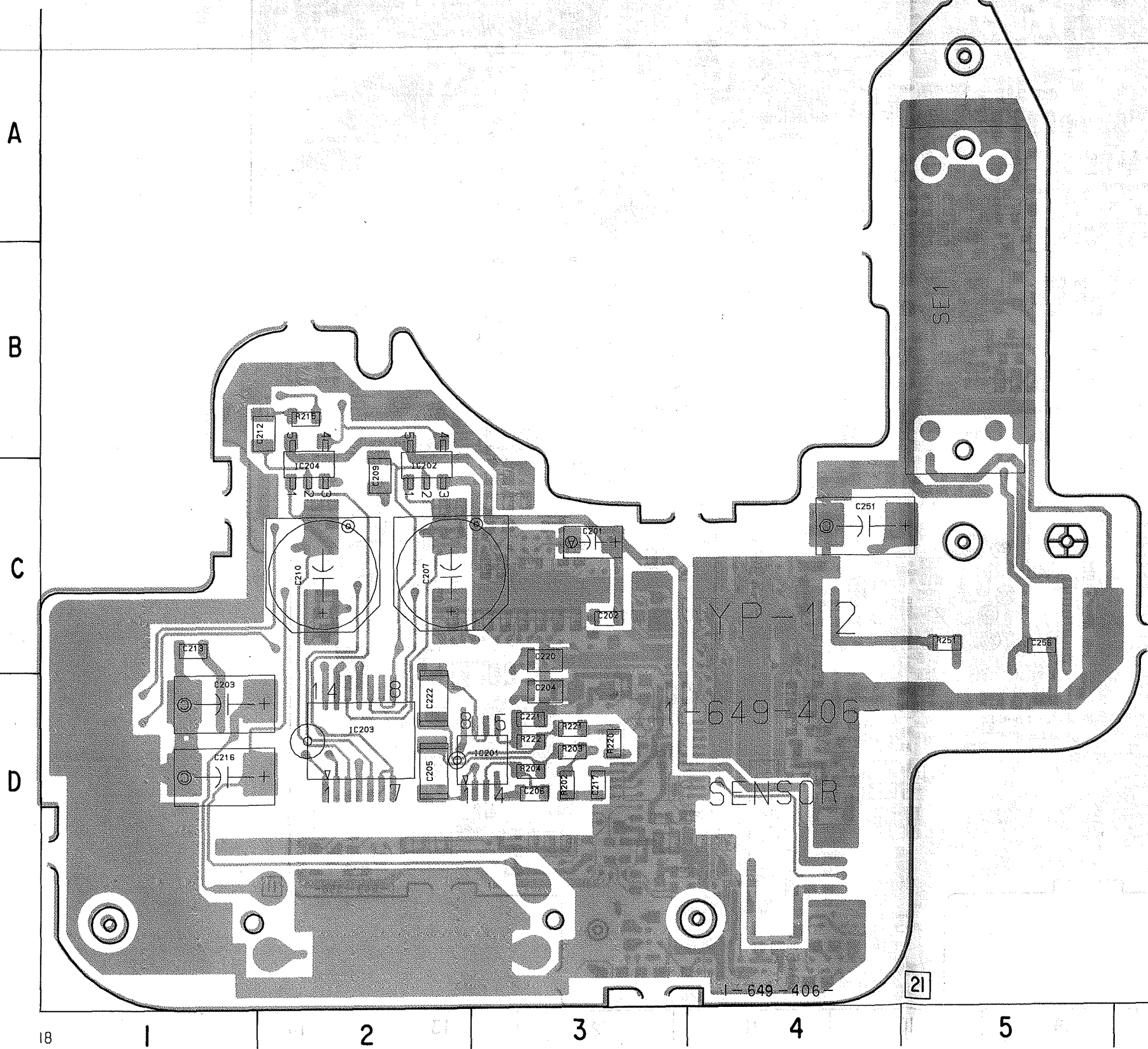
— Ref. No. YP-12 BOARD: 2,000 series —



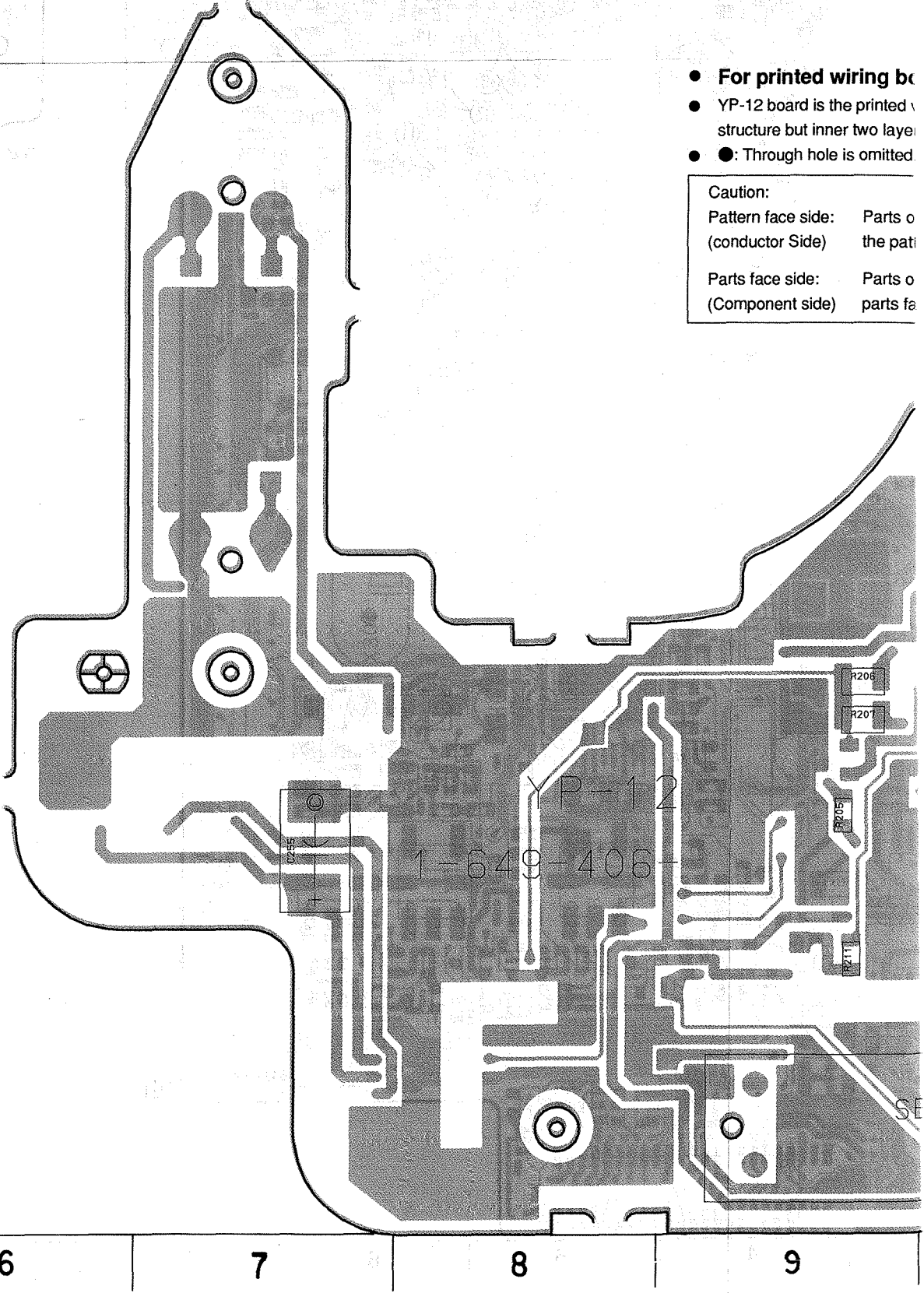
YP-12 (LENS CONTROL) PRINTED WIRING BOARD

— Ref. No. YP-12 BOARD: 2,000 series —

YP-12 BOARD (COMPONENT SIDE)



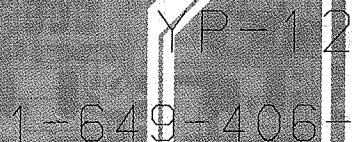
YP-12 BOARD (CONDUCTOR SIDE)



- **For printed wiring boards.**
- YP-12 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ●: Through hole is omitted.

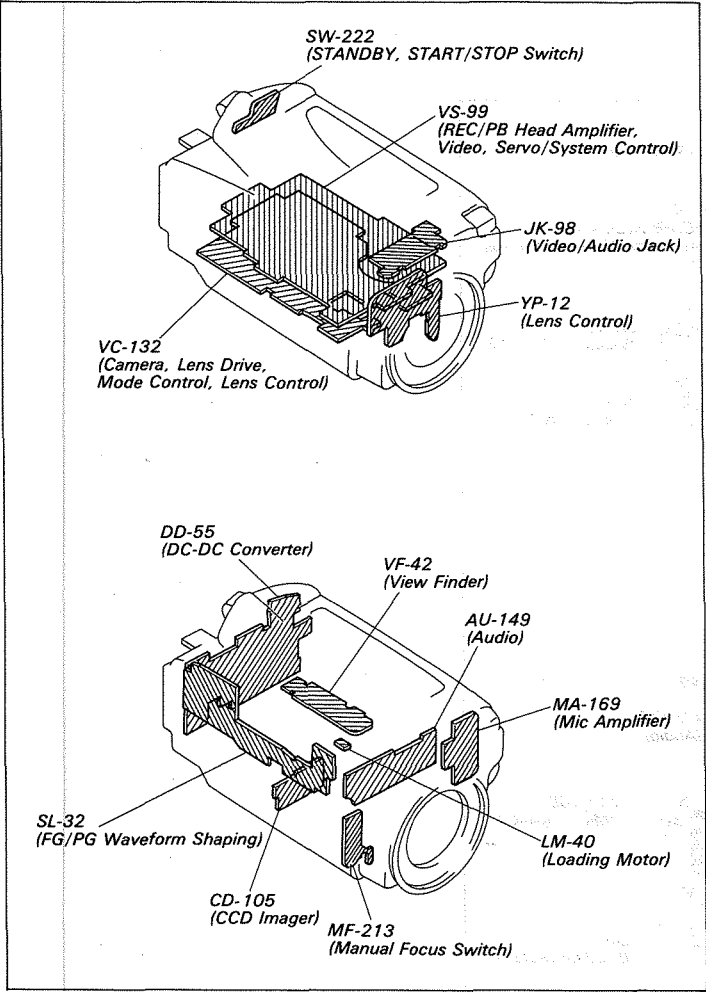
Pattern face side: Parts on the pattern face side seen from  
(conductor Side) the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the  
(Component side) parts face are indicated.





VS-99 BOARD (COMPONENT SIDE)

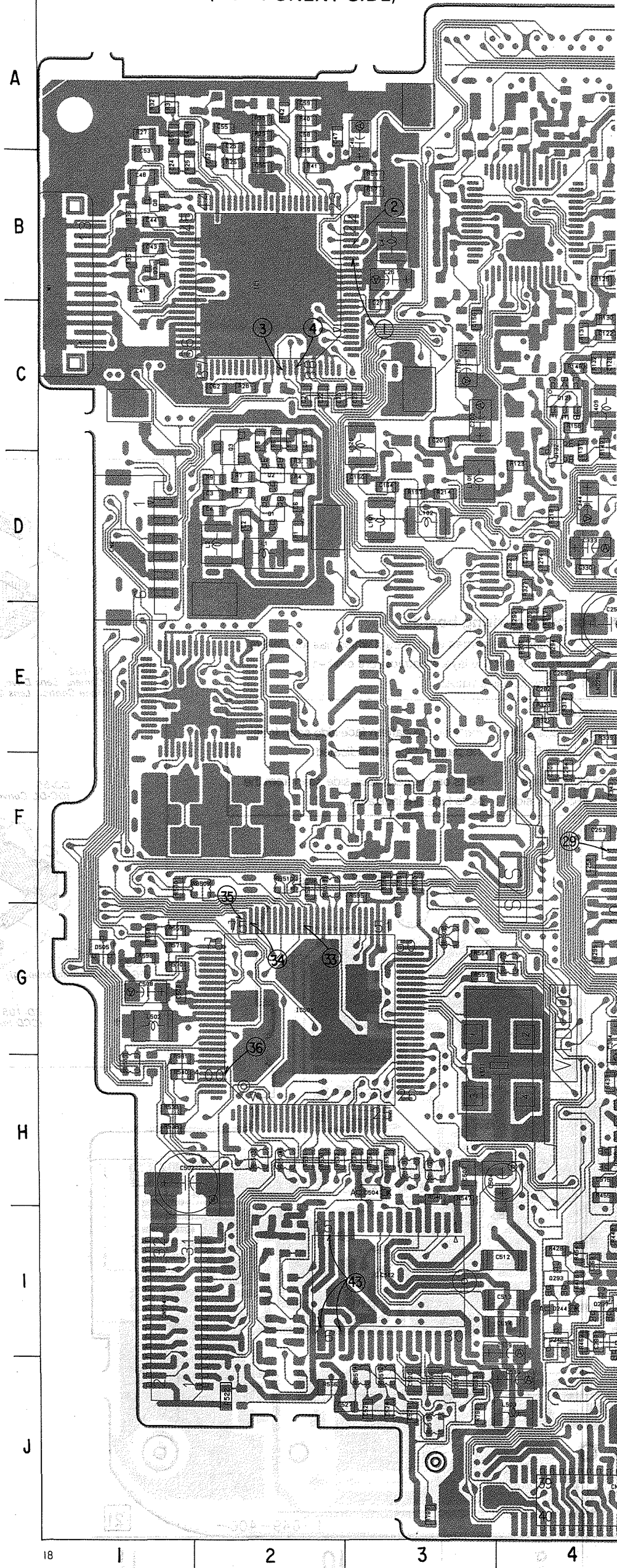


- For printed wiring boards.
- VS-99 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ●: Through hole is omitted.

Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the parts face are indicated.



18

1

2

3

4







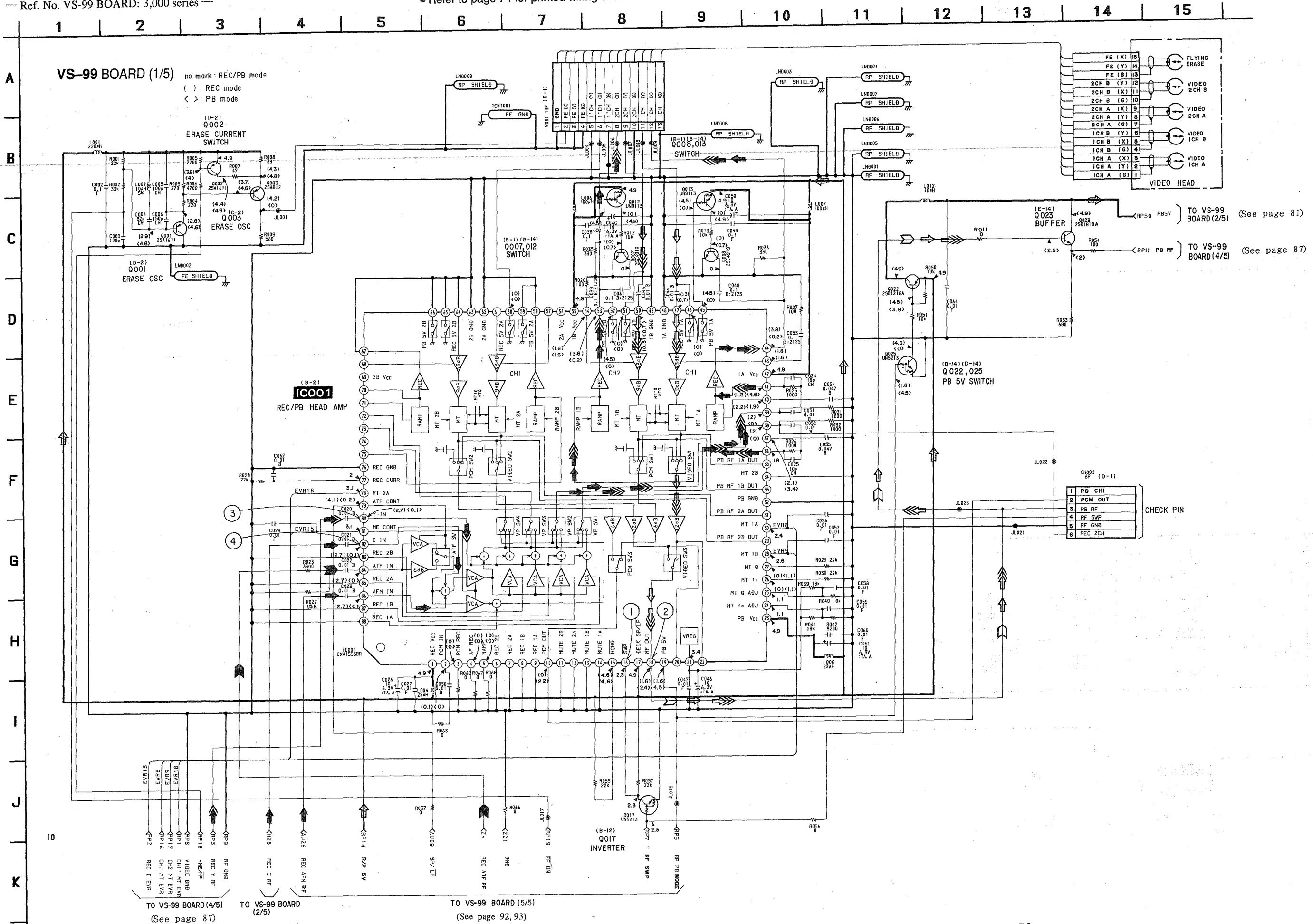




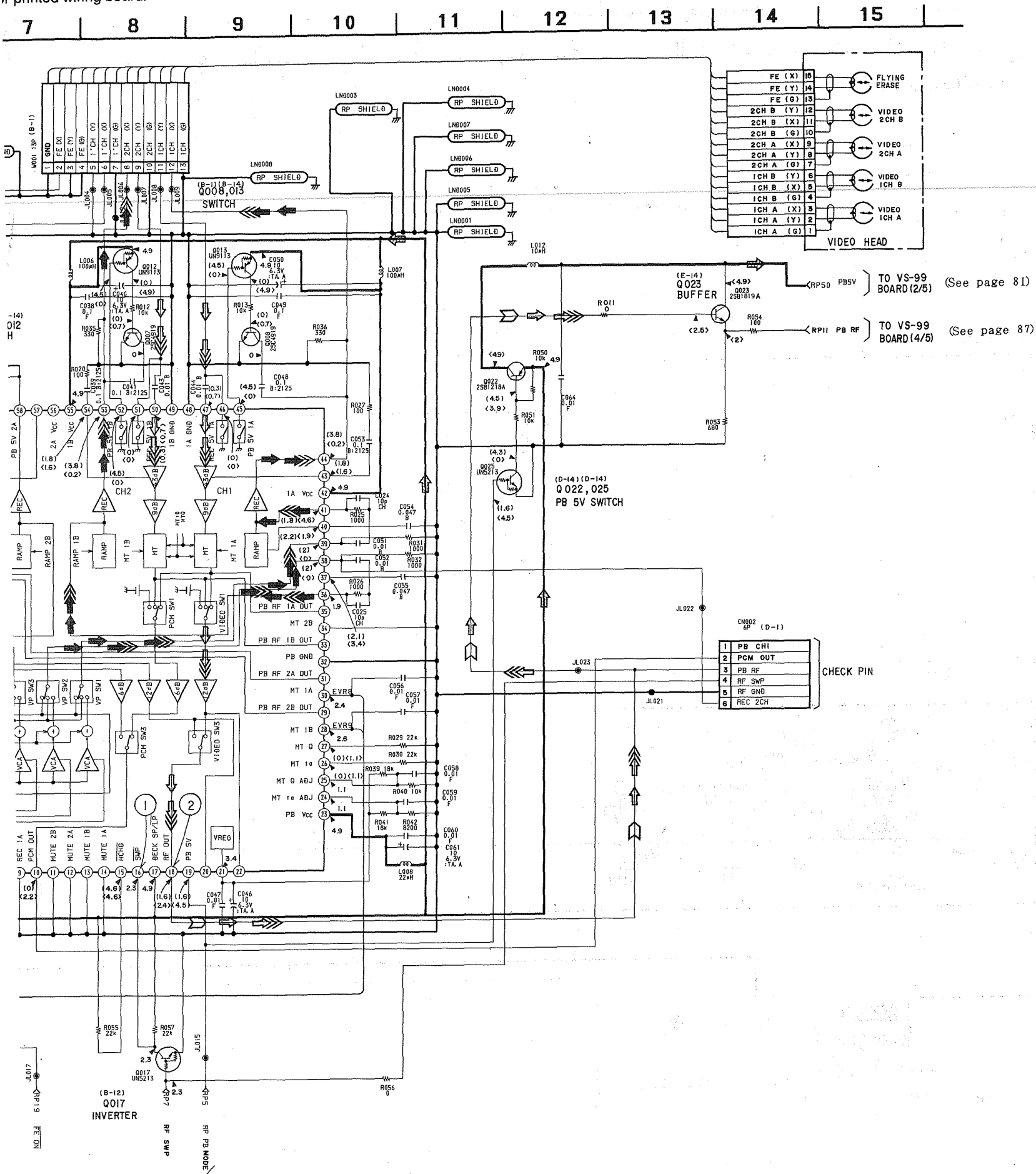
# VS-99 (REC/PB HEAD AMP) SCHEMATIC DIAGRAM

Ref. No. VS-99 BOARD: 3,000 series

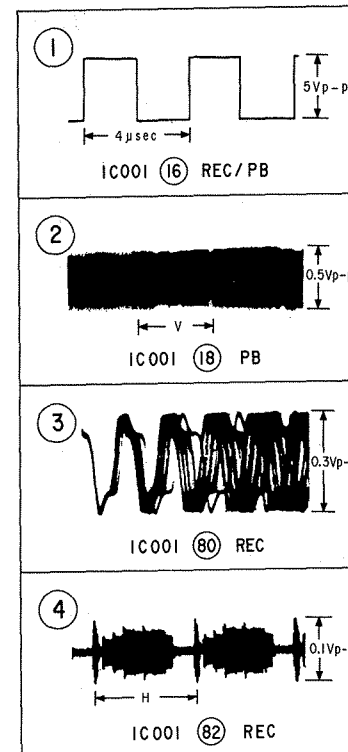
Refer to page 74 for printed wiring board.



or printed wiring board.



# VS-99 BOARD (1/5)

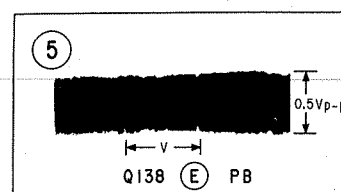


## SIGNAL PATH

|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC | →            | → | →        | →            |
| PB  |              |   | →        | →            |

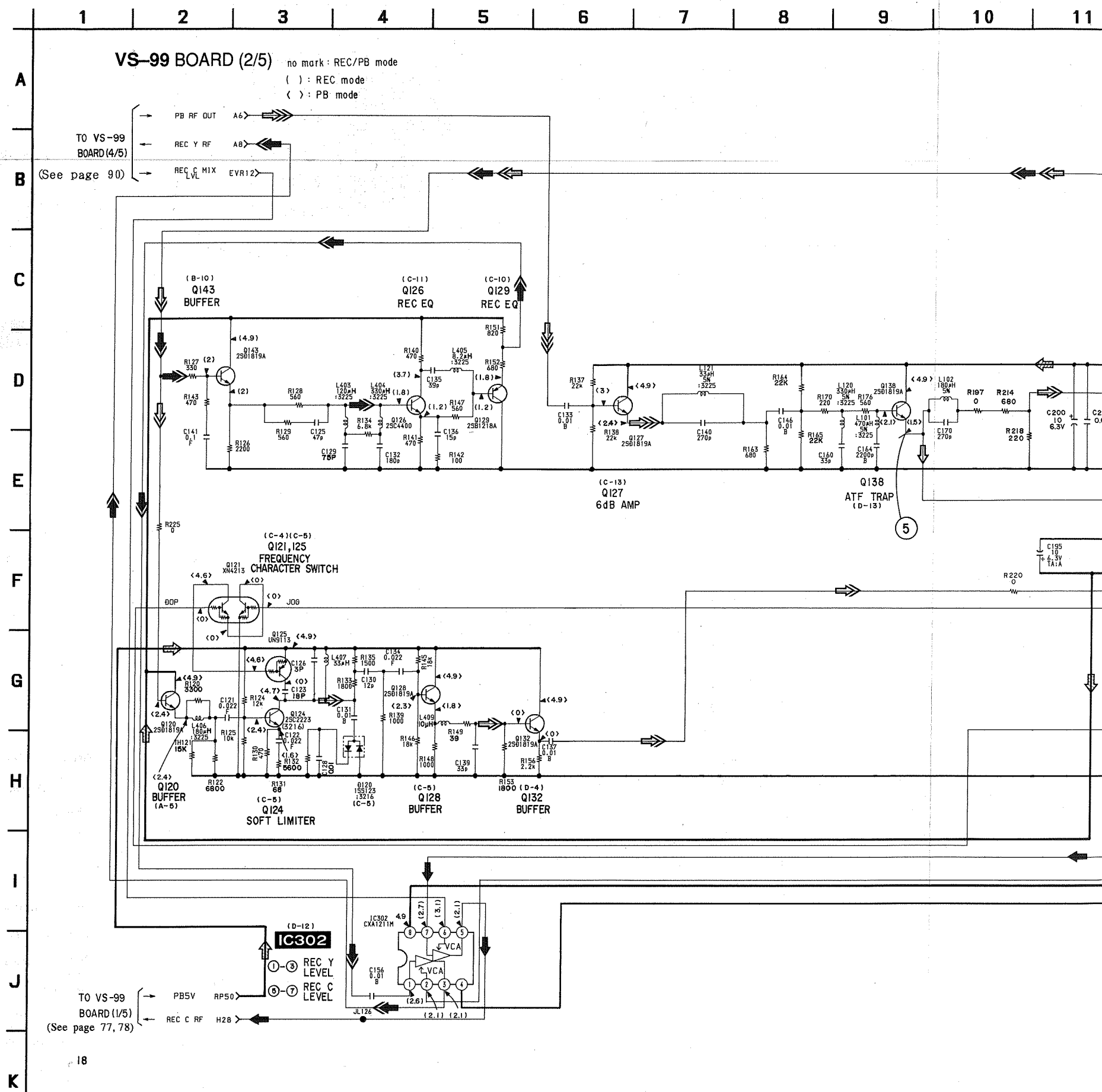
|                                 | REC | REC/PB | PB |
|---------------------------------|-----|--------|----|
| Drum speed servo                |     |        |    |
| Drum phase servo                |     |        |    |
| Drum servo (speed and phase)    |     |        |    |
| Capstan speed servo             |     |        |    |
| Capstan phase servo             |     |        |    |
| Capstan servo (speed and phase) |     |        |    |
| Ref. signal                     | →   |        | →  |

VS-99 BOARD (2/5)



• **SIGNAL PATH**

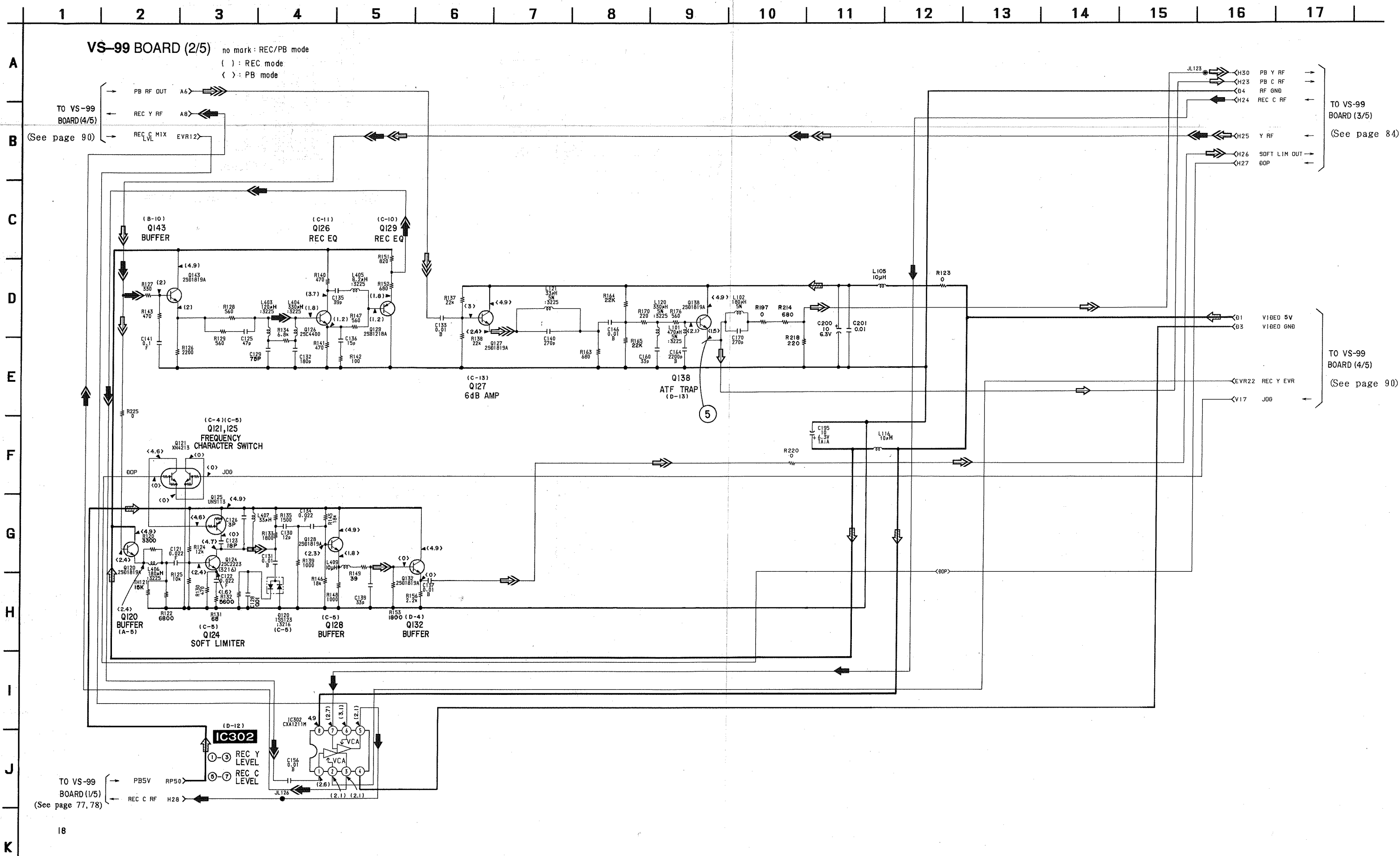
|     | VIDEO Signal                                                                        |                                                                                     |                                                                                     | AUDIO Signal |
|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------|
|     | CHROMA                                                                              | Y                                                                                   | Y/CHROMA                                                                            |              |
| REC |  |  |                                                                                     |              |
| PB  |  |  |  |              |



# VS-99 (VIDEO) SCHEMATIC DIAGRAM

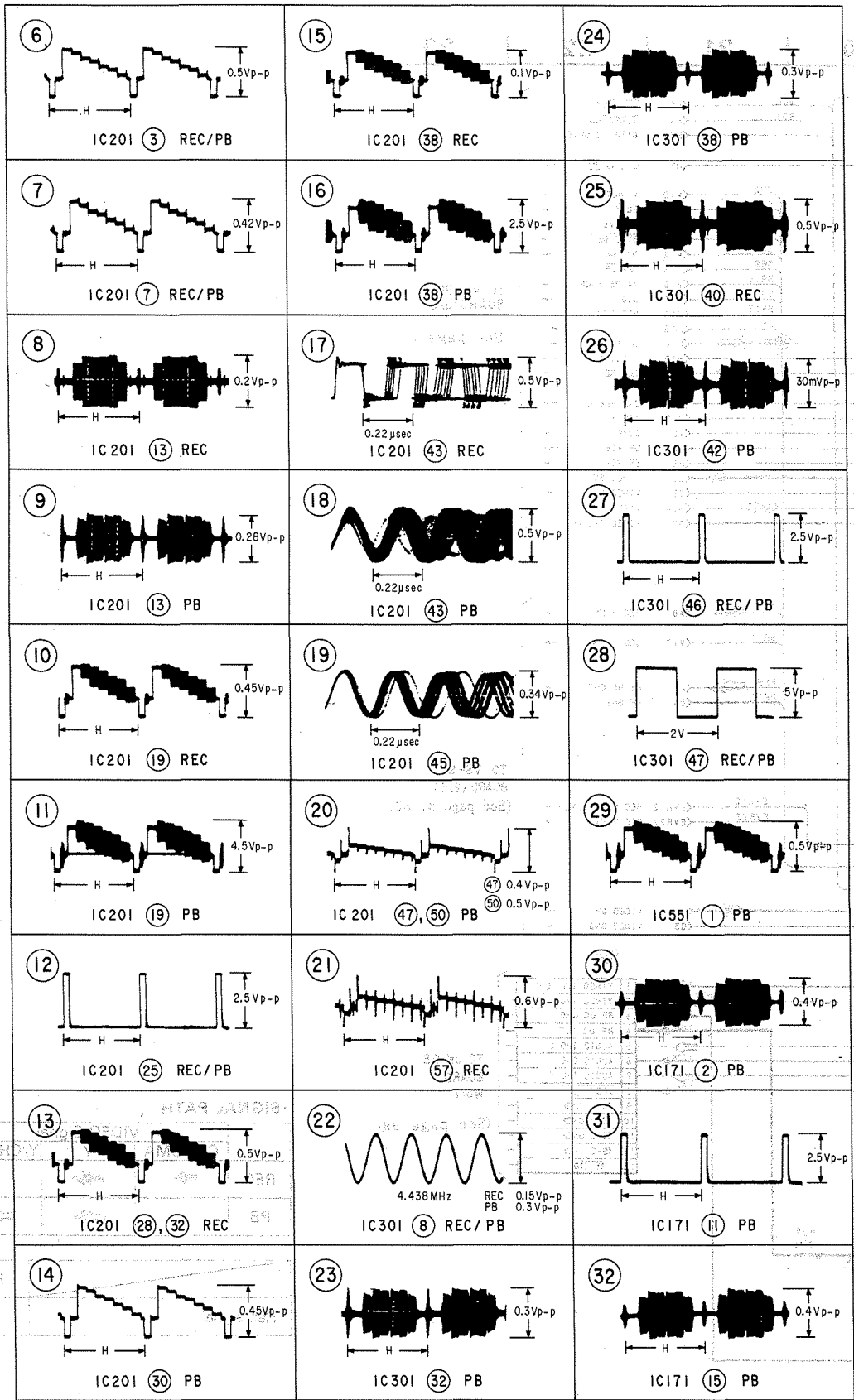
— Ref. No. VS-99 BOARD: 3,000 series —

• Refer to page 74 for printed wiring board.





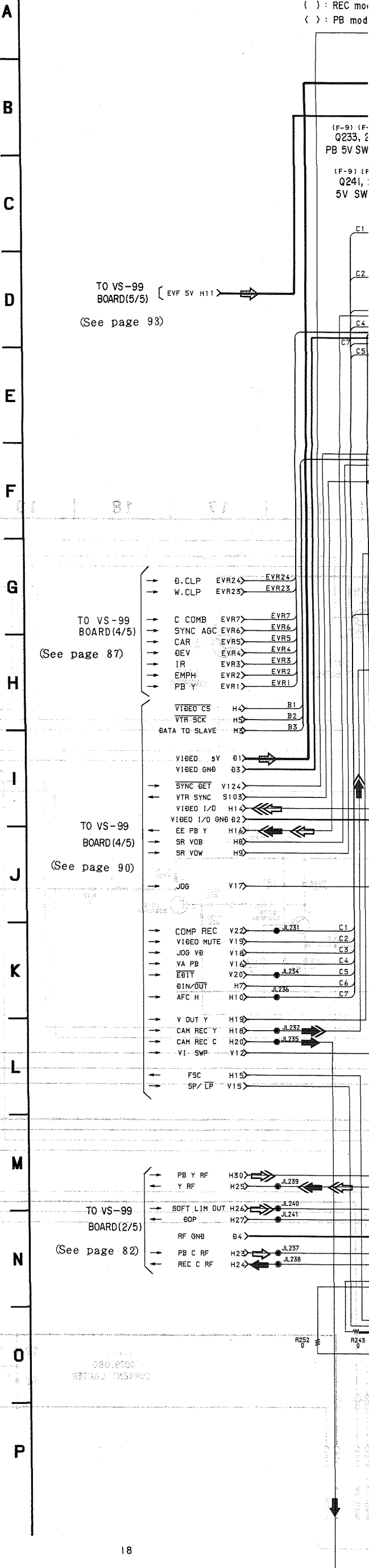
VS-99 BOARD (3/5)



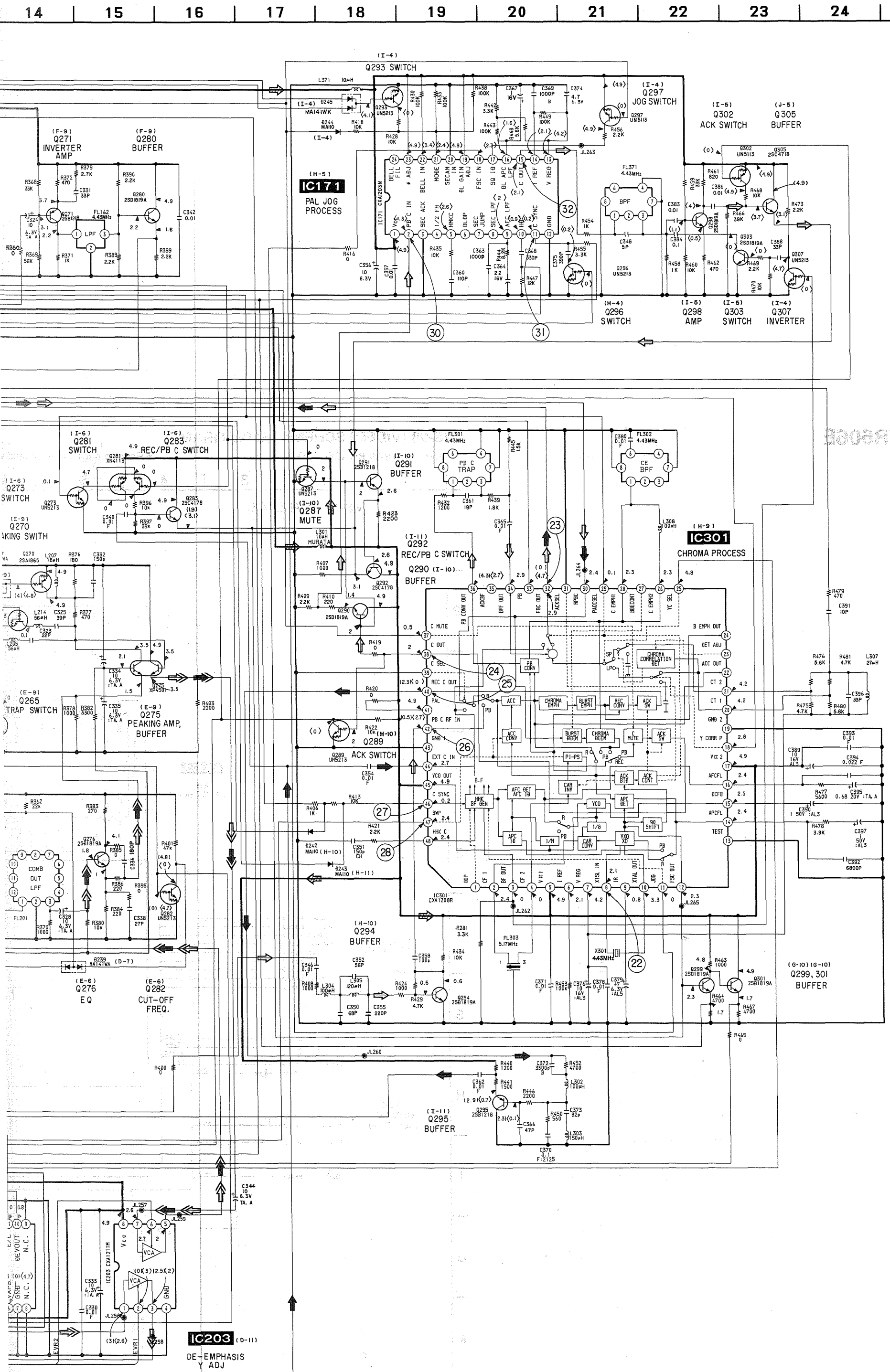
•SIGNAL PATH

|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC | ⇒            | ⇒ | ⇒        |              |
| PB  | ⇒            | ⇒ | ⇒        |              |

VS-99 BOARD (3/5)





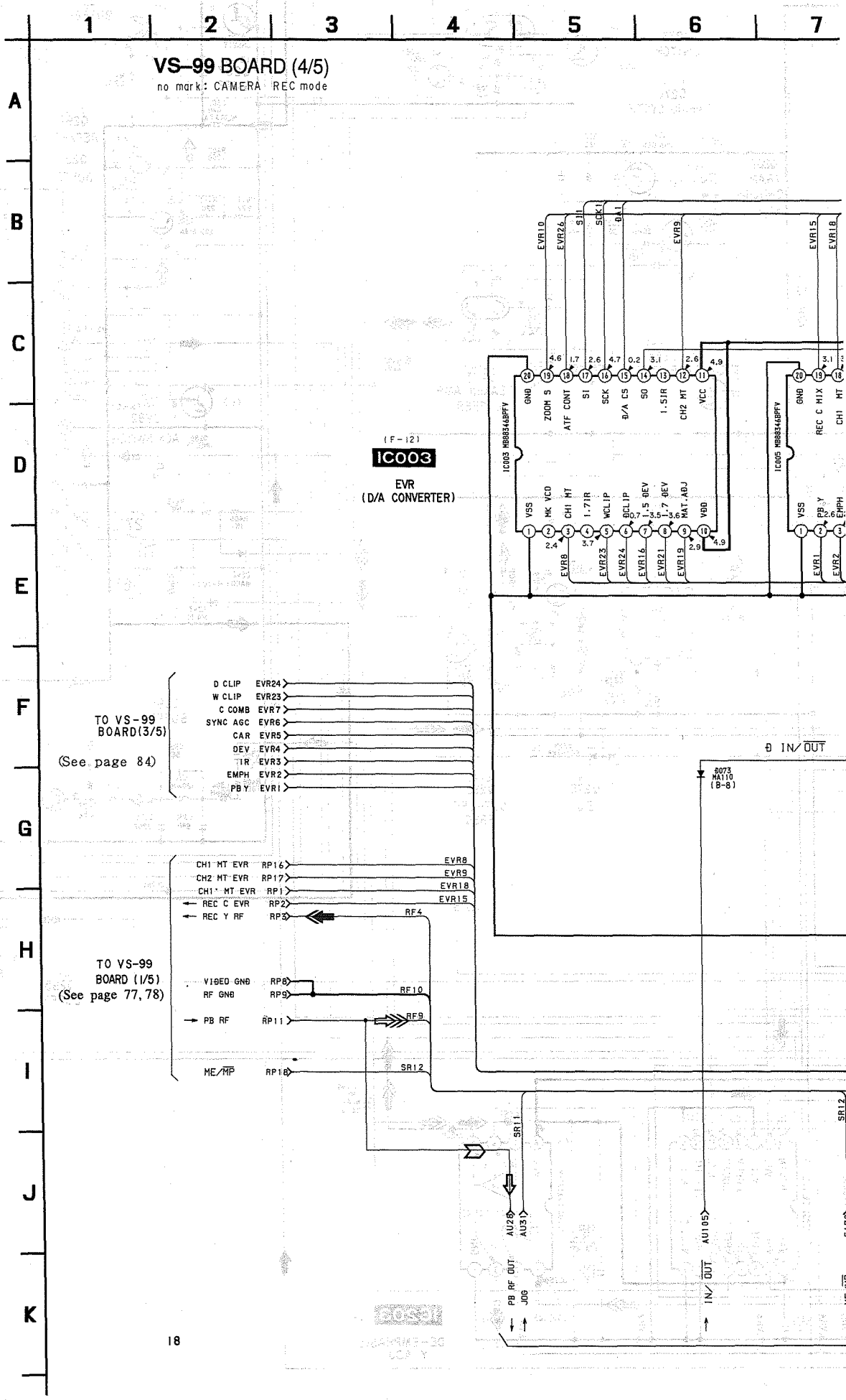


CCD-TR606E

VS-99 (VIDEO) SCHEMATIC DIAGRAM

— Ref. No. VS-99 BOARD: 3,000 series —

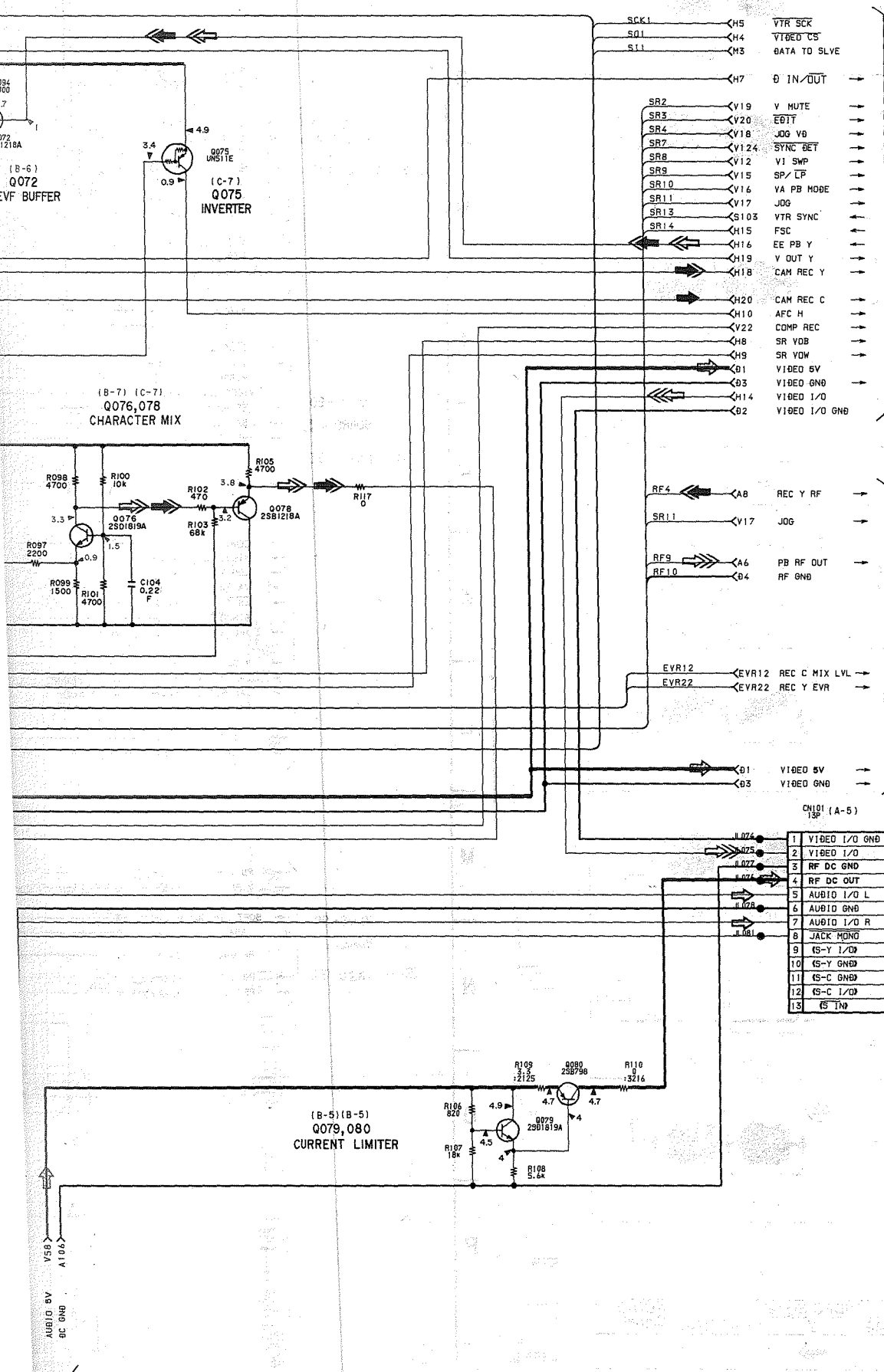
• Refer to page 74 for printed wiring board.







16 | 17 | 18 | 19 | 20 | 21 | 22 | 23



# SIGNAL PATH

|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC | ➡            | ➡ |          |              |
| PB  |              | ➡ | ➡        | ➡            |

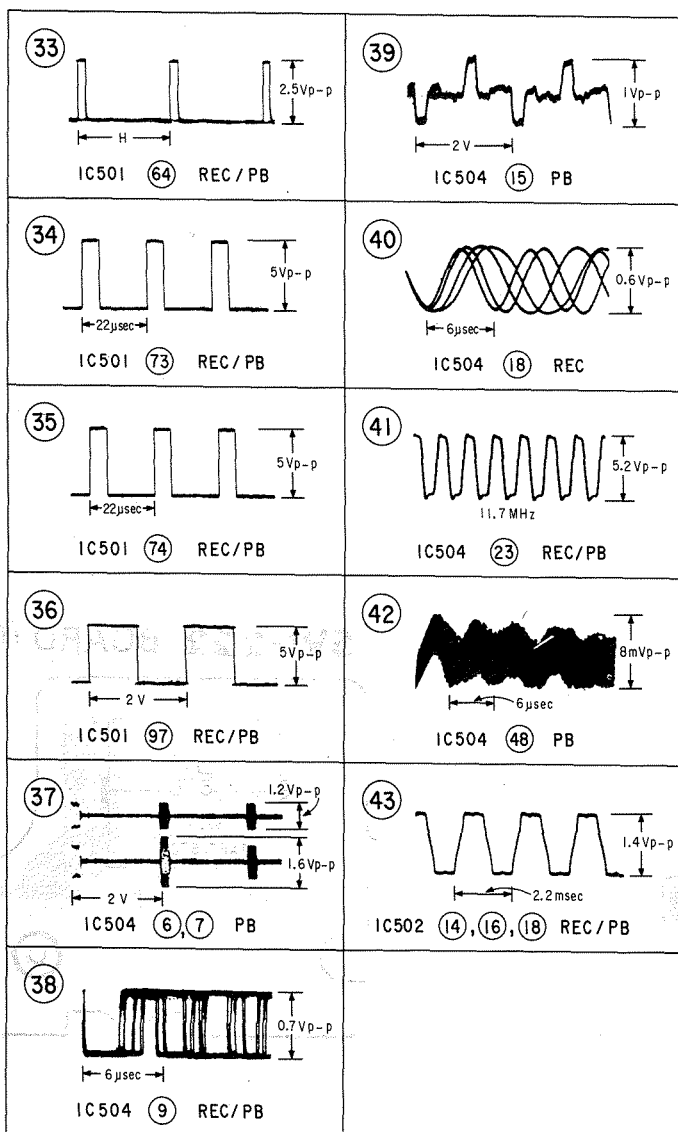
|             | REC | REC/PB | PB |
|-------------|-----|--------|----|
| Ref. signal |     |        | Σ  |

# VS-99 (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

— Ref. No. VS-99 BOARD: 3,000 series —

• Refer to page 74 for printed wiring board.

## VS-99 BOARD (5/5)



**Note:** The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

### SIGNAL PATH

|     | VIDEO Signal |    |          | AUDIO Signal |
|-----|--------------|----|----------|--------------|
|     | CHROMA       | Y  | Y/CHROMA |              |
| REC | ➡            | ➡➡ |          | ➡            |
| PB  |              | ➡➡ |          | ➡            |

|                                 | REC | REC/PB | PB |
|---------------------------------|-----|--------|----|
| Drum speed servo                |     | ➡      |    |
| Drum phase servo                |     | ➡      |    |
| Drum servo (speed and phase)    |     | ➡➡     |    |
| Capstan speed servo             |     |        |    |
| Capstan phase servo             |     |        | ➡➡ |
| Capstan servo (speed and phase) |     | ➡➡     |    |
| Ref. signal                     | ➡   | ➡      | ➡  |

## VS-99 BOARD (5/5)

no mark : REC/PB mode

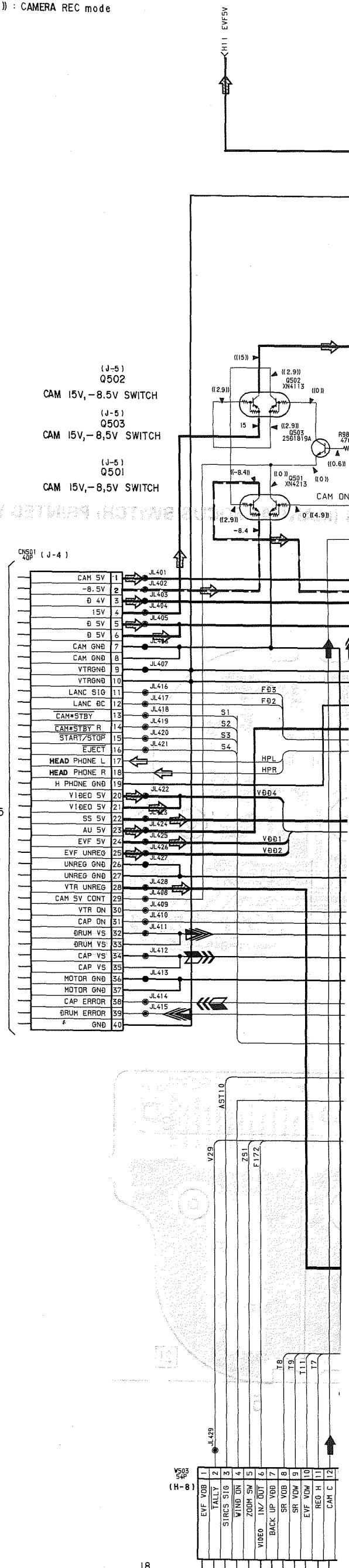
( ) : REC mode

< > : PB mode

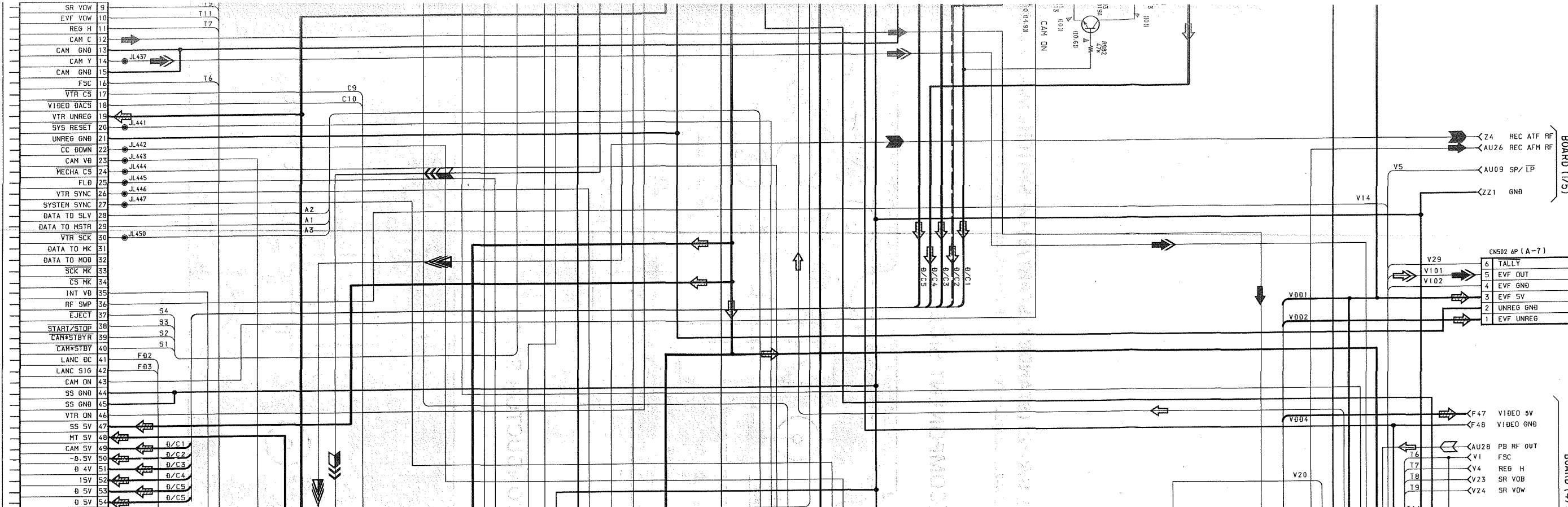
( ) : CAMERA REC mode

(See page 84)

TO VS-99 BOARD (3/5)



TO VC-132 BOARD (4/5) W901  
(See page 60)



(See page 77)  
TO VS-99  
BOARD (1/5)

(See page 121)  
TO VF-42 BOARD  
CN501

(See page 88)  
TO VS-99  
BOARD (4/5)

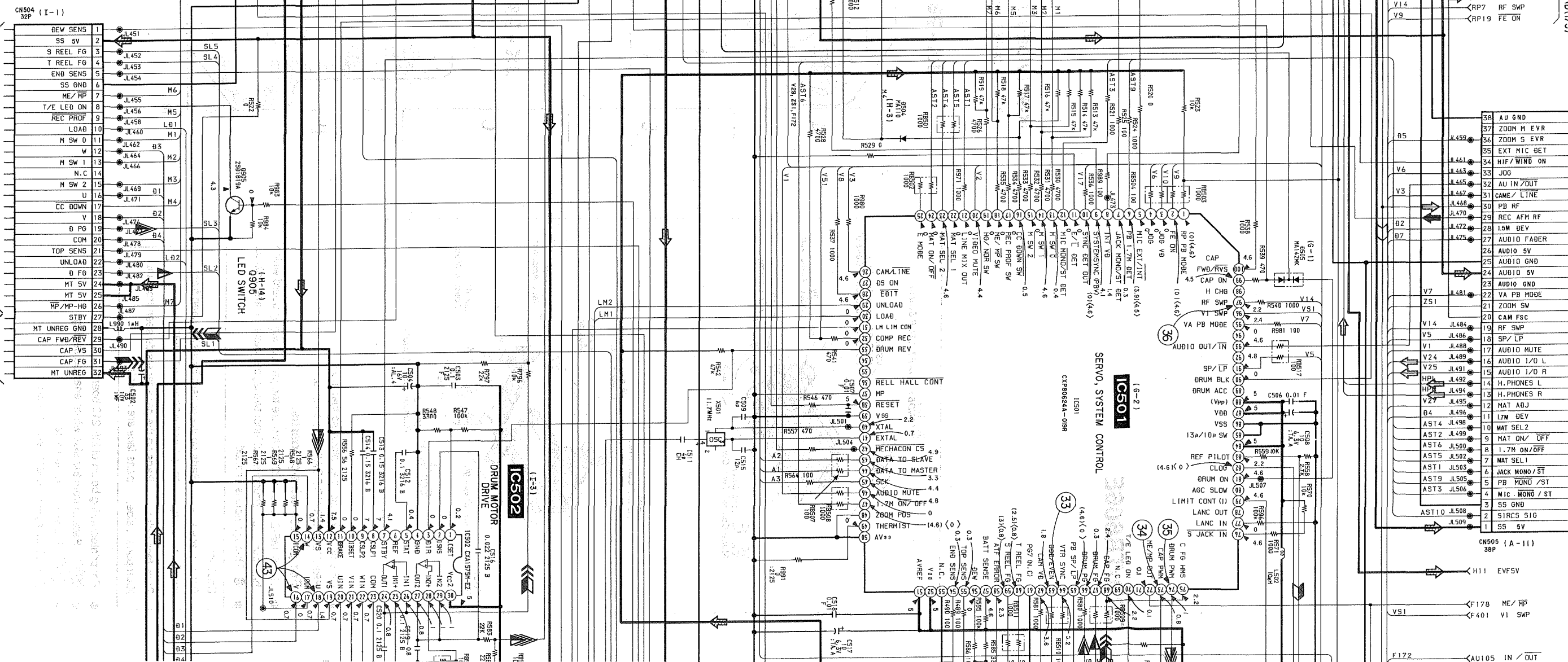
(See page 77)  
TO VS-99  
BOARD (1/5)

(See page 112)  
TO AU-149 BOARD CN802

TO VS-99  
BOARD (3/5)  
(See page 84)

TO SL-32 BOARD W872  
(See page 106)

TO CAPSTAN  
MOTOR M902  
(See page 105)



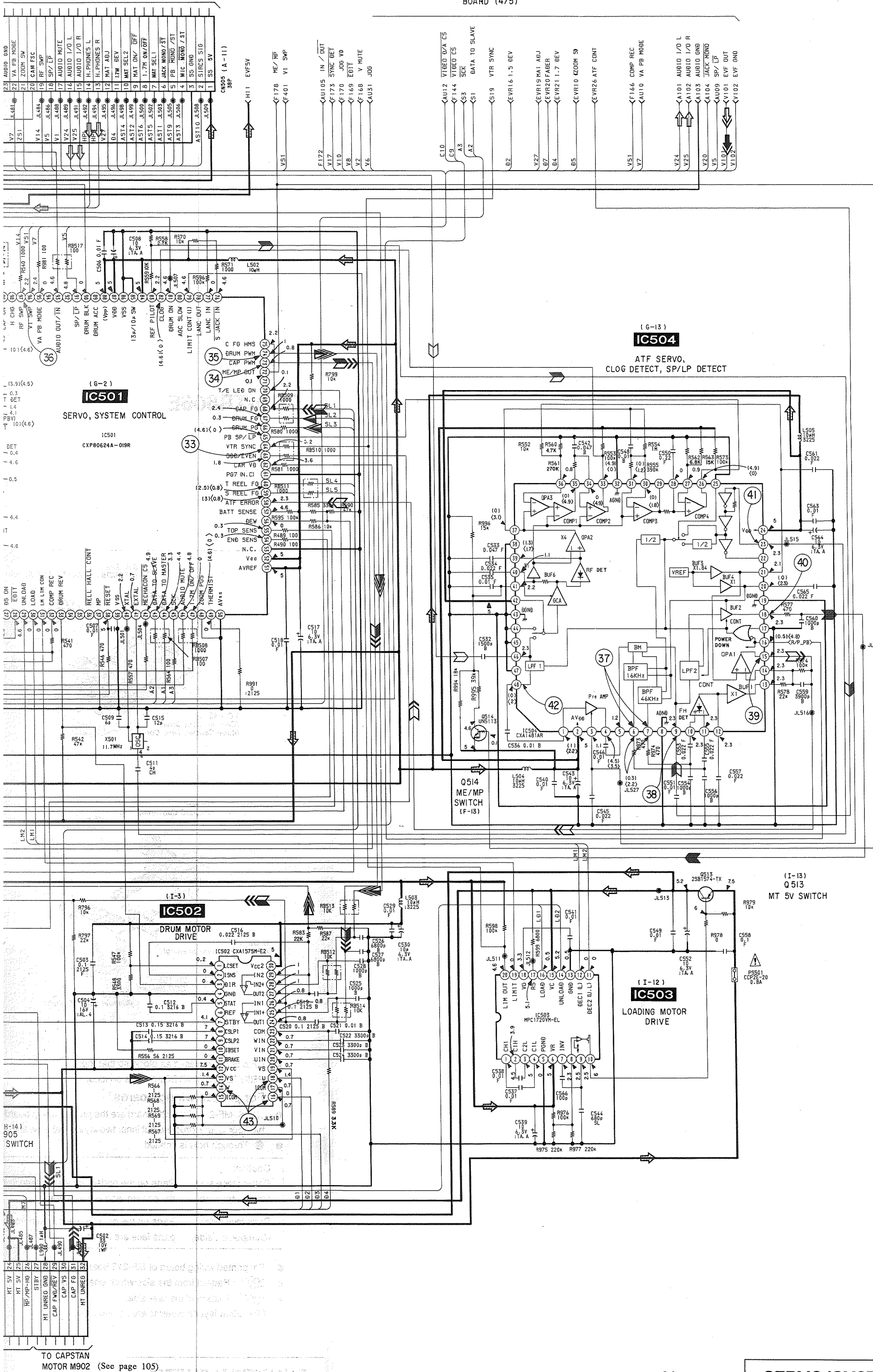
4 15 16 17 18 19 20 21 22 23 24

ee page 112)

-149 BOARD CN802

TO VS-99  
BOARD (3 / 5)  
(See page 84)

TO VS-99  
BOARD (4/5) (See page 88)

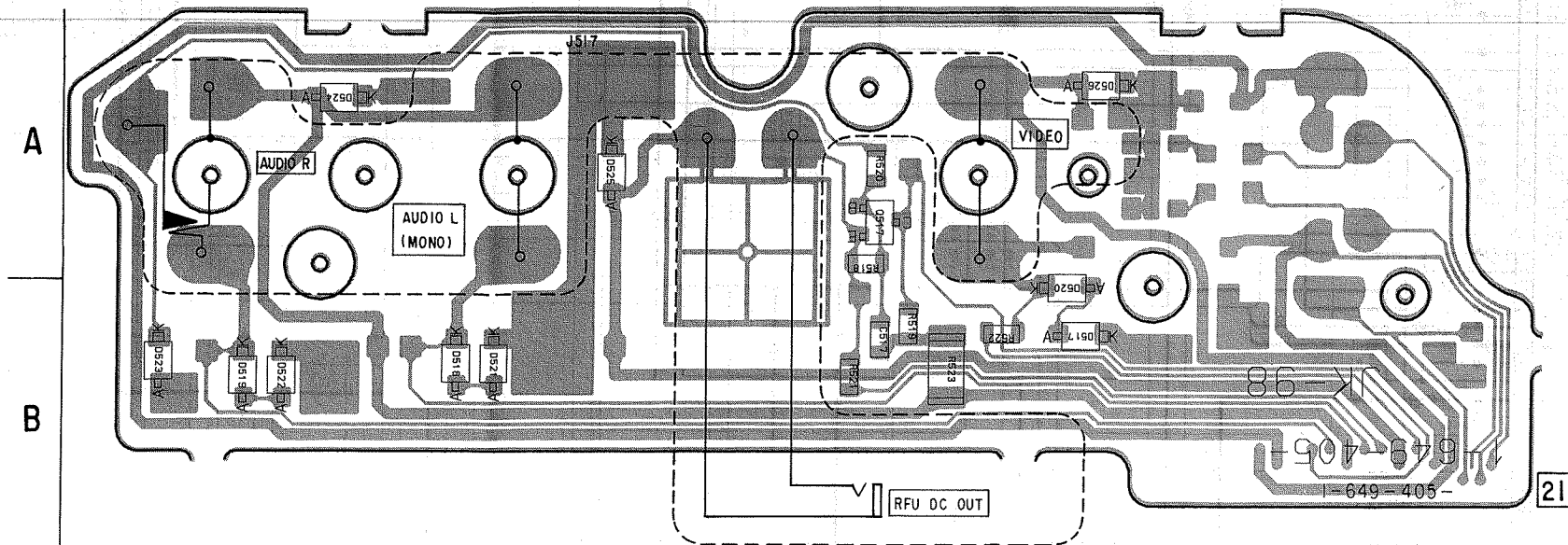




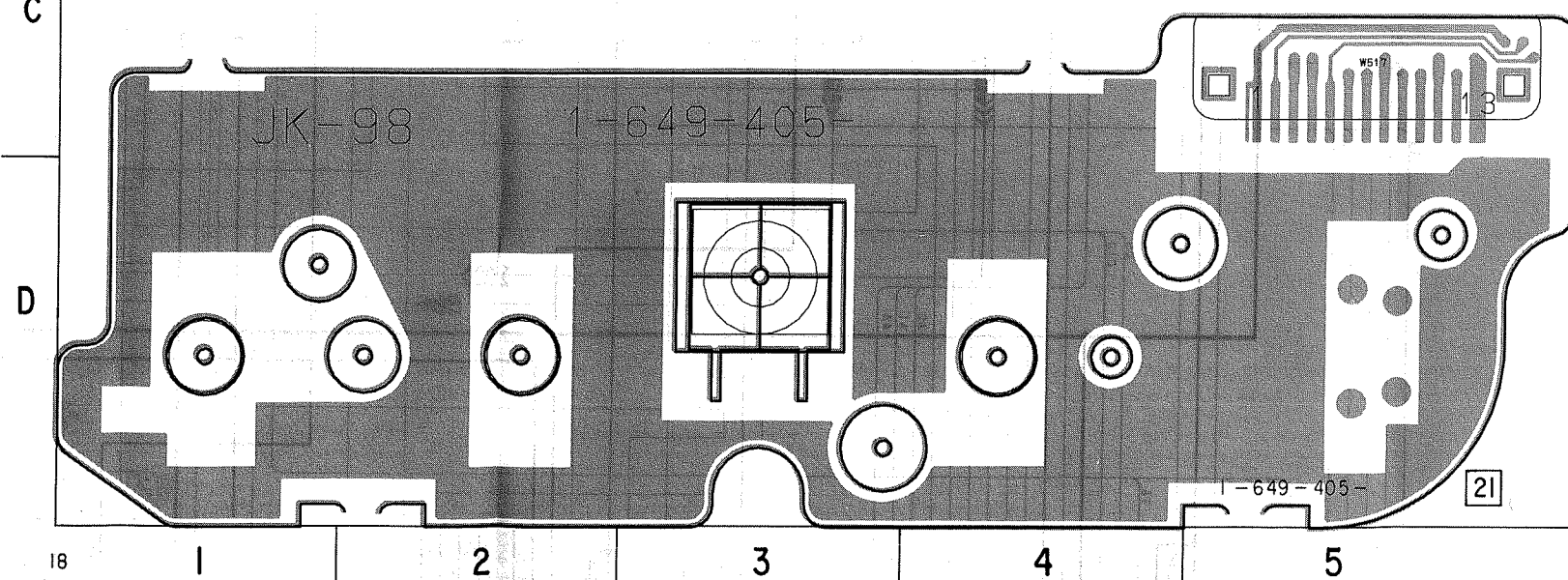
# JK-98 (VIDEO/AUDIO JACK), SW-222 (STANDBY, START/STOP SWITCH), MF-213 (MANUAL FOCUS SWITCH) PRINTED WIRING BOARDS

— Ref. No. JK-98 BOARD: 4,000 series, SW-222 BOARD: 5,000 series, MF-213 BOARD: 6,000 series —

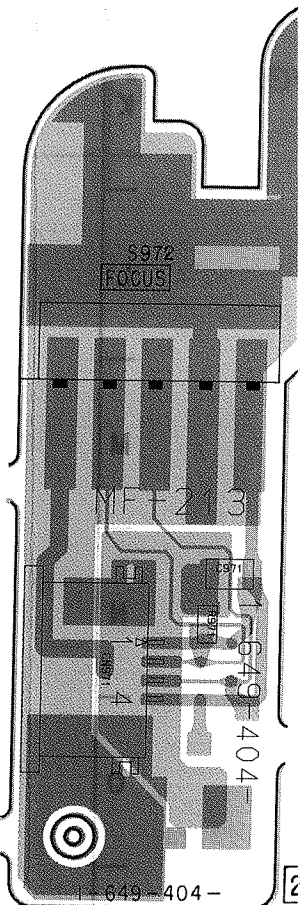
## JK-98 BOARD (COMPONENT SIDE)



## JK-98 BOARD (CONDUCTOR SIDE)



## MF-213 BOARD



- CF block is replaced as block, so that there PRINTED WIRING BOARD are omitted.
- **For printed wiring boards.**
- JK-98, MF-213, SW-222 board are the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ●: Through hole is omitted.

Caution:

|                    |                                                                          |
|--------------------|--------------------------------------------------------------------------|
| Pattern face side: | Parts on the pattern face side seen from the pattern face are indicated. |
| Parts face side:   | Parts on the parts face side seen from the parts face are indicated.     |

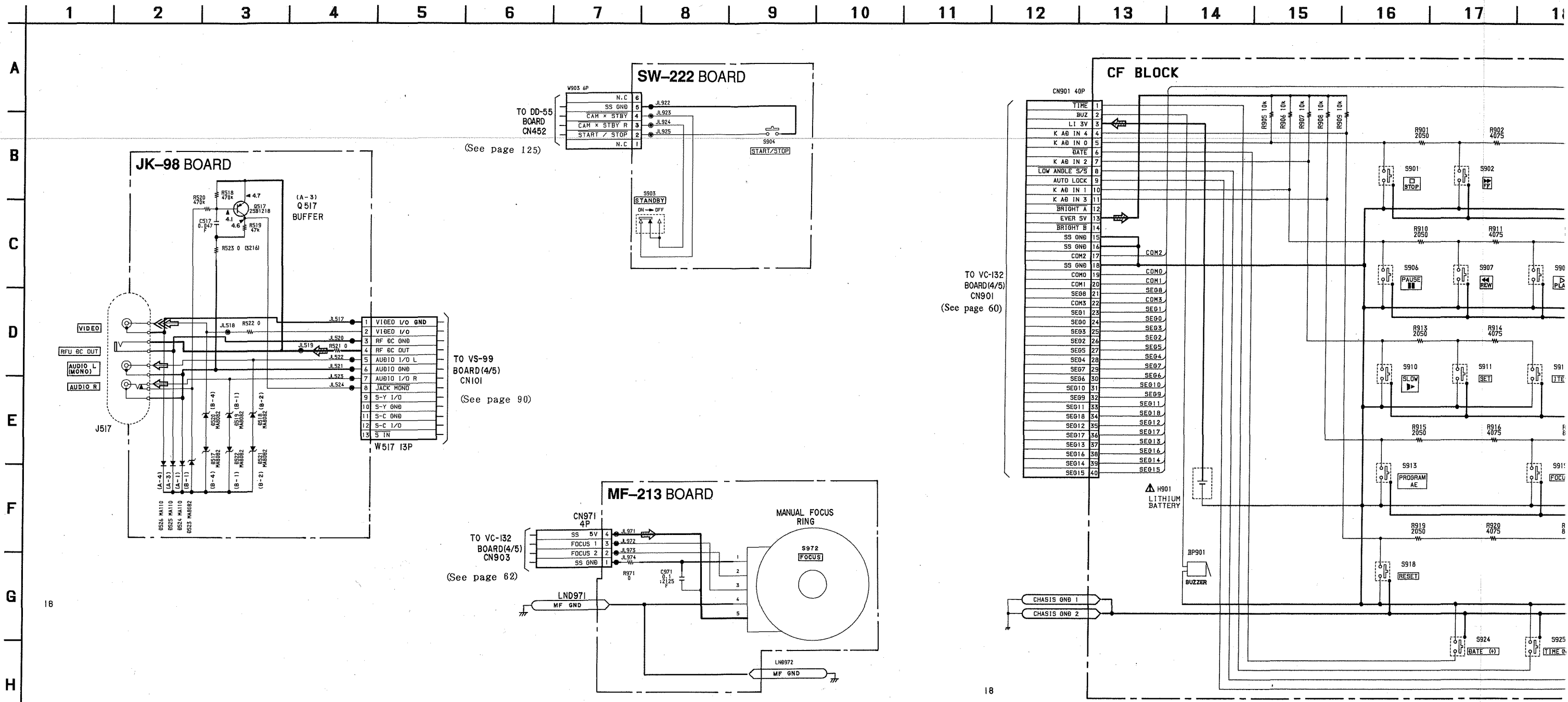
- For printed wiring board of MF-213 board.
  - : Pattern from the side which enables seeing.
  - : Pattern of the rear side.
- (The other layer's patterns are not indicated.)



D: 4,000 series, SW-222 BOARD: 5,000 series, MF-213 BOARD: 6,000 series —

CF BLOCK (CAMERA FUNCTION SWITCH), JK-98 (VIDEO/AUDIO JACK), SW-222 (STANDBY, START/STOP SWITCH), MF-213 (MANUAL FOCUS SWITCH) SCHEMATIC DIAGRAMS

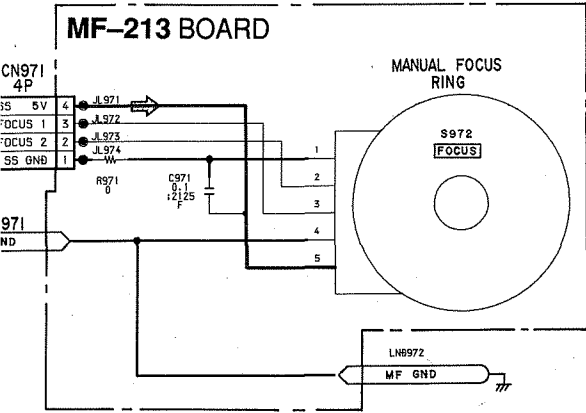
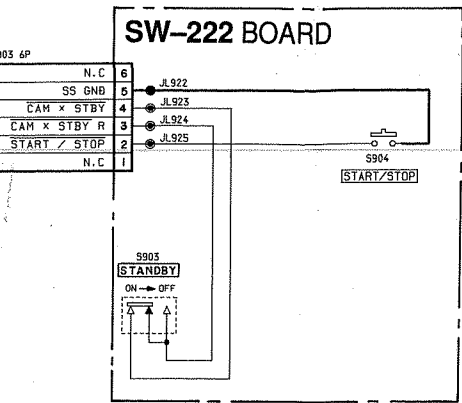
— Ref. No. CF BLOCK: 6,000 series, JK-98 BOARD: 4,000 series, SW-222 BOARD: 5,000 series, MF-213 BOARD: 6,000 series —



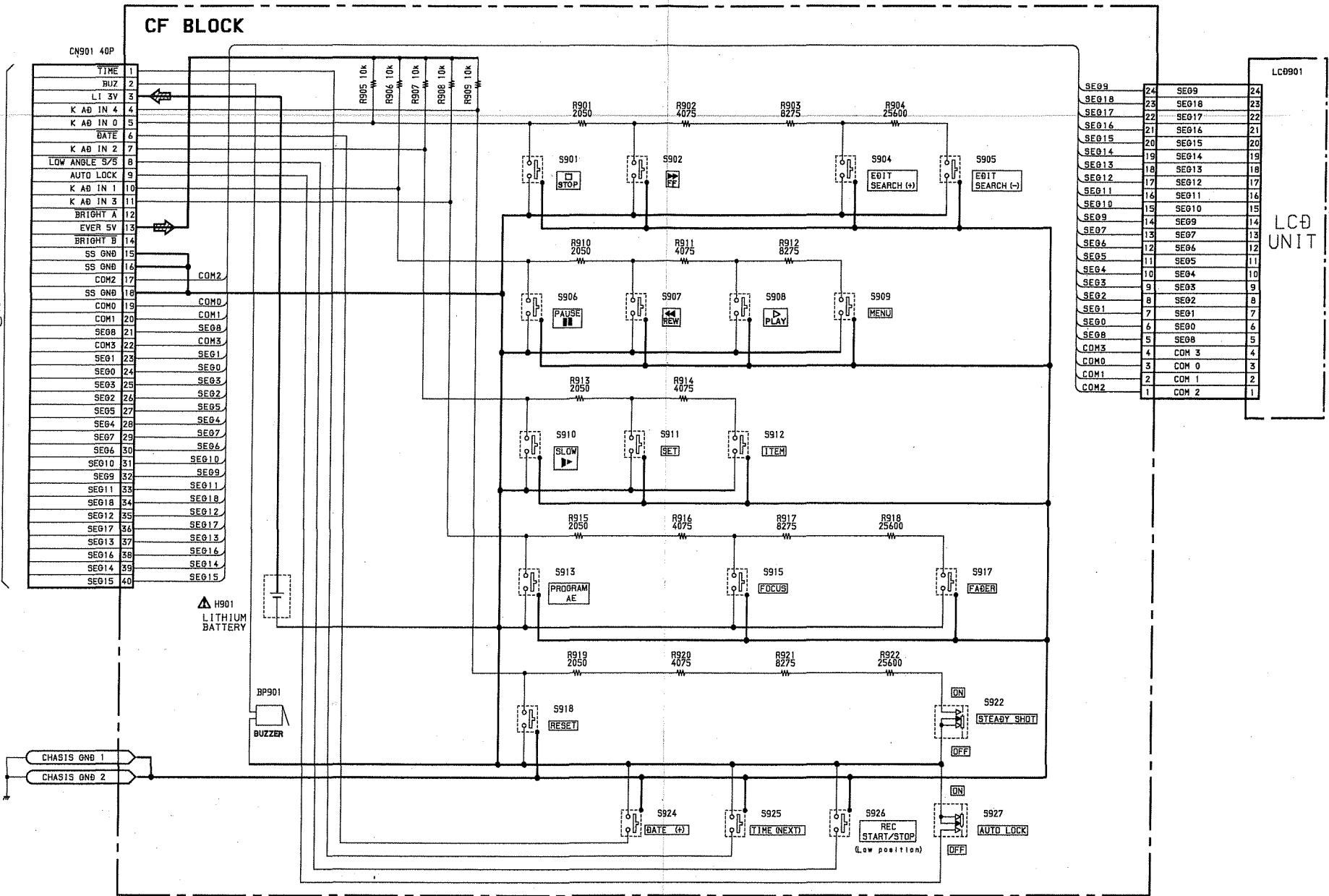
SW-222 (STANDBY, START/STOP SWITCH), MF-213 (MANUAL FOCUS SWITCH) SCHEMATIC DIAGRAMS

BOARD: 6,000 series

|   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|



TO VC-132  
BOARD(4/5)  
CN901  
(See page 60)



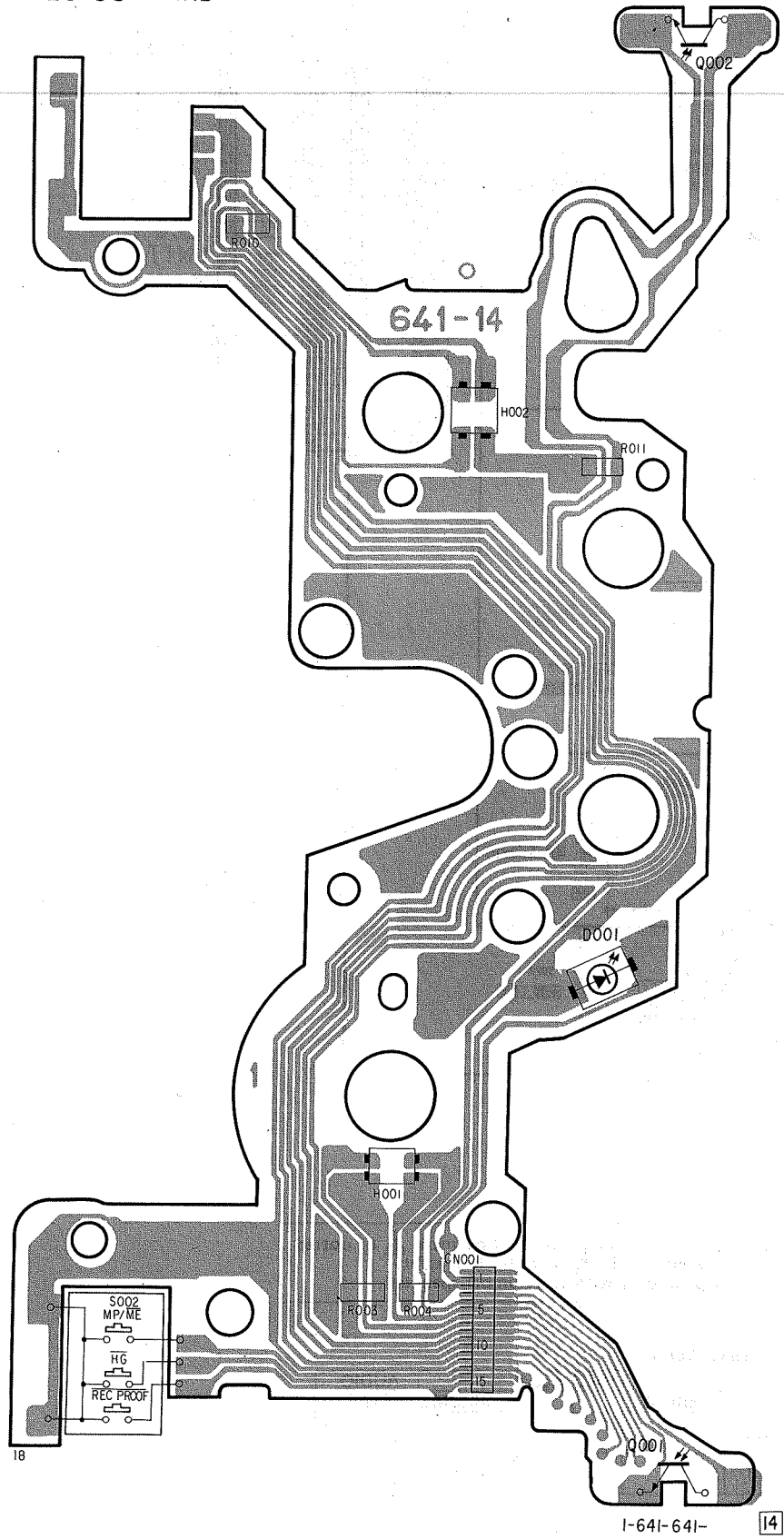
**Note:** The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC |              |   |          |              |
| PB  |              |   | ⇒⇒       | ⇒            |

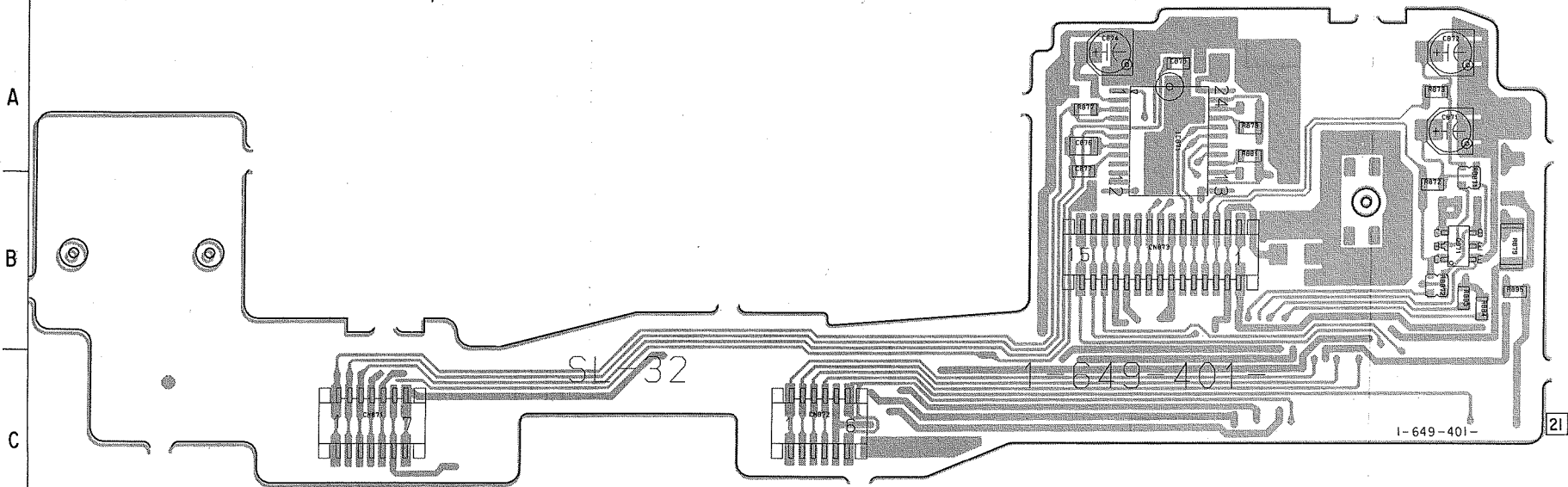
SL-32 (FG/PG WAVEFORM SHAPING), FP-442 (MODE SWITCH), LM-40 (LOADING MOTOR), LS-33 (MECHA SENSOR) PRINTED WIRING BOARDS

— Ref. No. SL-32 BOARD: 4,000 series, LS-33 BOARD: 5,000 series —

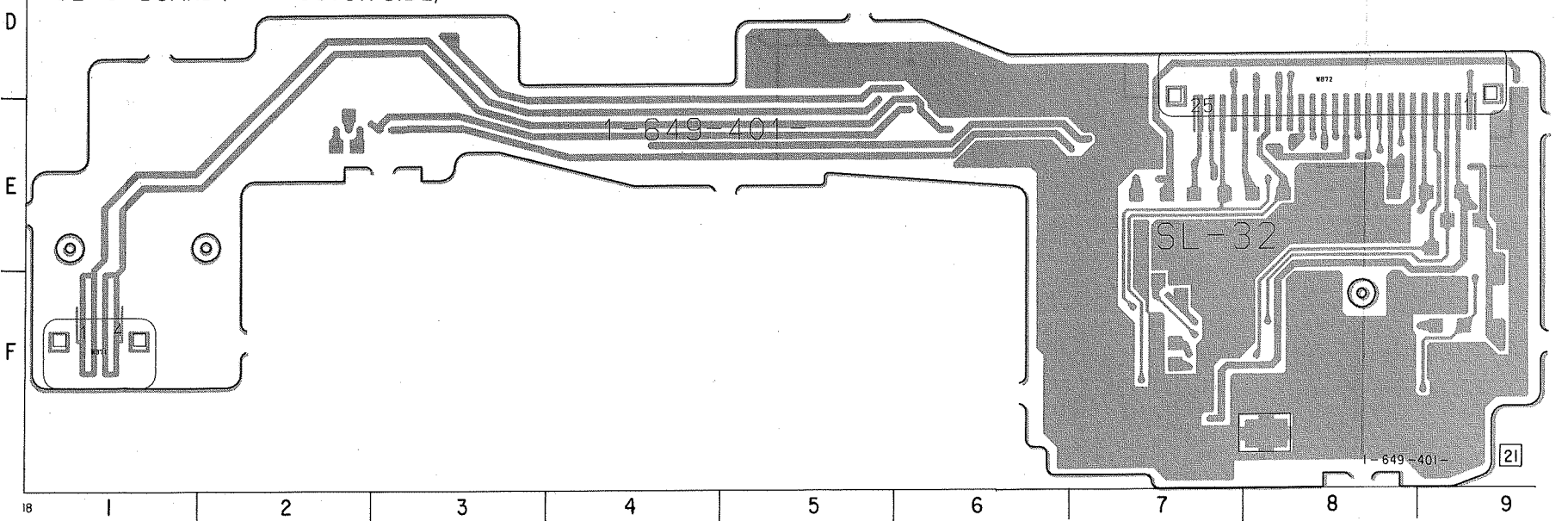
LS-33 BOARD



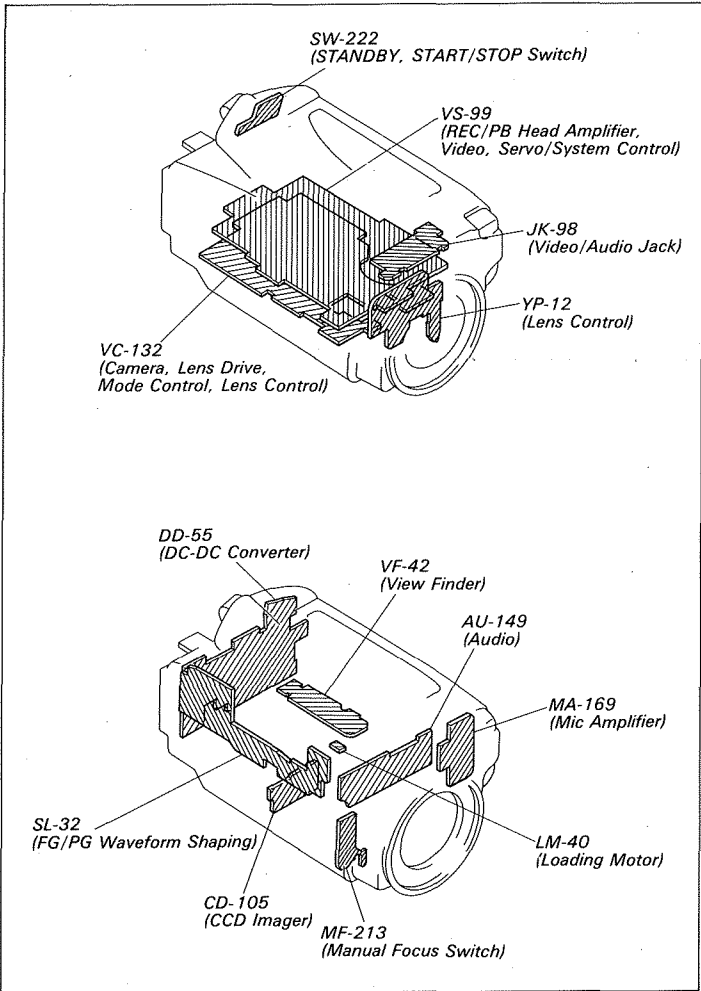
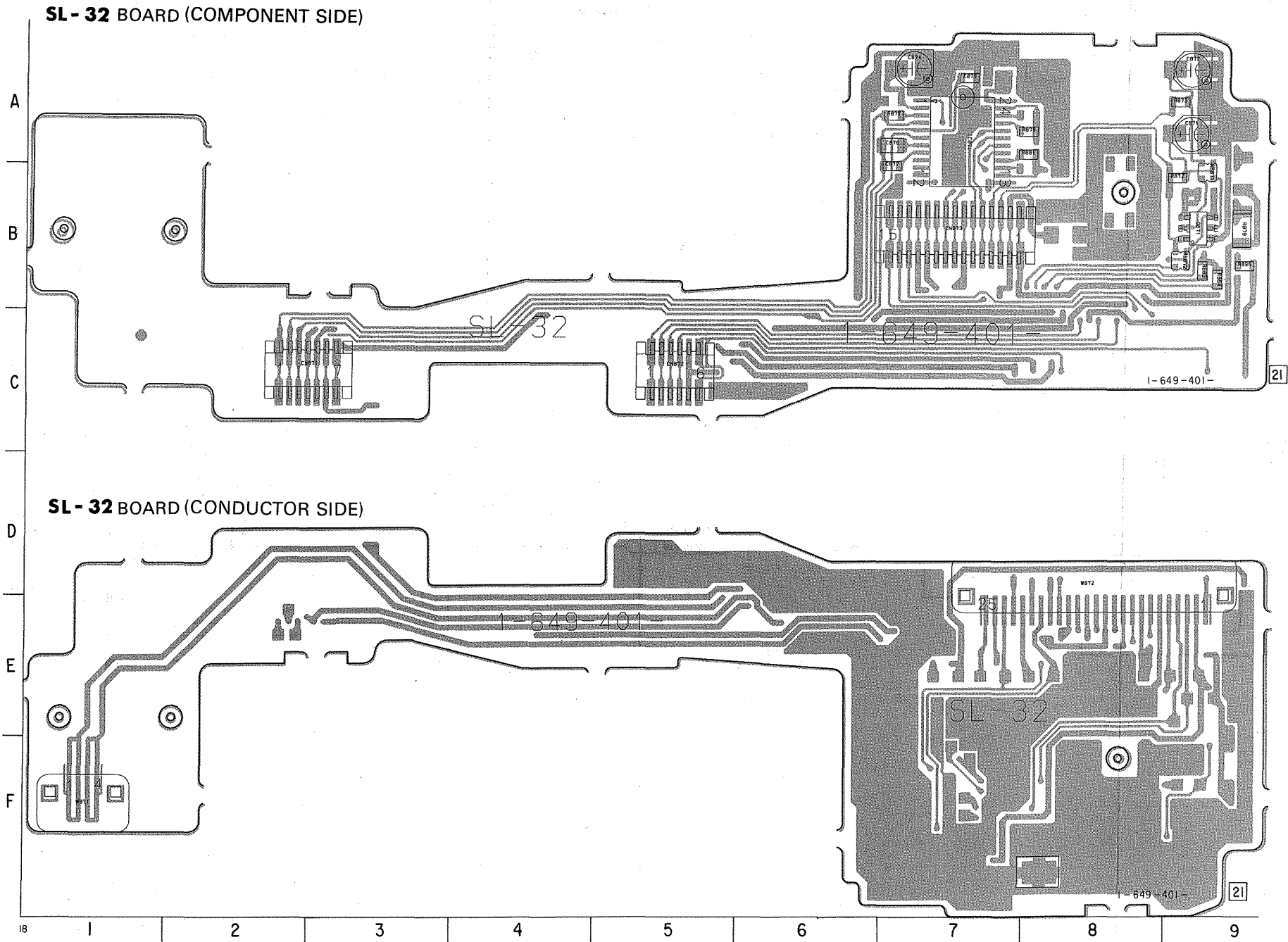
SL - 32 BOARD (COMPONENT SIDE)



SL - 32 BOARD (CONDUCTOR SIDE)



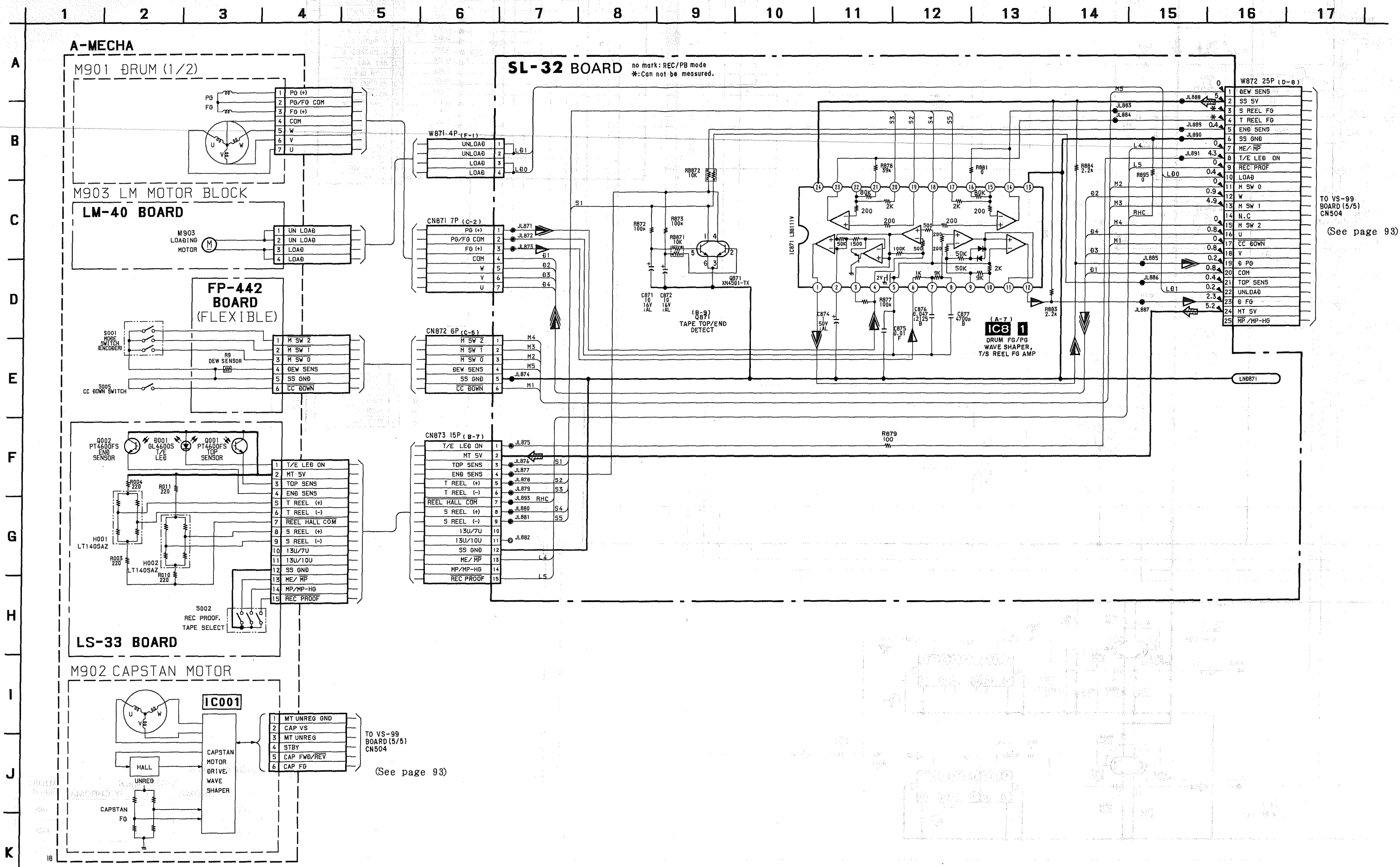
SWITCH), LM-40 (LOADING MOTOR), LS-33 (MECHA SENSOR) PRINTED WIRING BOARDS

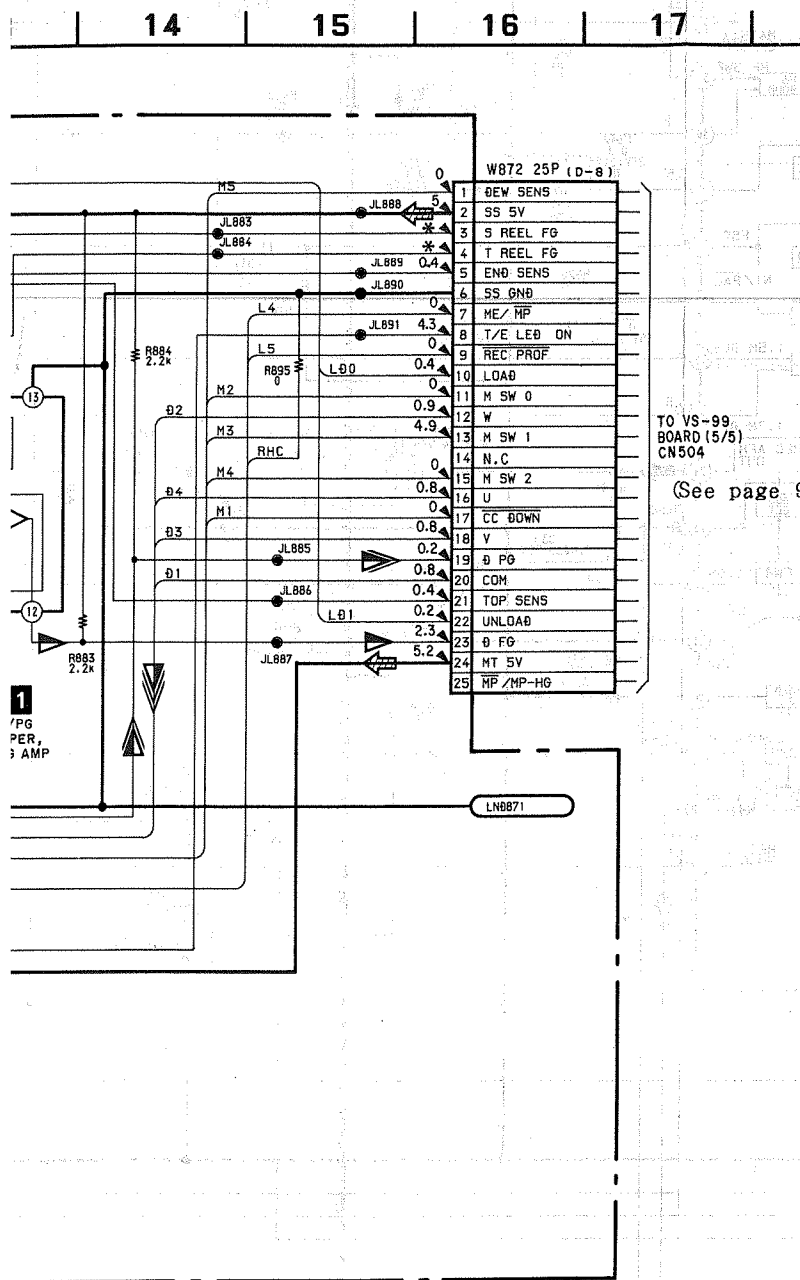


- FP-442, LM-40 boards are replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.
- **For printed wiring boards.**
- SL-32 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ●: Through hole is omitted.

|                                        |                                                                          |
|----------------------------------------|--------------------------------------------------------------------------|
| Caution:                               |                                                                          |
| Pattern face side:<br>(conductor Side) | Parts on the pattern face side seen from the pattern face are indicated. |
| Parts face side:<br>(Component side)   | Parts on the parts face side seen from the parts face are indicated.     |





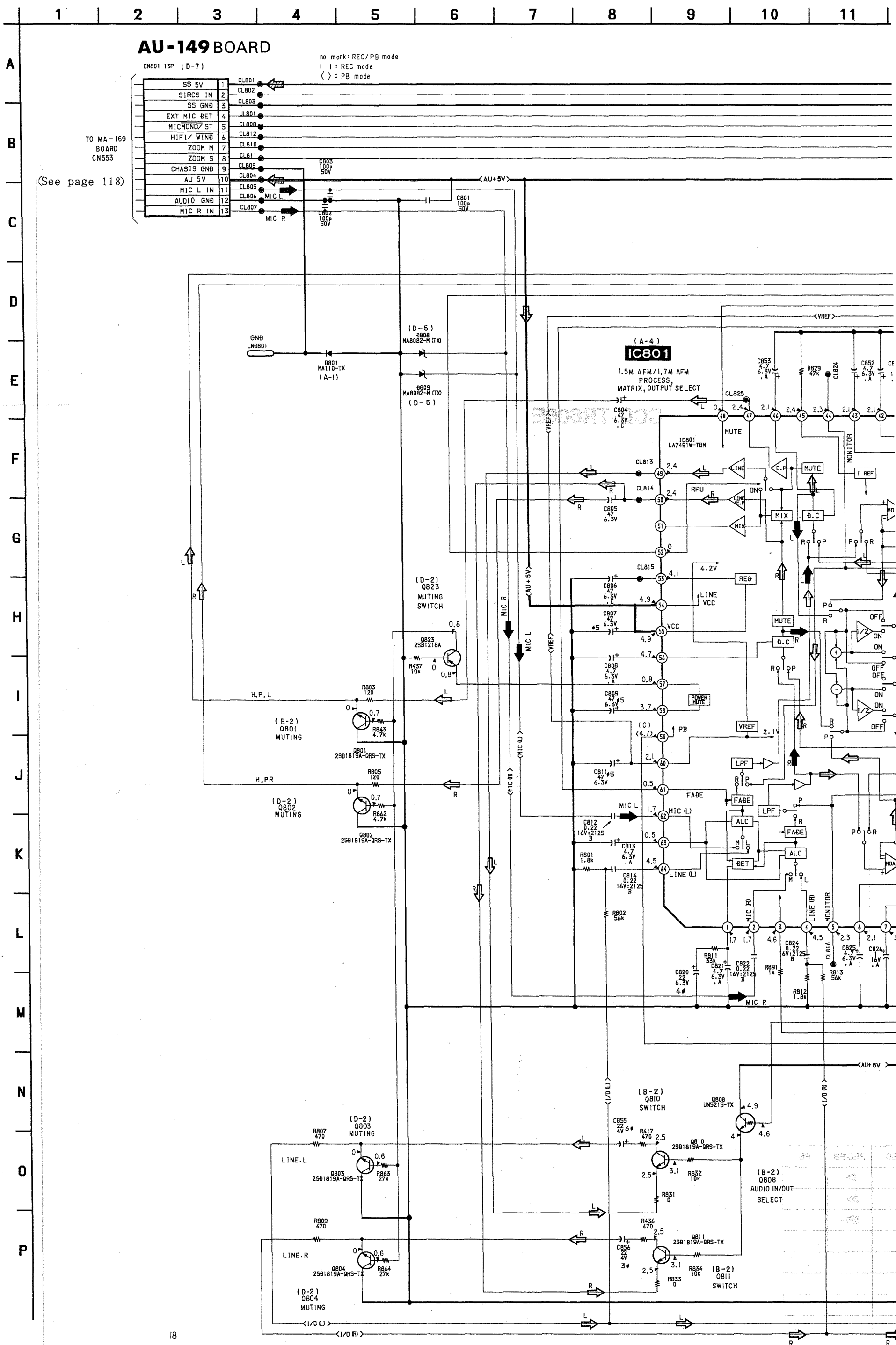


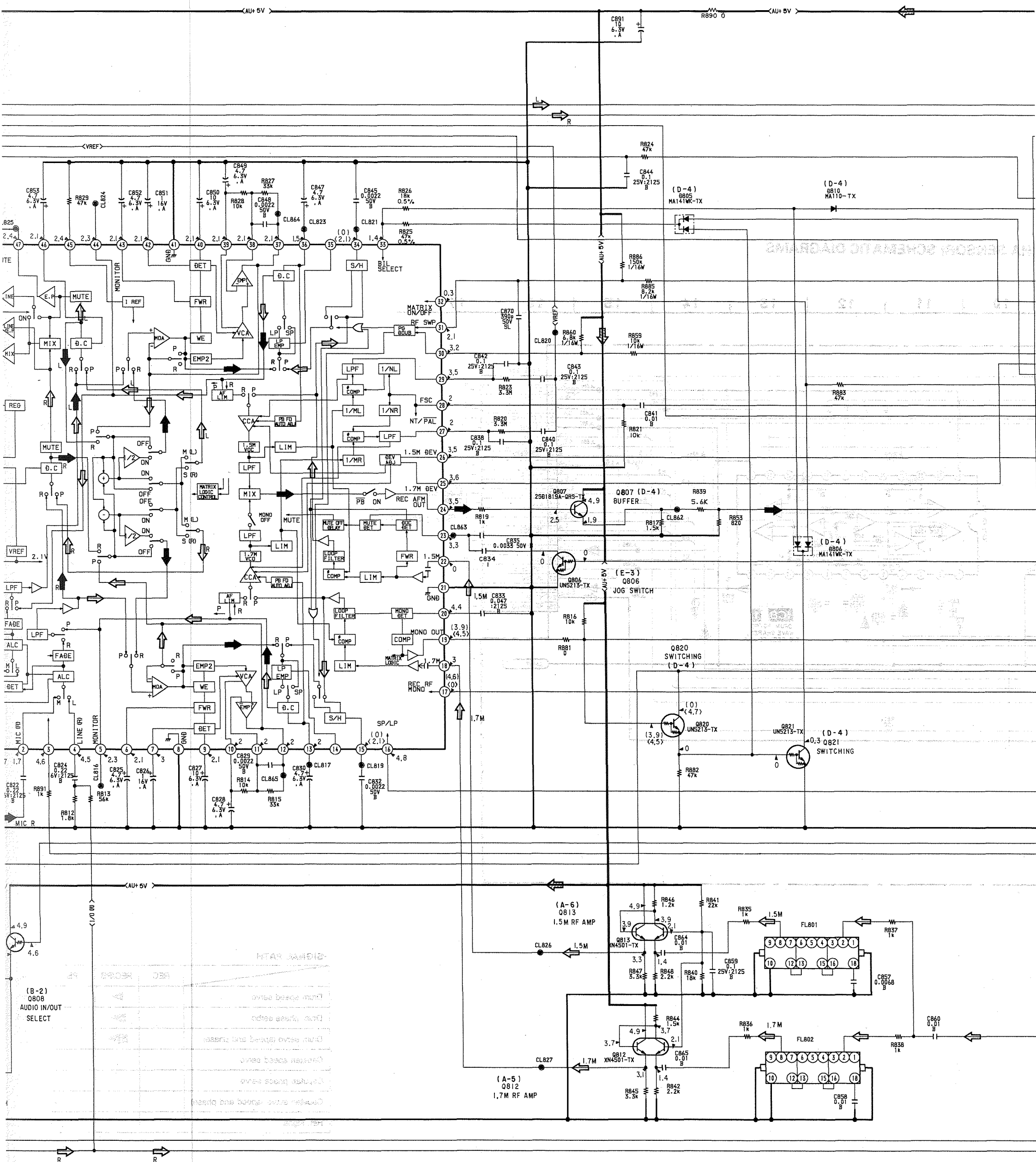
SIGNAL PATH

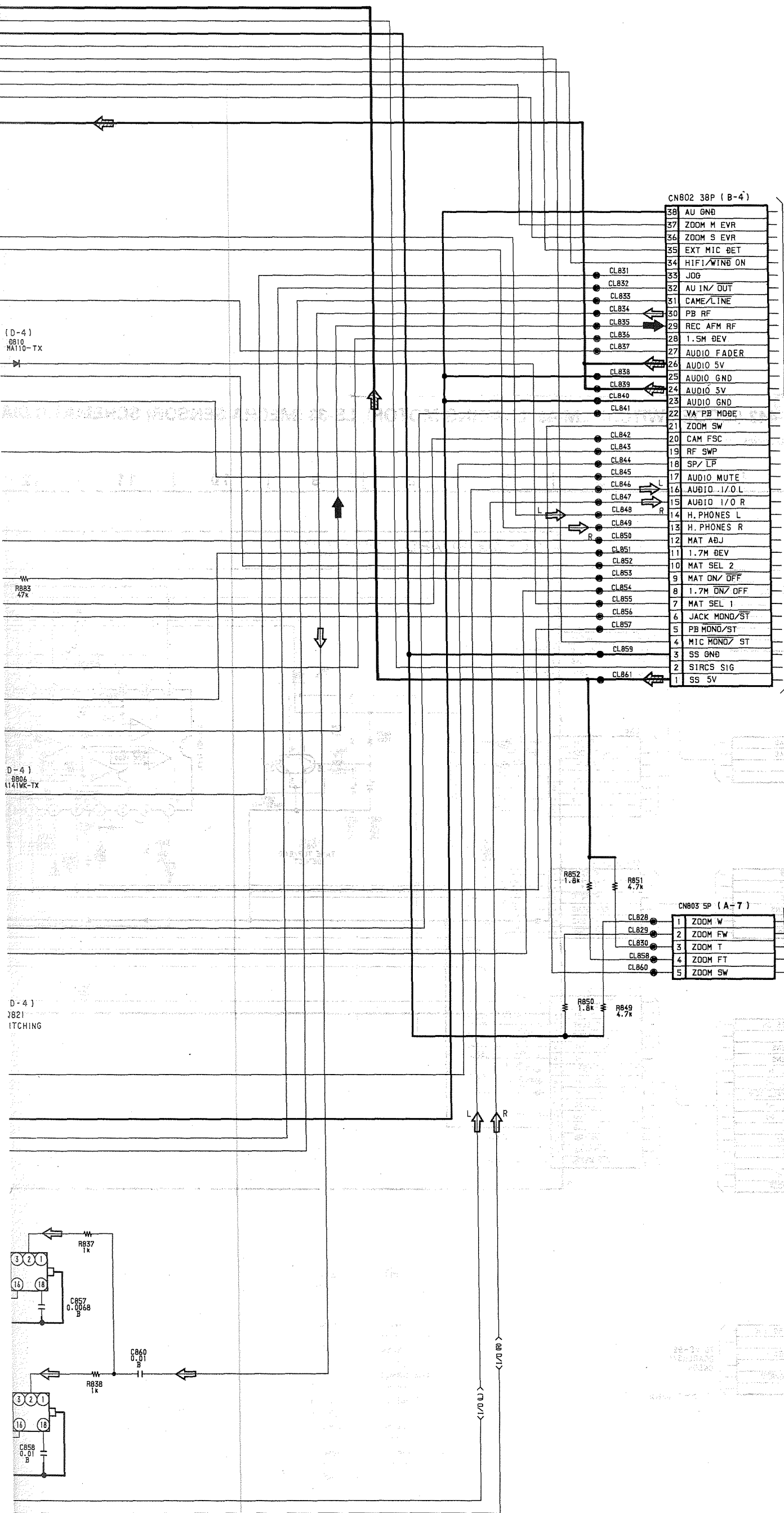
|                                 | REC | REC/PB | PB |
|---------------------------------|-----|--------|----|
| Drum speed servo                |     | ▶      |    |
| Drum phase serbo                |     | ▶▶     |    |
| Drum servo (speed and phase)    |     | ▶▶▶    |    |
| Capstan speed servo             |     |        |    |
| Capstan phase servo             |     |        |    |
| Capstan servo (speed and phase) |     |        |    |
| Ref. signal                     |     |        |    |

# AU-149 (AUDIO) SCHEMATIC DIAGRAM

— Ref. No. AU-149 BOARD: 7,000 series —







SIGNAL PATH

|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC |              |   |          | ➡            |
| PB  |              |   |          | ➡            |

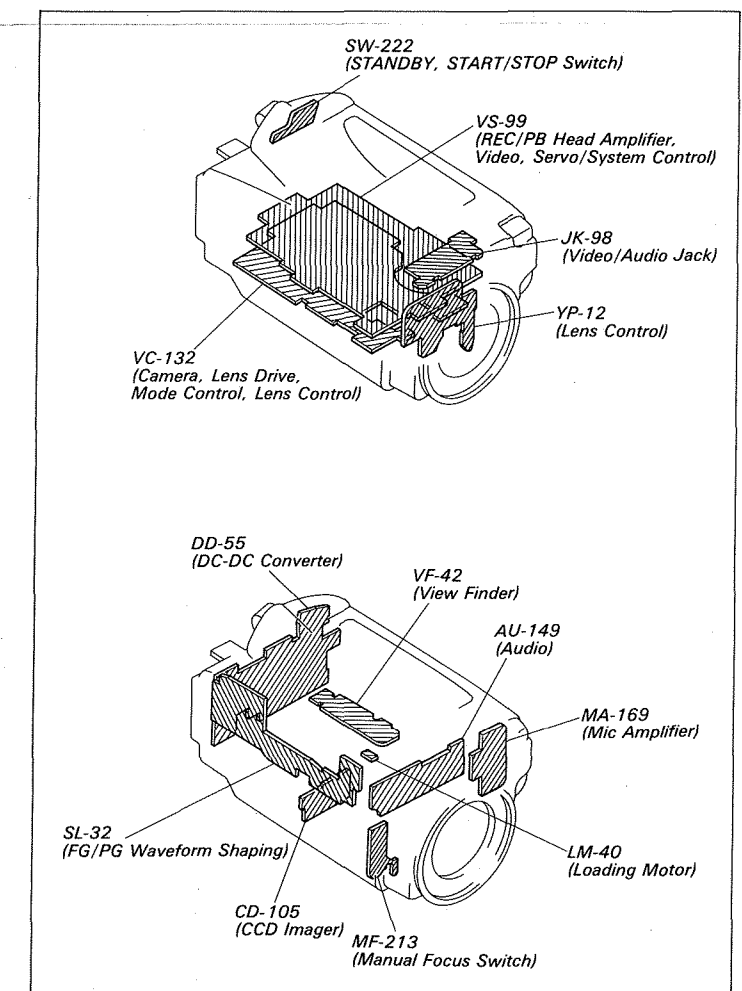
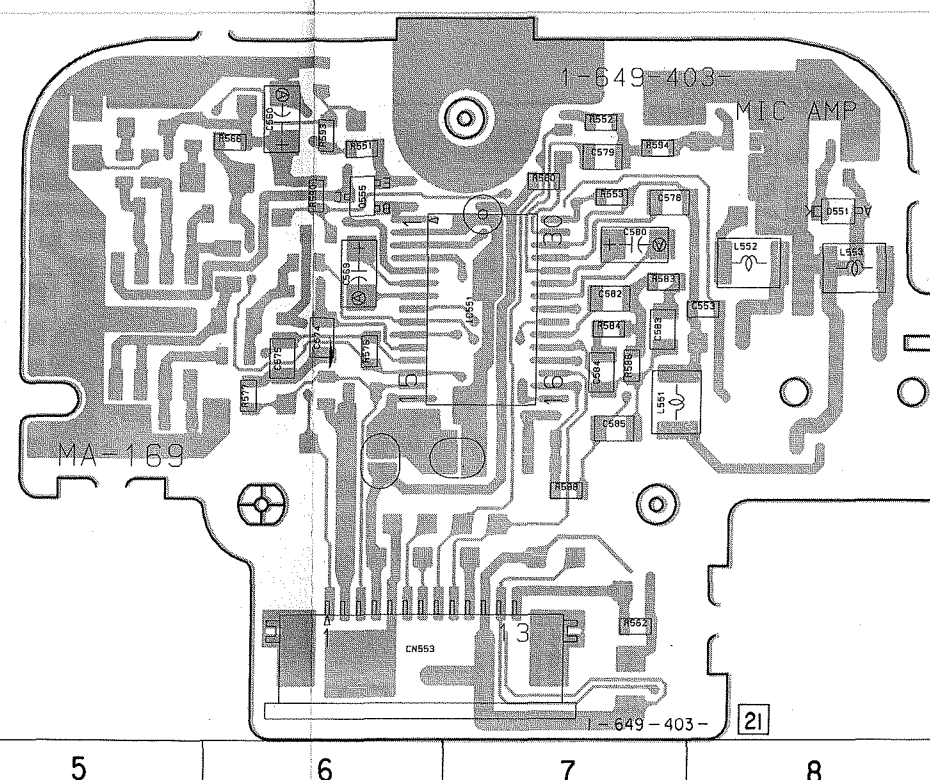




— 115 —

— 116 —

**MA-169** BOARD (CONDUCTOR SIDE)



- **For printed wiring boards.**
- MA-169 board is the printed wiring board which has four layers structure but inner two layers' patterns are omitted.
- ●: Through hole is omitted.

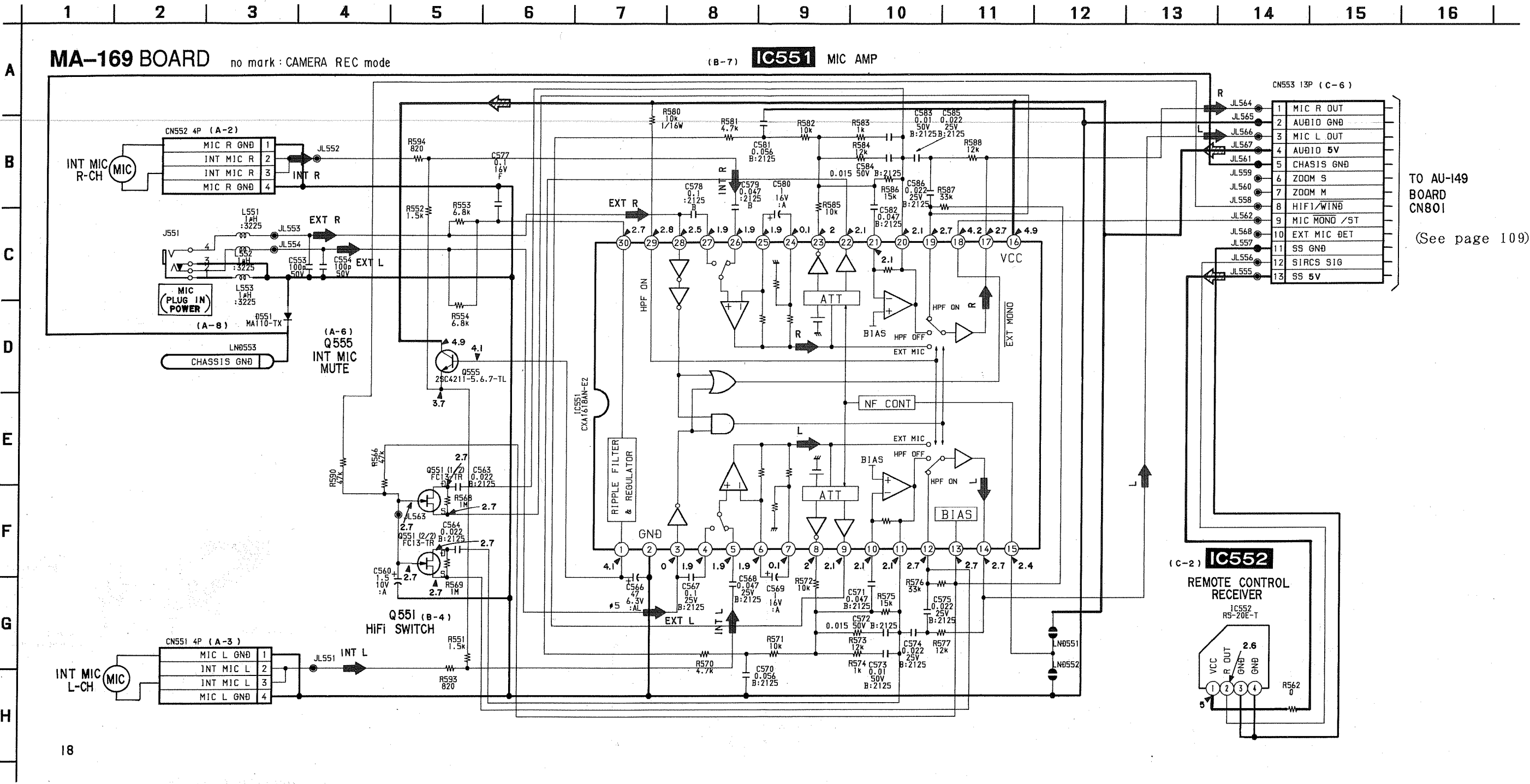
**Caution:**

Pattern face side: Parts on the pattern face side seen from  
(conductor Side) the pattern face are indicated.

Parts face side: Parts on the parts face side seen from the  
(Component side) parts face are indicated.

MA-169 (MIC AMPLIFIER) SCHEMATIC DIAGRAM

— Ref. No. MA-169 BOARD: 7,000 series —



18

| ·SIGNAL PATH |              |   |          |              |
|--------------|--------------|---|----------|--------------|
|              | VIDEO Signal |   |          | AUDIO Signal |
|              | CHROMA       | Y | Y/CHROMA |              |
| REC          |              |   |          | ➡            |
| PB           |              |   |          |              |

— 119 —

— 120 —

- **For printed wiring boards.**

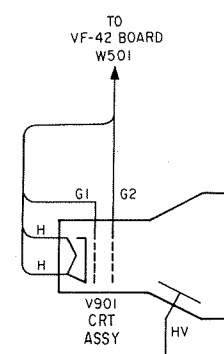
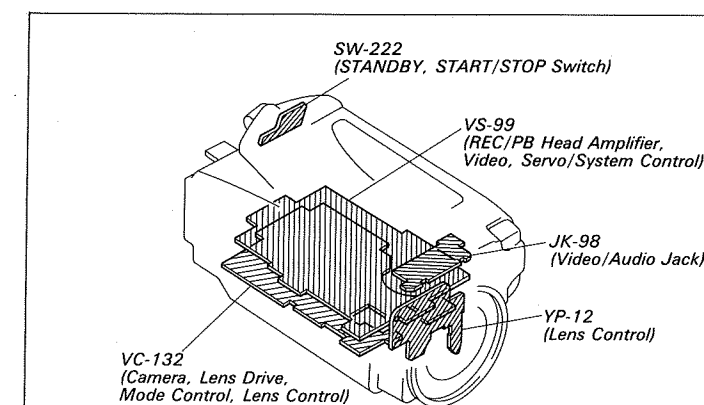
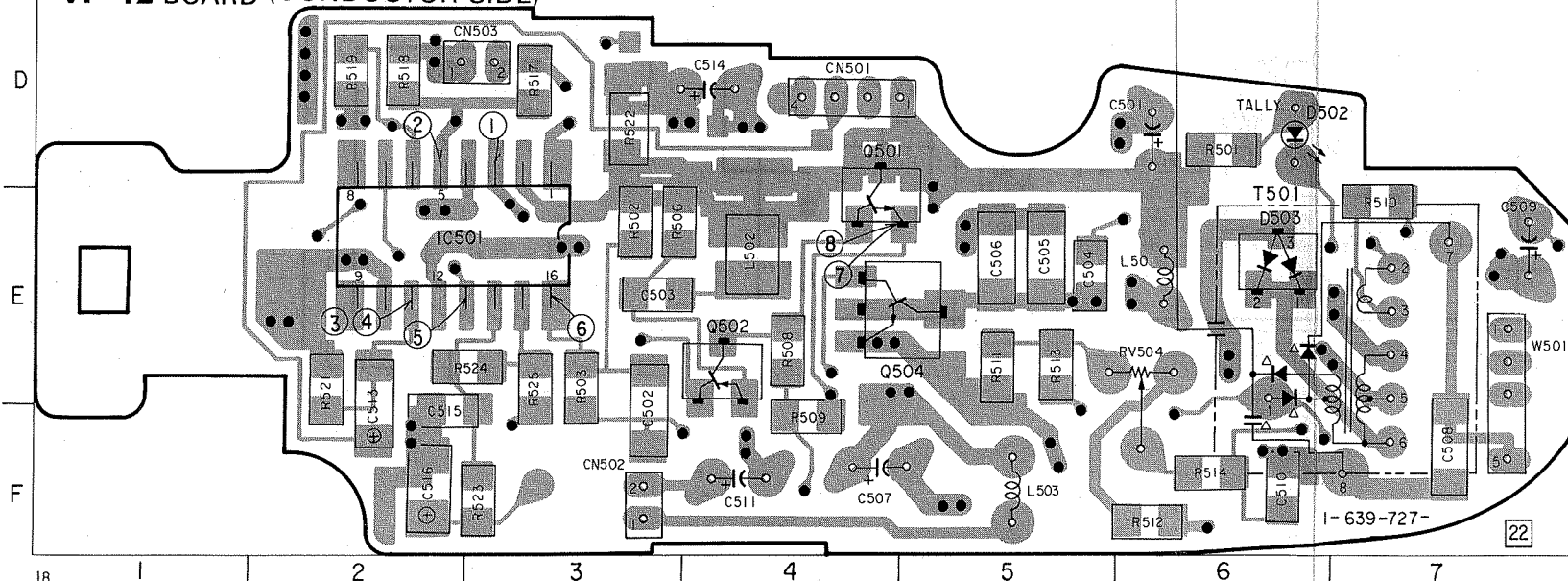


Diagram illustrating the internal components of the Sony CCD camera chassis, showing the arrangement of various modules and their connections:

- DD-55 (DC-DC Converter)**
- VF-42 (View Finder)**
- AU-149 (Audio)**
- MA-169 (Mic Amplifier)**
- LM-40 (Loading Motor)**
- MF-213 (Manual Focus Switch)**
- CD-105 (CCD Imager)**
- SL-32 (FG/PG Waveform Shaping)**



- ●: Through hole.

**Caution:**

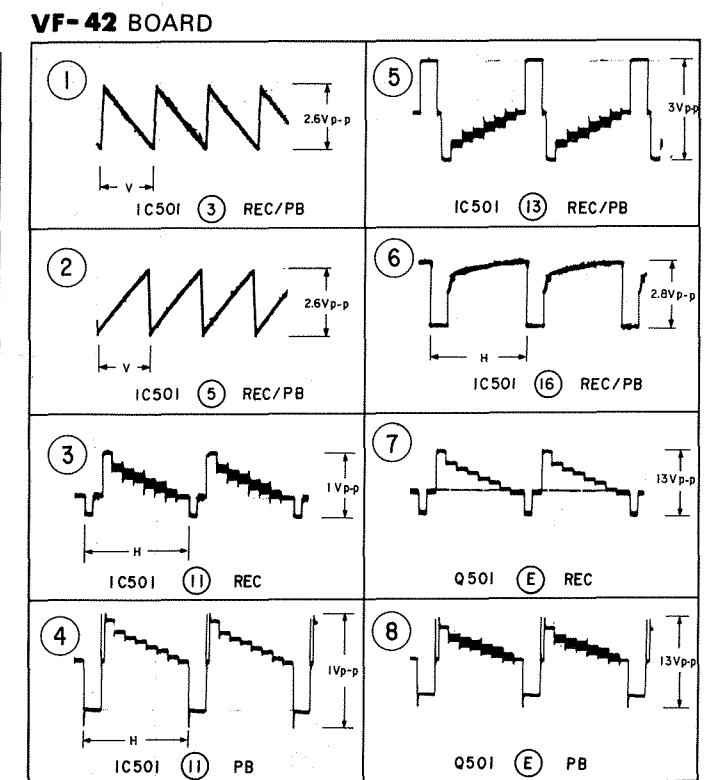
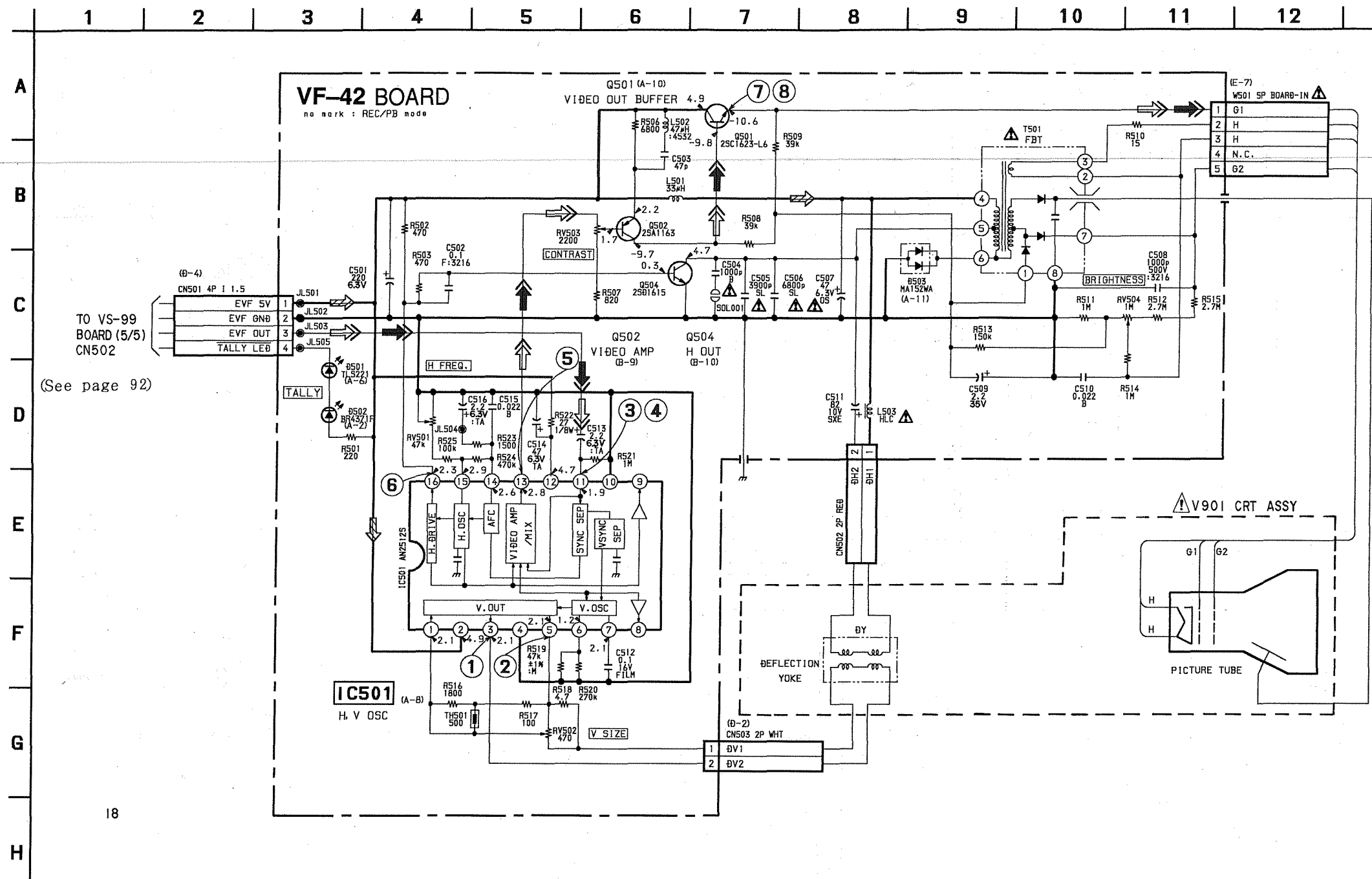
Pattern face side: Parts on the pattern face side seen from  
(conductor Side) the pattern face are indicated.

Parts face side:      Parts on the parts face side seen from the  
(Component side)      parts face are indicated.



# VF-42 (VIEW FINDER) SCHEMATIC DIAGRAM

— Ref. No. VF-42 BOARD: 8,000 series —



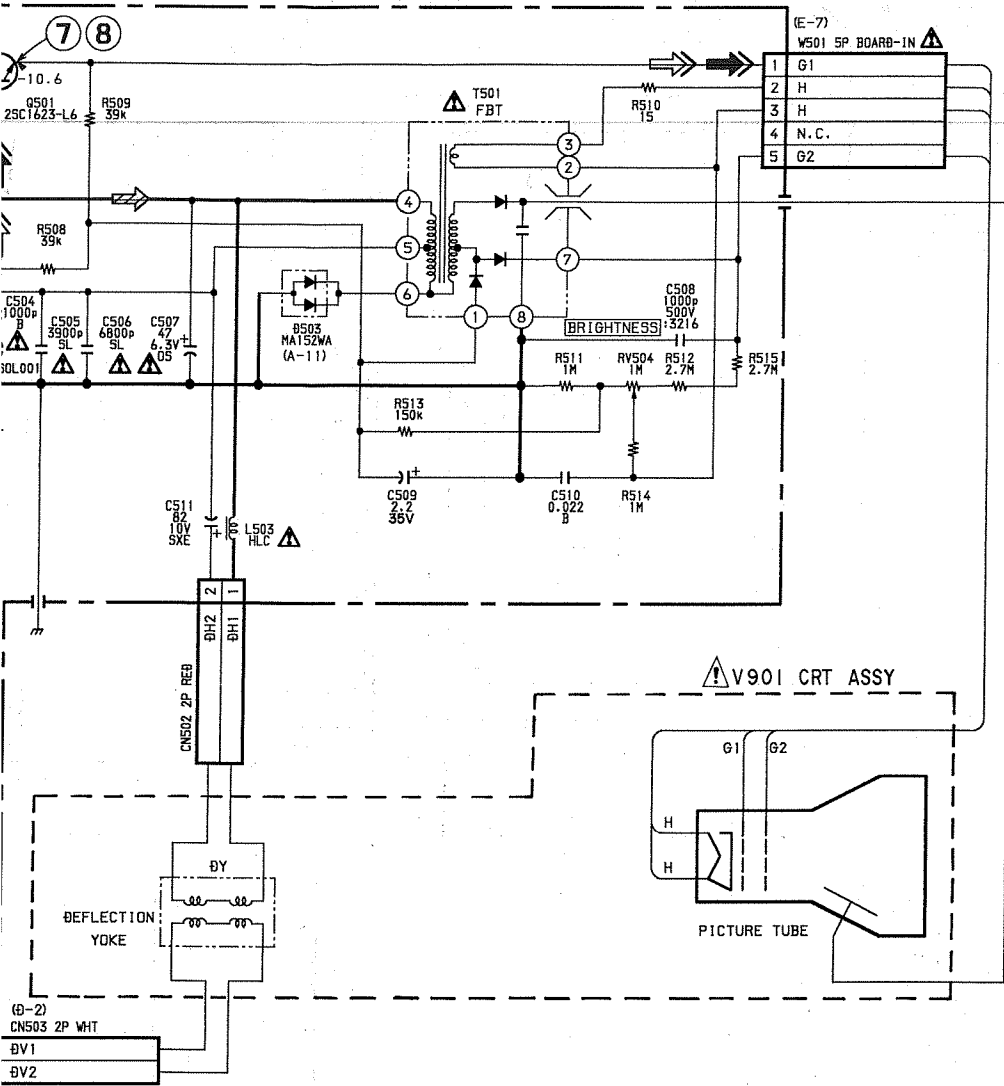
**Note:** The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

## SIGNAL PATH

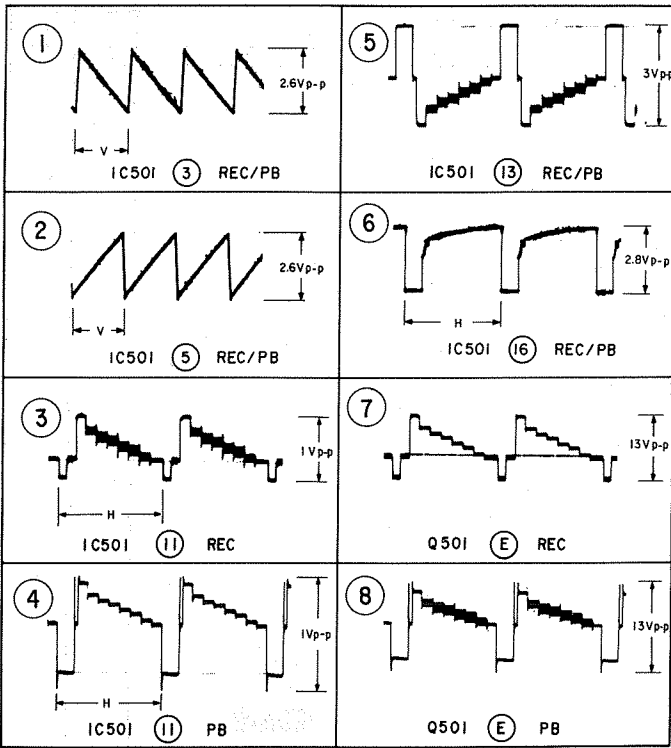
|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC |              | ➡ |          |              |
| PB  |              | ➡ |          |              |



7 | 8 | 9 | 10 | 11 | 12



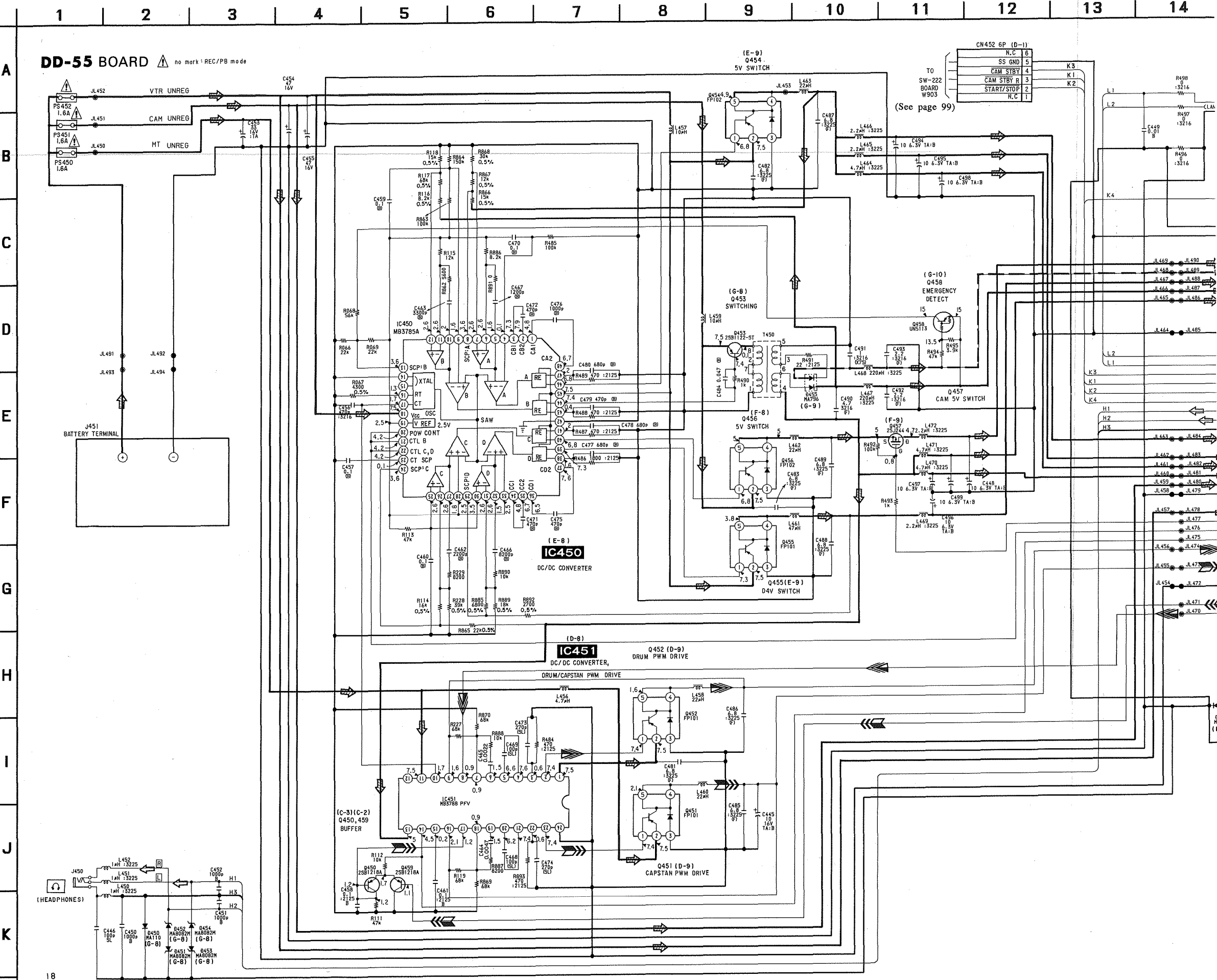
VF-42 BOARD



**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

SIGNAL PATH

|     | VIDEO Signal |                                                                                     |          | AUDIO Signal |
|-----|--------------|-------------------------------------------------------------------------------------|----------|--------------|
|     | CHROMA       | Y                                                                                   | Y/CHROMA |              |
| REC |              |  |          |              |
| PB  |              |  |          |              |

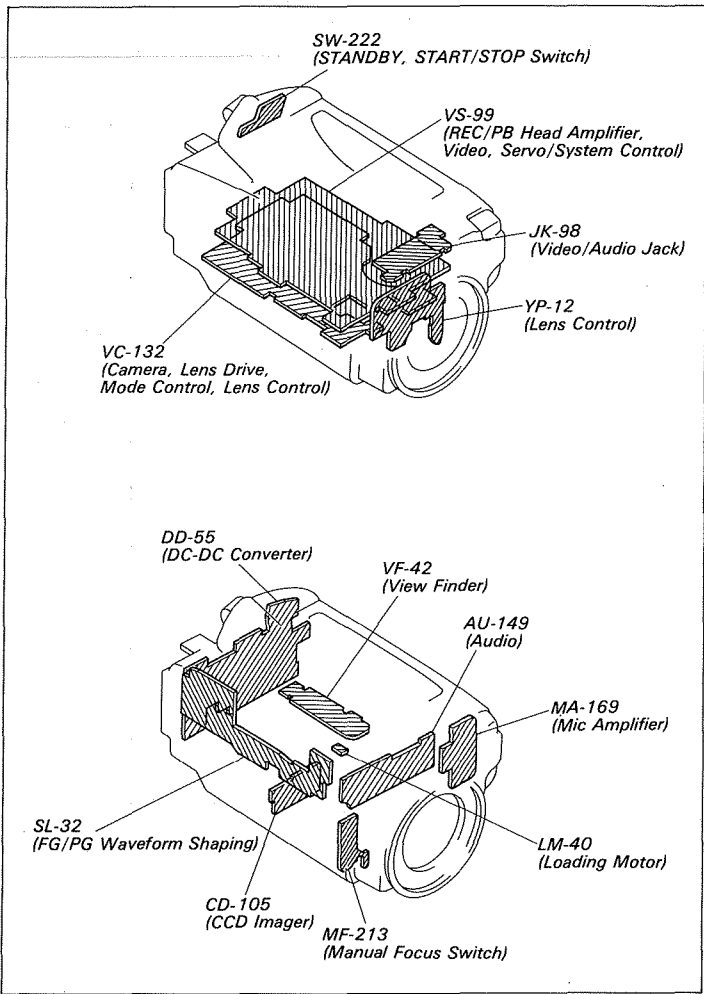


Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

|     | VIDEO Signal |   |          | AUDIO Signal |
|-----|--------------|---|----------|--------------|
|     | CHROMA       | Y | Y/CHROMA |              |
| REC |              |   |          |              |
| PB  |              |   |          | ⇒            |

|                                 | REC | REC/PB | PB |
|---------------------------------|-----|--------|----|
| Drum speed servo                |     |        |    |
| Drum phase servo                |     |        |    |
| Drum servo (speed and phase)    |     | ⇒      |    |
| Capstan speed servo             |     |        |    |
| Capstan phase servo             |     |        |    |
| Capstan servo (speed and phase) |     | ⇒      |    |
| Ref. signal                     |     |        |    |

|  |   |   |   |   |   |   |    |    |    |    |    |    |    |  |
|--|---|---|---|---|---|---|----|----|----|----|----|----|----|--|
|  | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |  |
|--|---|---|---|---|---|---|----|----|----|----|----|----|----|--|

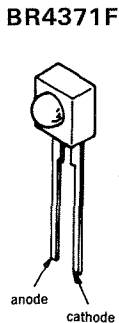
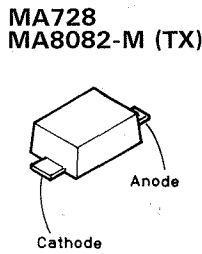
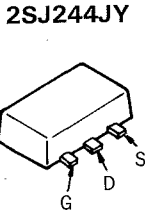
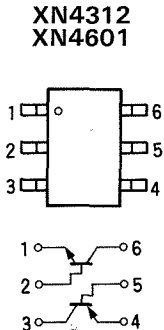
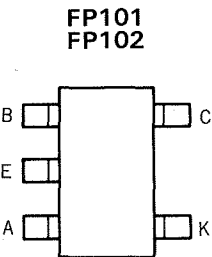
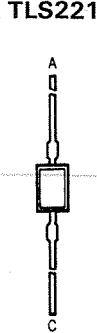
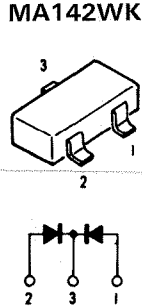
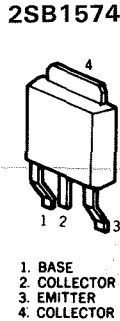
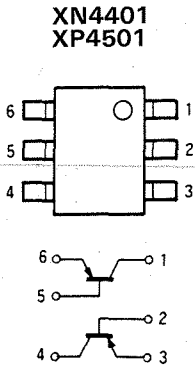
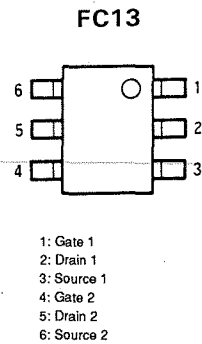


- Caution:**
- |                                               |                                                                          |
|-----------------------------------------------|--------------------------------------------------------------------------|
| <b>Pattern face side:</b><br>(conductor Side) | Parts on the pattern face side seen from the pattern face are indicated. |
| <b>Parts face side:</b><br>(Component side)   | Parts on the parts face side seen from the parts face are indicated.     |

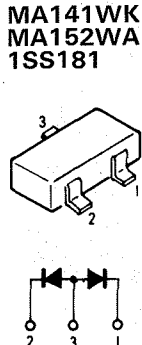
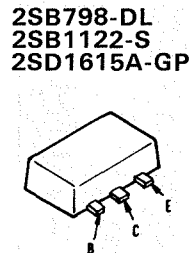
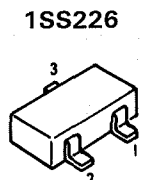
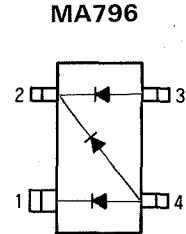
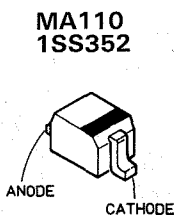
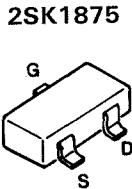
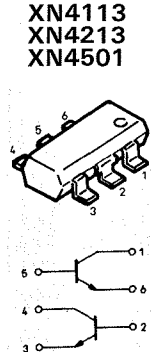




4-3. SEMICONDUCTORS



MSA1586-BC  
MSC4116-B/C  
RN1302-TE85L  
UN511E  
UN5113  
UN5213  
UN5215  
UN9113  
2SA1162-G  
2SA1163-G  
2SA1611-M5M6  
2SB1218A-QRS  
2SB1295-UL5  
2SB1462-Q  
2SC1623-L5L6  
2SC2223-F13  
2SC4116-YG  
2SC4154-F  
2SC4211-5, 6, 7  
2SC4400-3/4/5  
2SC4919  
2SD1819A-R  
2SD2216-Q



CCD-TR606E

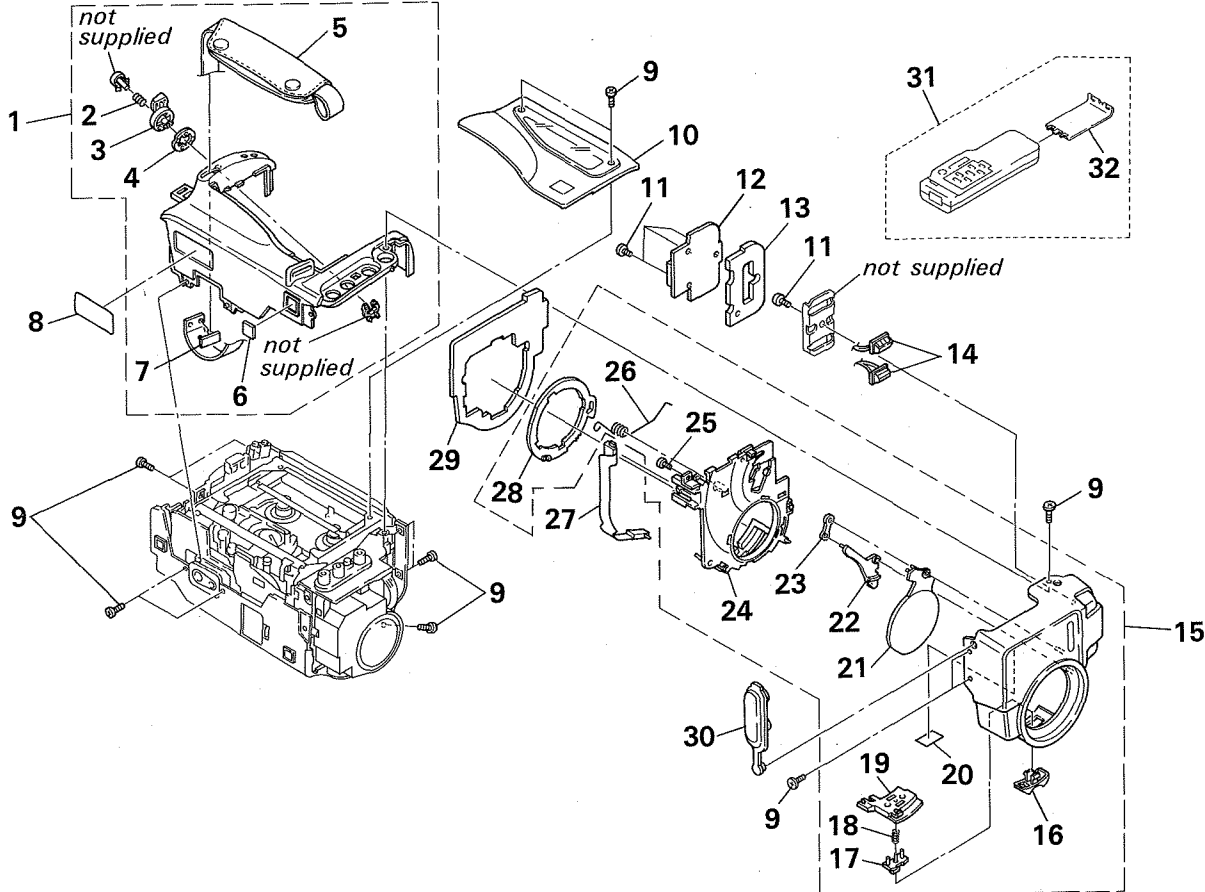
SECTION 5  
EXPLODED VIEWS

NOTE:  
● -xx,-x mean standardized parts, so they may have some differences from the original one.

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list is given in the last of this parts list.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

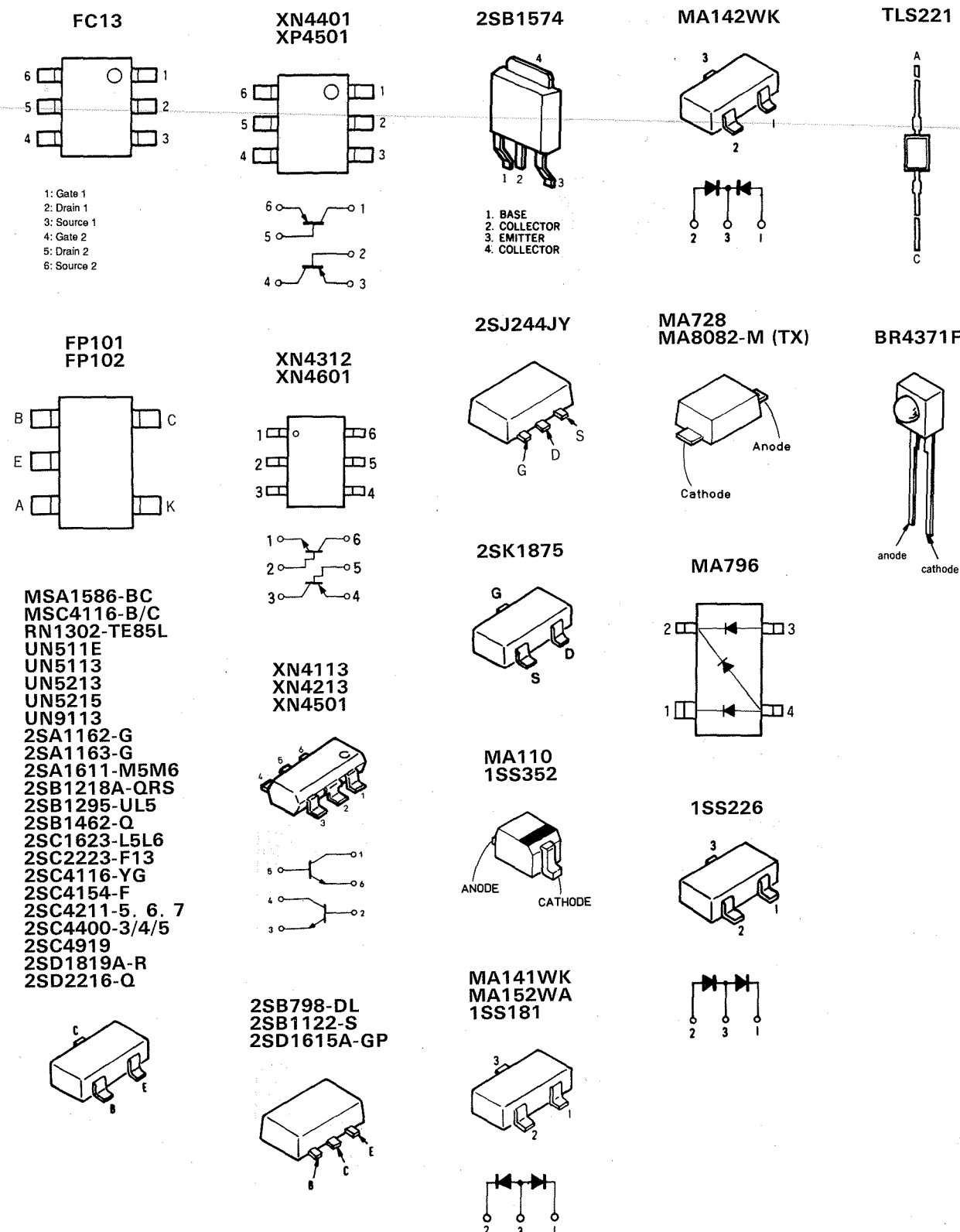
5-1. CABINET (L) AND FRONT PANEL ASSEMBLIES



| Ref. No. | Part No.     | Description                             | Remark | Ref. No. | Part No.     | Description                | Remark |
|----------|--------------|-----------------------------------------|--------|----------|--------------|----------------------------|--------|
| 1        | X-3943-241-1 | CABINET (L) ASSY                        |        | * 17     | 3-955-334-01 | LOCK, POWER KNOB           |        |
| 2        | 3-578-221-00 | SPRING, COMPRESSION                     |        | 18       | 3-303-973-01 | SPRING, COMPRESSION        |        |
| 3        | 3-942-985-01 | KNOB, STAND-BY                          |        | * 19     | 3-955-333-01 | SLIDER, POWER KNOB         |        |
| 4        | 3-736-364-01 | SPRING                                  |        | * 20     | 3-332-189-01 | SPACER (A)                 |        |
| 5        | 3-736-807-01 | BELT, GRIP                              |        | 21       | 3-955-331-01 | COVER, LENS                |        |
| * 6      | 3-949-383-01 | FOOT, RUBBER                            |        | * 22     | 3-955-330-01 | LEVER, CONVERSION          |        |
| 7        | 3-942-895-01 | STOPPER, BELT                           |        | 23       | 3-955-289-01 | LEVER, JOINT               |        |
| * 8      | 3-955-162-01 | LABEL, MODEL NUMBER (AEP)               |        | * 24     | 3-955-307-01 | RETAINER, LENS COVER       |        |
| * 8      | 3-956-190-01 | LABEL, MODEL NUMBER (UK, E, Australian) |        | 25       | 3-318-203-71 | SCREW (B1.7X5), TAPPING    |        |
| 9        | 3-719-381-01 | SCREW (M2X4)                            |        | 26       | 3-955-291-01 | SPRING, LENS COVER         |        |
| 10       | X-3943-239-1 | LID ASSY, CASSETTE                      |        | 27       | 1-692-680-11 | SWITCH ASSY, BLOCK         |        |
| 11       | 3-719-601-01 | SCREW (B2X5), TAPPING                   |        | * 28     | 3-955-335-01 | RING, CONVERSION           |        |
| 12       | A-7063-696-A | MA-169 BOARD, COMPLETE                  |        | * 29     | 3-956-191-01 | CUSHION (ISO)              |        |
| * 13     | 3-955-754-01 | CUSHION, ACOUSTIC ISOLATION             |        | 30       | 3-955-338-01 | COVER, JACK                |        |
| 14       | 1-542-162-11 | MICROPHONE UNIT                         |        | 31       | 1-467-339-11 | REMOTE COMMANDER (RMT-706) |        |
| 15       | X-3943-243-1 | PANEL ASSY, FRONT                       |        | 32       | 3-947-500-01 | LID, BATTERY CASE          |        |
| 16       | 3-955-332-01 | KNOB, POWER                             |        |          |              |                            |        |



# 4-3. SEMICONDUCTORS



## CCD-TR606E

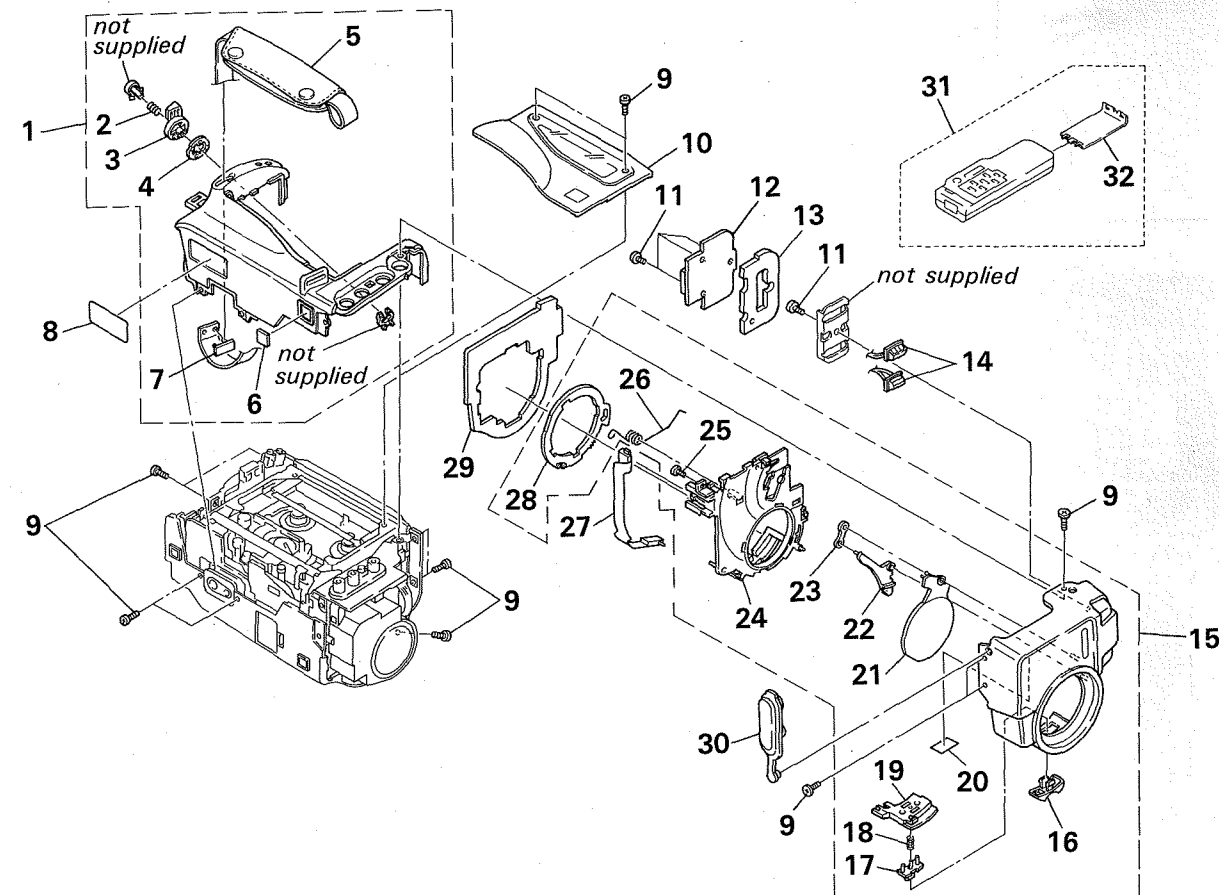
## SECTION 5 EXPLODED VIEWS

NOTE:  
● -xx, -x mean standardized parts, so they may have some differences from the original one.

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list is given in the last of this parts list.

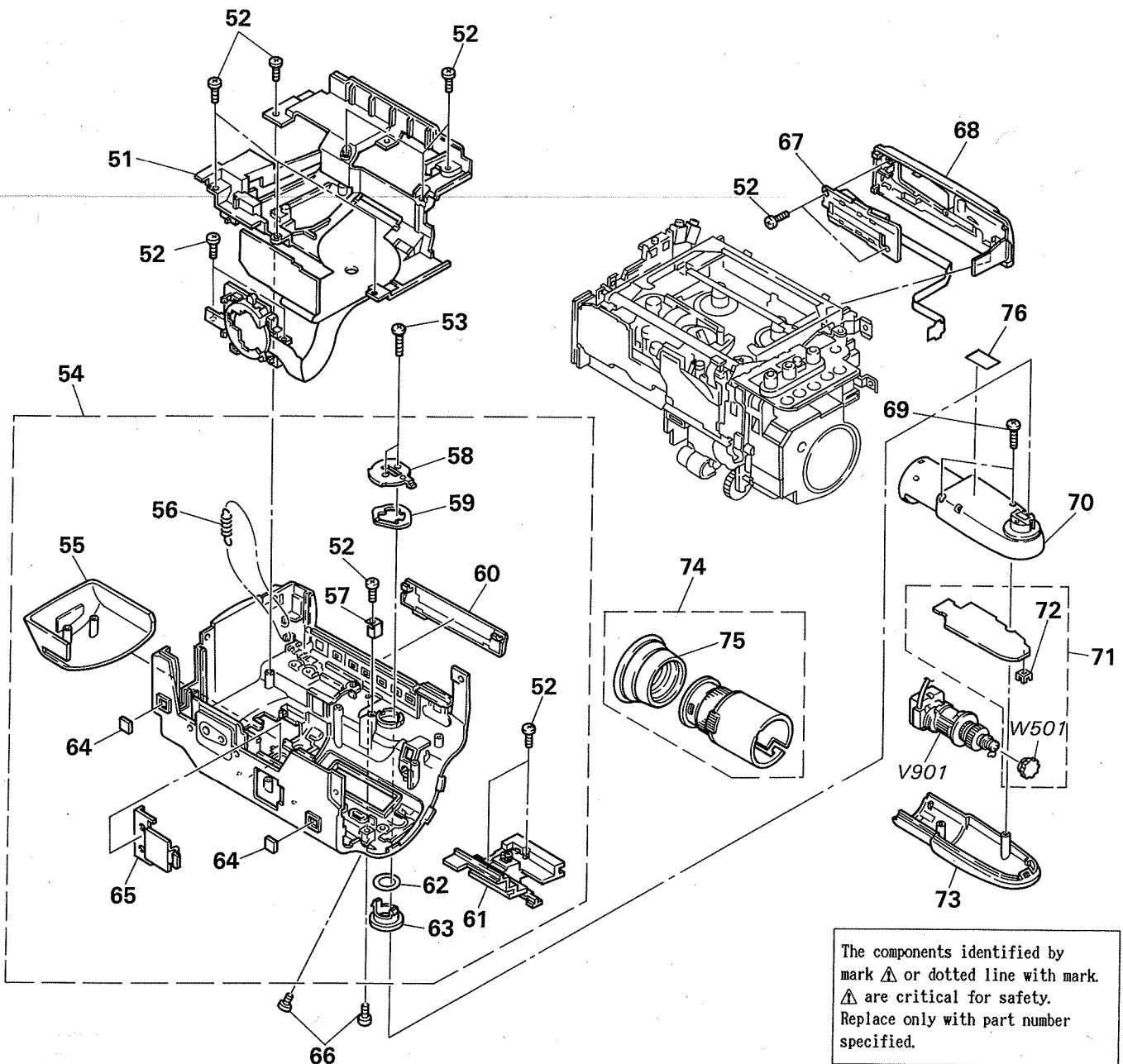
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

### 5-1. CABINET (L) AND FRONT PANEL ASSEMBLIES



| Ref. No. | Part No.     | Description                             | Remark | Ref. No. | Part No.     | Description                | Remark |
|----------|--------------|-----------------------------------------|--------|----------|--------------|----------------------------|--------|
| 1        | X-3943-241-1 | CABINET (L) ASSY                        |        | * 17     | 3-955-334-01 | LOCK, POWER KNOB           |        |
| 2        | 3-578-221-00 | SPRING, COMPRESSION                     |        | 18       | 3-303-973-01 | SPRING, COMPRESSION        |        |
| 3        | 3-942-985-01 | KNOB, STAND-BY                          |        | * 19     | 3-955-333-01 | SLIDER, POWER KNOB         |        |
| 4        | 3-736-364-01 | SPRING                                  |        | * 20     | 3-332-189-01 | SPACER (A)                 |        |
| 5        | 3-736-807-01 | BELT, GRIP                              |        | 21       | 3-955-331-01 | COVER, LENS                |        |
| * 6      | 3-949-383-01 | FOOT, RUBBER                            |        | * 22     | 3-955-330-01 | LEVER, CONVERSION          |        |
| 7        | 3-942-895-01 | STOPPER, BELT                           |        | 23       | 3-955-289-01 | LEVER, JOINT               |        |
| * 8      | 3-955-162-01 | LABEL, MODEL NUMBER (AEP)               |        | * 24     | 3-955-307-01 | RETAINER, LENS COVER       |        |
| * 8      | 3-956-190-01 | LABEL, MODEL NUMBER (UK, E, Australian) |        | 25       | 3-318-203-71 | SCREW (B1.7X5), TAPPING    |        |
| 9        | 3-719-381-01 | SCREW (M2X4)                            |        | 26       | 3-955-291-01 | SPRING, LENS COVER         |        |
| 10       | X-3943-239-1 | LID ASSY, CASSETTE                      |        | 27       | 1-692-680-11 | SWITCH ASSY, BLOCK         |        |
| 11       | 3-719-601-01 | SCREW (B2X5), TAPPING                   |        | * 28     | 3-955-335-01 | RING, CONVERSION           |        |
| 12       | A-7063-696-A | MA-169 BOARD, COMPLETE                  |        | * 29     | 3-956-191-01 | CUSHION (ISO)              |        |
| * 13     | 3-955-754-01 | CUSHION, ACOUSTIC ISOLATION             |        | 30       | 3-955-338-01 | COVER, JACK                |        |
| 14       | 1-542-162-11 | MICROPHONE UNIT                         |        | 31       | 1-467-339-11 | REMOTE COMMANDER (RMT-706) |        |
| 15       | X-3943-243-1 | PANEL ASSY, FRONT                       |        | 32       | 3-947-500-01 | LID, BATTERY CASE          |        |
| 16       | 3-955-332-01 | KNOB, POWER                             |        |          |              |                            |        |

## 5-2. CABINET (R) AND EVF ASSEMBLIES

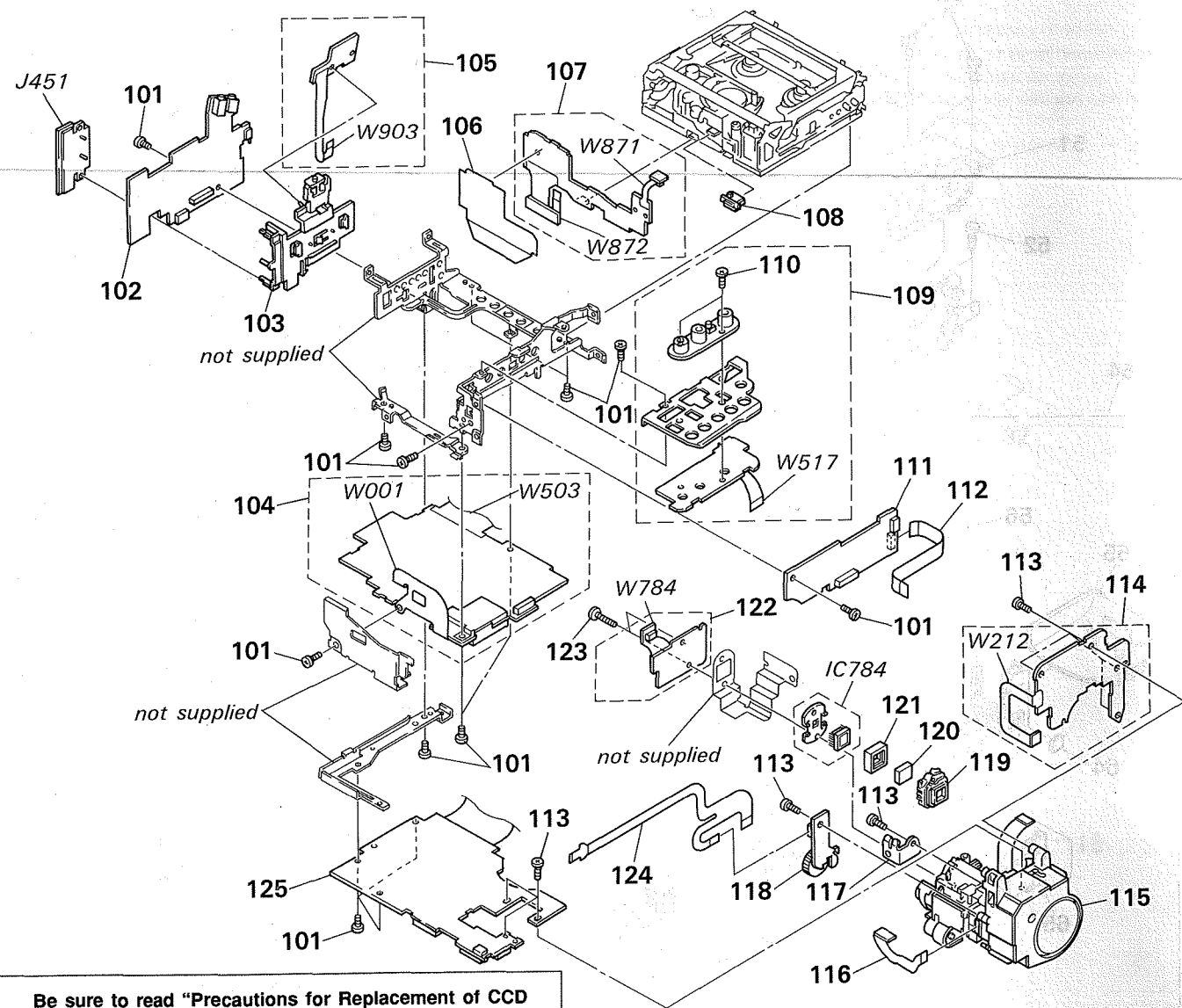


The components identified by mark  $\Delta$  or dotted line with mark.  $\Delta$  are critical for safety. Replace only with part number specified.

| Ref. No. | Part No.     | Description              | Remark |
|----------|--------------|--------------------------|--------|
| 51       | 1-467-296-11 | SWITCH BLOCK, CONTROL    |        |
| 52       | 3-719-601-01 | SCREW (B2X5), TAPPING    |        |
| 53       | 3-740-546-41 | SCREW (M2X10)            |        |
| 54       | X-3943-242-1 | CABINET (R) ASSY         |        |
| 55       | 3-955-285-01 | DOOR, CF                 |        |
| 56       | 3-570-896-00 | SPRING, TENSION          |        |
| 57       | 3-747-178-01 | REINFORCEMENT, TILT LOCK |        |
| 58       | 3-747-111-01 | PLATE, LOCK, TILT        |        |
| 59       | 3-747-110-01 | SPRING, LEAF, TILT       |        |
| 60       | X-3943-240-1 | DOOR ASSY, CONTROL       |        |
| 61       | 3-955-286-01 | SLIDER, CF               |        |
| 62       | 3-747-112-01 | RING, TILT               |        |
| 63       | 3-747-109-01 | SLEEVE, EVF              |        |
| * 64     | 3-949-383-01 | FOOT, RUBBER             |        |

| Ref. No.      | Part No.     | Description               | Remark |
|---------------|--------------|---------------------------|--------|
| 65            | 3-955-001-01 | LID, LITHIUM BATTERY      |        |
| 66            | 3-719-381-01 | SCREW (M2X4)              |        |
| 67            | 1-692-257-41 | SWITCH, PUSH (ZOOM)       |        |
| 68            | X-3941-894-1 | LID ASSY, LS              |        |
| 69            | 3-713-790-31 | SCREW (M2X8), TAPPING, P3 |        |
| 70            | X-3940-706-1 | CABINET (L) ASSY, EVF     |        |
| 71            | A-7063-220-A | VF-42 BOARD, COMPLETE     |        |
| 72            | 3-942-888-01 | HOLDER, LED               |        |
| 73            | 3-943-077-01 | CABINET (R), EVF          |        |
| 74            | X-3941-603-1 | HOLDER ASSY, FINDER       |        |
| 75            | 3-946-426-01 | EYE CUP                   |        |
| * 76          | 3-704-235-01 | LABEL, CAUTION (UK)       |        |
| $\Delta$ V901 | 1-452-565-11 | CRT ASSY (M01KKD70WB)     |        |
| $\Delta$ W501 | 1-540-019-21 | SOCKET ASSY, CRT          |        |

5-3. MAIN BOARDS ASSEMBLY

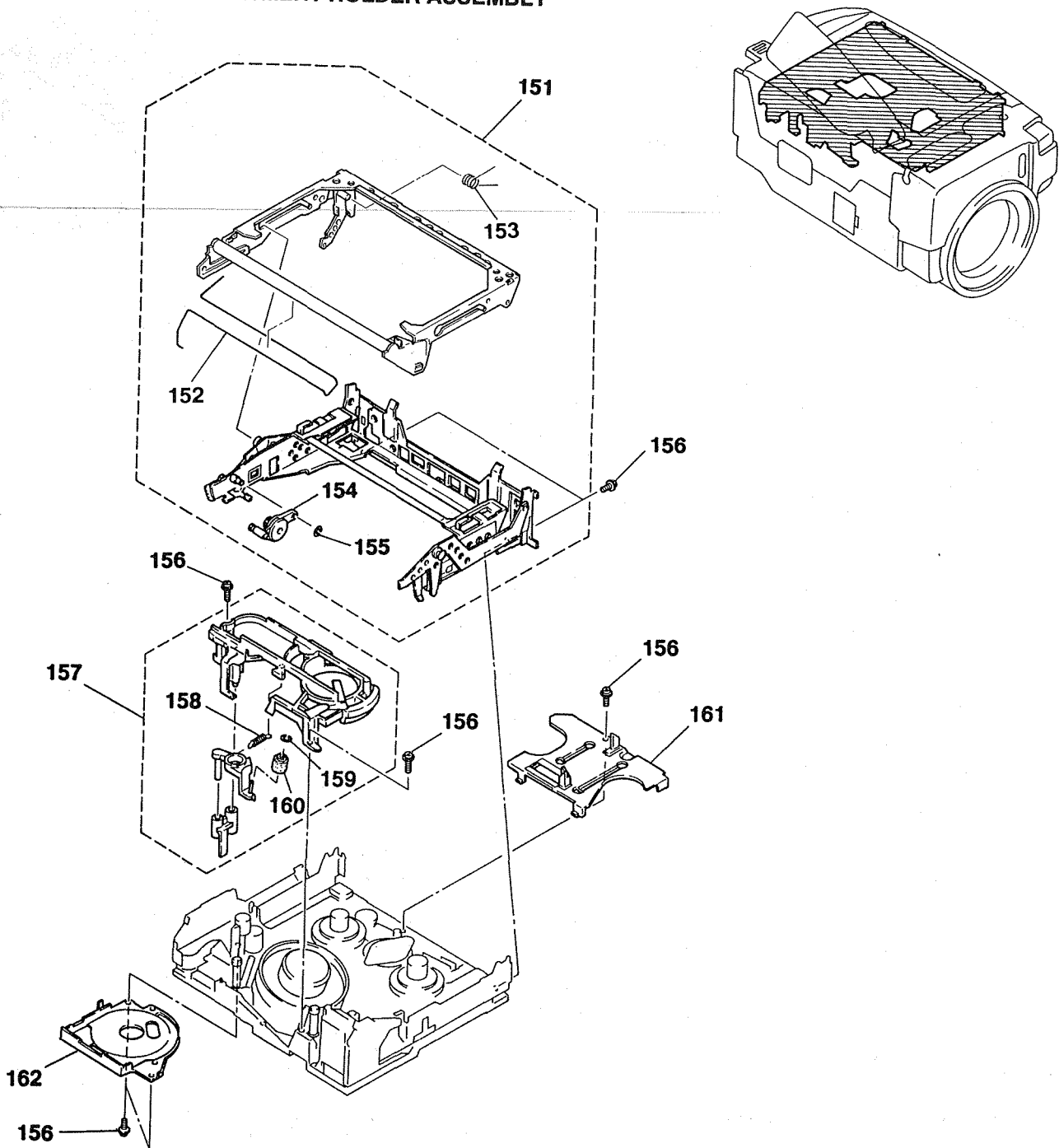


Be sure to read "Precautions for Replacement of CCD Imager" on page 42 when changing the CCD imager.

| Ref. No. | Part No.     | Description                 | Remark |
|----------|--------------|-----------------------------|--------|
| 101      | 3-713-786-51 | SCREW (M2X3)                |        |
| 102      | A-7063-694-A | DD-55 BOARD, COMPLETE       |        |
| * 103    | 3-955-282-01 | HOLDER, SW                  |        |
| 104      | A-7063-687-A | VS-99 BOARD, COMPLETE       |        |
| 105      | A-7071-862-A | SW-222 BOARD, COMPLETE      |        |
| * 106    | 3-955-756-01 | SHEET, INSULATED TRIPOD     |        |
| 107      | A-7063-693-A | SL-32 BOARD, COMPLETE       |        |
| 108      | 1-691-471-11 | CONNECTOR, TRANSLATION 11P  |        |
| 109      | A-7063-692-A | JK-98 COM ASSY              |        |
| 110      | 3-719-381-01 | SCREW (M2X4)                |        |
| 111      | A-7063-695-A | AU-149 BOARD, COMPLETE      |        |
| 112      | 1-751-487-11 | CORD, FFC-104 FLEXIBLE FLAT |        |
| 113      | 3-719-601-01 | SCREW (B2X5), TAPPING       |        |
| 114      | A-7063-691-A | YP-12 BOARD, COMPLETE       |        |
| 115      | 1-547-635-11 | LENS, ZOOM (VCL-6110WF)     |        |
| 116      | 1-537-593-11 | FP-17 FLEXIBLE BOARD        |        |
| * 117    | 3-955-287-01 | SHEET METAL (A), FIXED      |        |
| 118      | A-7071-863-A | MF-213 BOARD, COMPLETE      |        |

| Ref. No. | Part No.     | Description                  | Remark |
|----------|--------------|------------------------------|--------|
| 119      | 3-946-856-01 | ADAPTOR (H), CCD FITTING     |        |
| 120      | 1-547-558-21 | FILTER BLOCK, OPTICAL        |        |
| 121      | 3-946-857-01 | RUBBER (S), SEAL             |        |
| 122      | A-7063-690-A | CD-105 BOARD, COMPLETE       |        |
| 123      | 3-947-268-01 | SCREW (B TIGHT) (2), TAPPING |        |
| 124      | 1-537-589-11 | FP-9 FLEXIBLE BOARD          |        |
| 125      | A-7063-688-A | VC-132 BOARD, COMPLETE       |        |
| IC784    | A-7030-369-A | CCD BLOCK ASSY (055 SERVICE) |        |
| J451     | 1-537-281-41 | TERMINAL BOARD               |        |
| W001     | 1-537-592-11 | FP-12 FLEXIBLE BOARD         |        |
| W212     | 1-537-588-11 | FP-8 FLEXIBLE BOARD          |        |
| W503     | 1-537-591-11 | FP-11 FLEXIBLE BOARD         |        |
| W517     | 1-537-590-11 | FP-10 FLEXIBLE BOARD         |        |
| W784     | 1-644-944-11 | FP-580 FLEXIBLE BOARD        |        |
| W871     | 1-642-186-11 | FP-437 FLEXIBLE BOARD        |        |
| W872     | 1-750-967-11 | FP-697 FLEXIBLE BOARD        |        |
| W903     | 1-537-594-11 | FP-699 FLEXIBLE BOARD        |        |

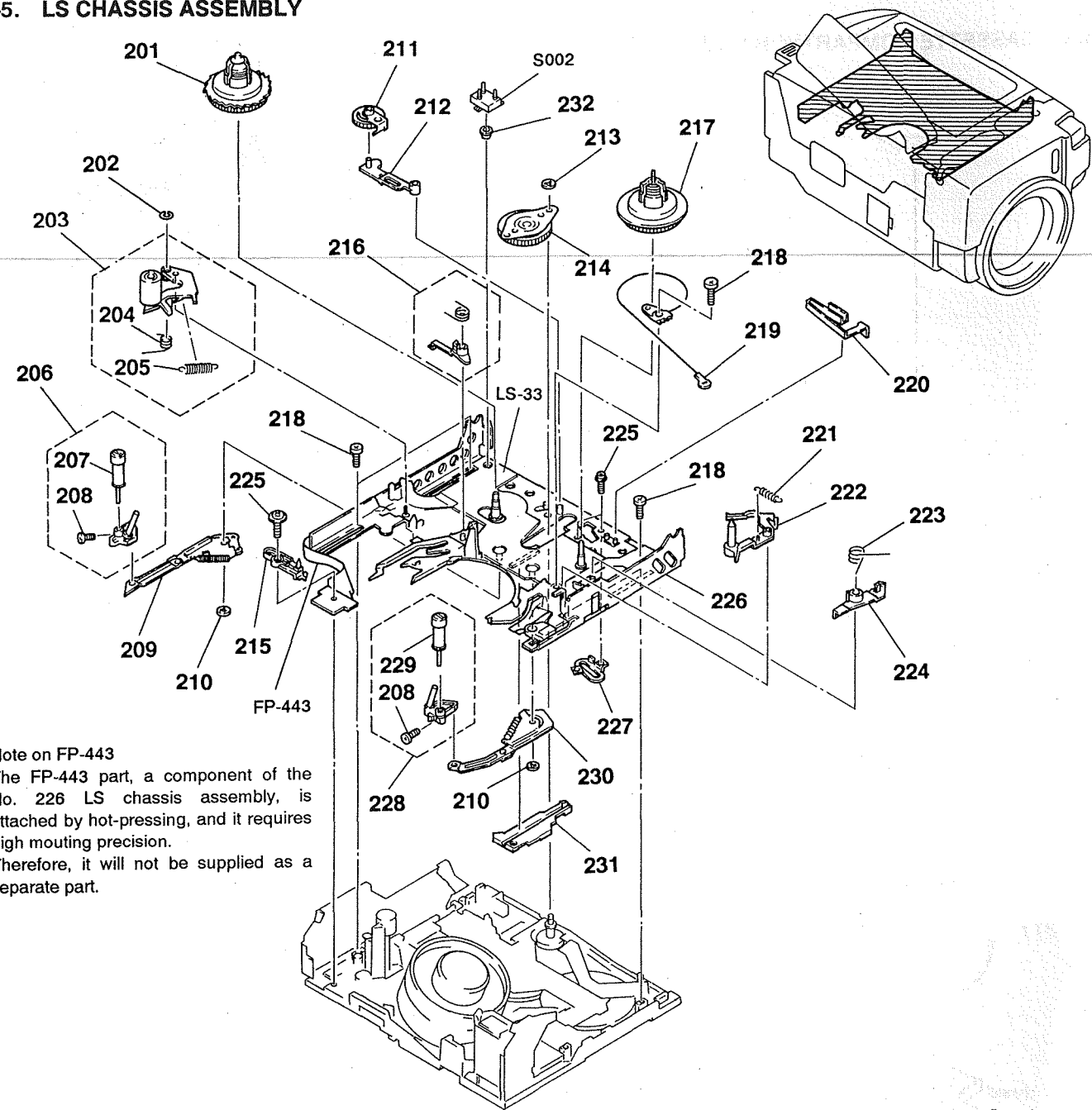
5-4. CASSETTE COMPARTMENT HOLDER ASSEMBLY



| Ref. No. | Part No.     | Description                     | Remark |
|----------|--------------|---------------------------------|--------|
| 151      | A-7040-312-K | CASSETTE COMPARTMENT BLOCK ASSY |        |
| 152      | 3-945-773-01 | BAR, TORSION                    |        |
| 153      | 3-945-771-01 | SPRING, TORSION                 |        |
| 154      | X-3941-287-2 | DAMPER ASSY                     |        |
| 155      | 3-315-384-31 | WASHER, STOPPER                 |        |
| 156      | 3-947-503-01 | SCREW (M1.4X2.5)                |        |

| Ref. No. | Part No.     | Description               | Remark |
|----------|--------------|---------------------------|--------|
| 157      | A-7040-309-A | PROTECT (BASE) BLOCK ASSY |        |
| 158      | 3-945-760-01 | SPRING, TENSION           |        |
| 159      | 3-321-393-01 | WASHER, STOPPER           |        |
| 160      | X-3166-813-1 | ROLLER ASSY, HC           |        |
| 161      | X-3941-280-1 | RETAINER ASSY, GOOSENECK  |        |
| 162      | 3-945-733-01 | COVER, CAPSTAN            |        |

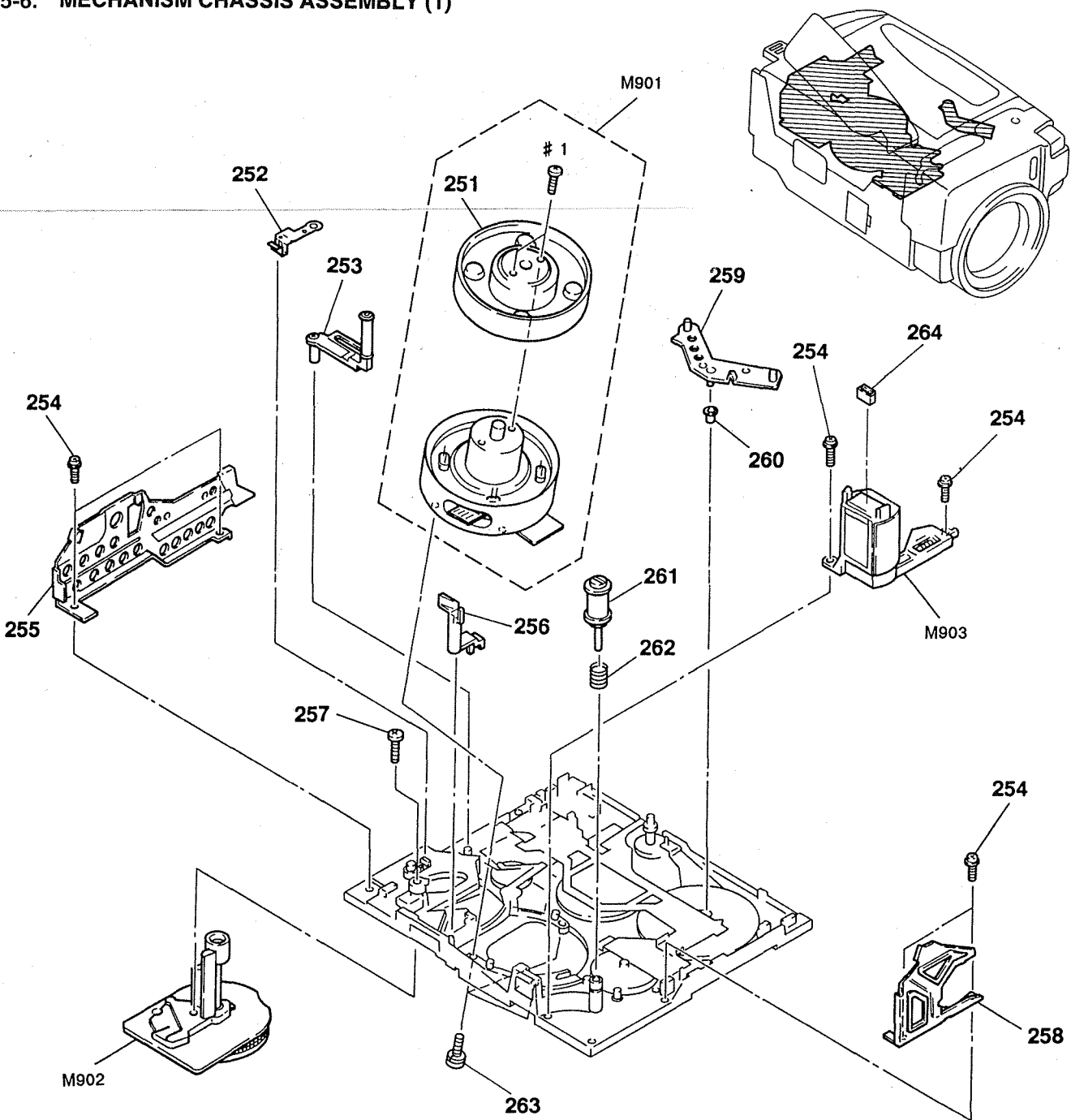
5-5. LS CHASSIS ASSEMBLY



Note on FP-443  
The FP-443 part, a component of the No. 226 LS chassis assembly, is attached by hot-pressing, and it requires high mouting precision. Therefore, it will not be supplied as a separate part.

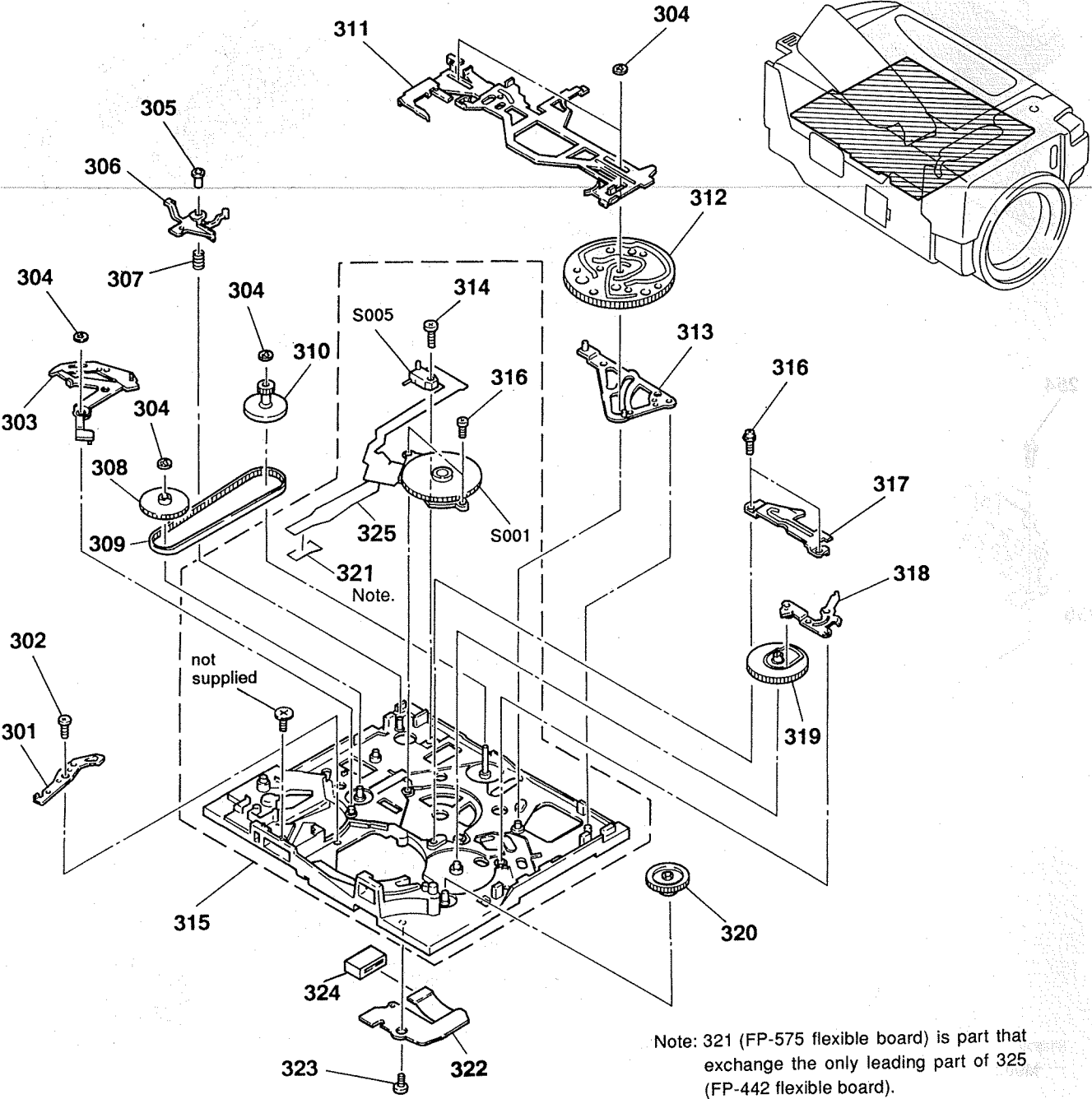
| Ref.No. | Part No.     | Description                 | Remark | Ref.No. | Part No.     | Description                                          | Remark |
|---------|--------------|-----------------------------|--------|---------|--------------|------------------------------------------------------|--------|
| 201     | X-3941-274-1 | TABLE ASSY, REEL, T         |        | 218     | 3-945-756-01 | SCREW (M1.4X3)                                       |        |
| 202     | 3-331-007-21 | WASHER                      |        | 219     | X-3941-277-1 | STRING BLOCK ASSY                                    |        |
| 203     | X-3941-271-5 | ARM ASSY, PINCH             |        | 220     | 3-945-801-01 | BRAKE, S SOFT                                        |        |
| 204     | 3-945-743-01 | SPRING, TORSION             |        | 221     | 3-954-327-01 | SPRING, TENSION                                      |        |
| 205     | 3-945-783-01 | SPRING, TENSION             |        | 222     | X-3941-276-1 | TG1 ASSY                                             |        |
| 206     | A-7040-307-A | GUIDE (BASE) (T) BLOCK ASSY |        | 223     | 3-945-752-01 | SPRING, TORSION                                      |        |
| 207     | X-3941-424-1 | ROLLER ASSY, TG6            |        | 224     | 3-945-799-01 | BRAKE, S HARD                                        |        |
| 208     | 3-947-504-01 | SCREW (M1.2X2)              |        | 225     | 3-947-503-01 | SCREW (M1.4X2.5)                                     |        |
| 209     | X-3941-267-1 | ARM (T) ASSY, GUIDE         |        | 226     | X-3943-307-1 | CHASSIS ASSY, LS                                     |        |
| 210     | 3-669-465-00 | WASHER (1.5), STOPPER       |        | 227     | 3-945-784-01 | PLATE, CAM, LS                                       |        |
| 211     | X-3941-273-1 | SOFT ASSY, T                |        | 228     | A-7040-306-A | GUIDE (BASE) (S) BLOCK ASSY                          |        |
| 212     | 3-945-753-01 | ARM, T SOFT                 |        | 229     | X-3941-269-1 | ROLLER ASSY, TG3                                     |        |
| 213     | 3-726-829-01 | WASHER, STOPPER             |        | 230     | X-3941-266-1 | ARM (S) ASSY, GUIDE                                  |        |
| 214     | X-3941-279-5 | GEAR ASSY, GOOSENECK        |        | 231     | 3-945-837-01 | SLIDER, GL                                           |        |
| 215     | 3-947-644-01 | RETAINER, TG5 (BASE)        |        | 232     | 3-949-881-01 | SLEEVE                                               |        |
| 216     | A-7040-321-A | CLAW BLOCK ASSY, T HARD     |        | S002    | 1-572-987-11 | SWITCH, PUSH (3 KEY)<br>(REC PROOF, ME/MP, MP/MP-HG) |        |
| 217     | X-3941-275-X | TABLE ASSY, REEL, S         |        |         |              |                                                      |        |

5-6. MECHANISM CHASSIS ASSEMBLY (1)



| Ref.No. | Part No.     | Description                 | Remark | Ref.No. | Part No.     | Description                    | Remark |
|---------|--------------|-----------------------------|--------|---------|--------------|--------------------------------|--------|
| 251     | A-7049-521-A | DRUM ASSY, UPPER (DGR-90-R) |        | 260     | 3-945-702-01 | ROLLER, LS                     |        |
| 252     | 3-945-822-01 | SPRING, LEAF, TG7 ARM       |        | 261     | X-3941-262-1 | ROLLER ASSY, TG2               |        |
| 253     | A-7040-305-A | ARM BLOCK ASSY, TG7         |        | 262     | 3-945-774-01 | SPRING, COMPRESSION            |        |
| 254     | 3-947-503-01 | SCREW (M1.4X2.5)            |        | 263     | 3-686-493-01 | SCREW (M2X5), P1               |        |
| 255     | X-3941-255-1 | PLATE (T) ASSY, SIDE        |        | 264     | 1-568-323-11 | CONNECTOR, BOARD TO BOARD 4P   |        |
| 256     | 3-945-735-01 | ARM, HC CONVERSION          |        | M901    | A-7048-585-A | DRUM ASSY (DGH-90A-R)          |        |
| 257     | 3-713-786-71 | SCREW (M2X5)                |        | M902    | 8-835-477-01 | MOTOR, DC SCE-0101A (CAPSTAN)  |        |
| 258     | 3-945-691-01 | PLATE (S), SIDE             |        | M903    | A-7040-304-A | MOTOR BLOCK ASSY, LM (LOADING) |        |
| 259     | 3-945-701-01 | ARM, LS                     |        |         |              |                                |        |

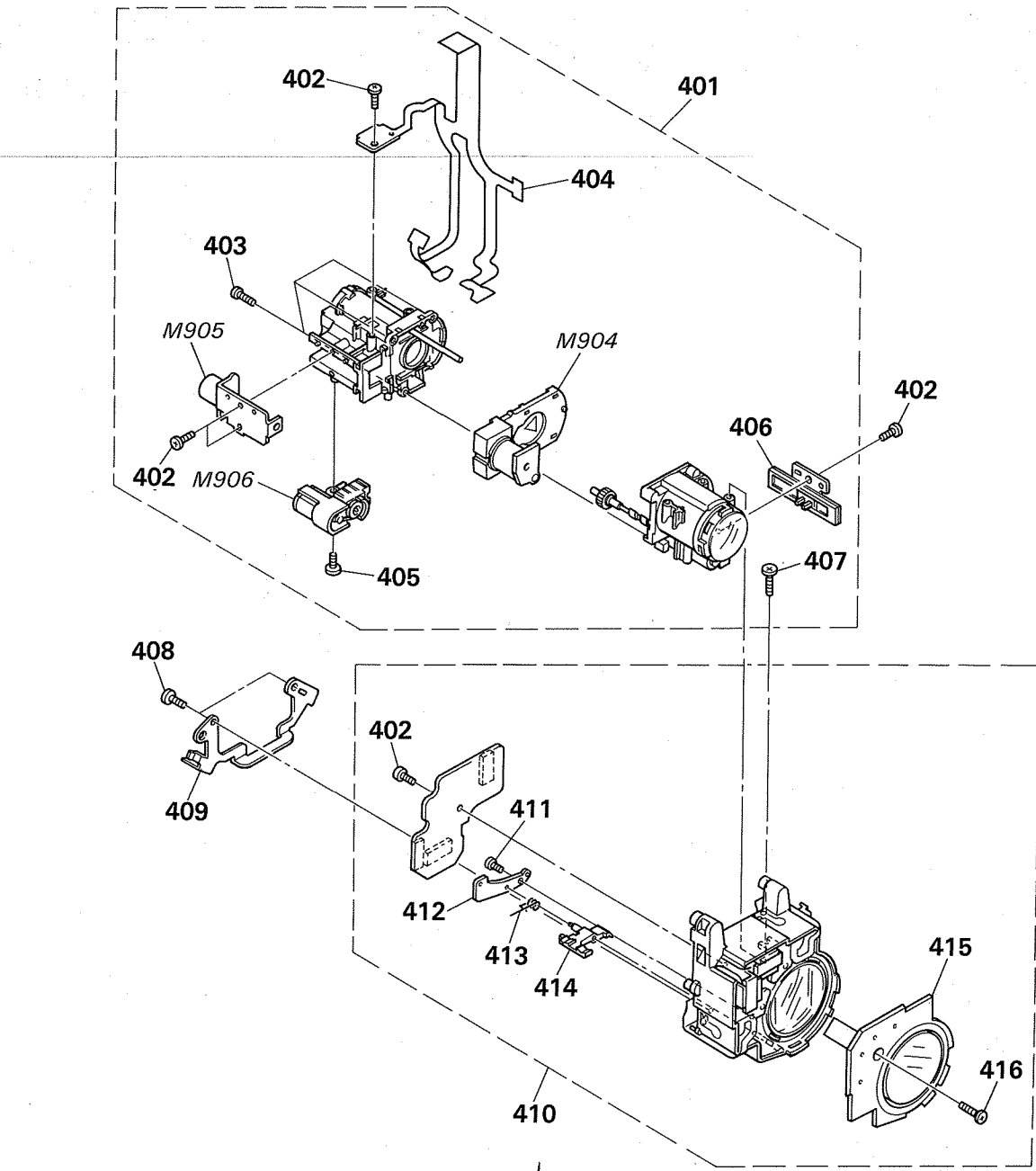
5-7. MECHANISM CHASSIS ASSEMBLY (2)



| Ref. No. | Part No.     | Description                    | Remark |
|----------|--------------|--------------------------------|--------|
| 301      | 3-945-734-01 | ARM, HC DRIVING                |        |
| 302      | 3-728-103-11 | SCREW (M1.4X1.6), SPECIAL HEAD |        |
| 303      | X-3941-259-1 | ARM ASSY, PINCH PRESS          |        |
| 304      | 3-726-829-01 | WASHER, STOPPER                |        |
| 305      | 3-945-730-01 | SLEEVE, EJECT                  |        |
| 306      | 3-945-706-01 | LEVER, EJECT                   |        |
| 307      | 3-945-729-01 | SPRING, COMPRESSION            |        |
| 308      | X-3941-256-1 | GEAR ASSY, CHANGE              |        |
| 309      | 3-944-539-01 | BELT, RELAY                    |        |
| 310      | 3-945-695-01 | PULLEY, RELAY                  |        |
| 311      | X-3941-260-1 | SLIDER ASSY, M                 |        |
| 312      | 3-945-696-02 | CAM                            |        |
| 313      | X-3941-258-1 | ARM ASSY, GL                   |        |
| 314      | 3-713-786-71 | SCREW (M2X5)                   |        |

| Ref. No. | Part No.     | Description                | Remark |
|----------|--------------|----------------------------|--------|
| 315      | A-7040-303-A | CHASSIS ASSY, MECHANICAL   |        |
| 316      | 3-947-503-01 | SCREW (M1.4X2.5)           |        |
| 317      | 3-945-722-01 | RETAINER, GEAR             |        |
| 318      | X-3941-257-1 | ARM ASSY, FF               |        |
| 319      | 3-945-697-01 | GEAR (B), L                |        |
| 320      | 3-945-700-01 | GEAR (A), L                |        |
| 321      | 1-645-271-11 | FP-575 FLEXIBLE BOARD      |        |
| 322      | 1-641-643-12 | FP-444 FLEXIBLE BOARD      |        |
| 323      | 3-945-756-01 | SCREW (M1.4X3)             |        |
| 324      | 1-691-254-13 | CONNECTOR, TRANSLATION 10P |        |
| 325      | 1-641-639-13 | FP-442 FLEXIBLE BOARD      |        |
| S001     | 1-572-986-11 | SWITCH, ROTARY (ENCODER)   |        |
| S005     | 1-570-771-21 | SWITCH (C DOWN)            |        |

5-8. ZOOM LENS ASSEMBLY (VCL-6110WF)



| Ref. No. | Part No.     | Description     | Remark |
|----------|--------------|-----------------|--------|
| 401      | 3-708-805-01 | LENS BLOCK      |        |
| 402      | 3-708-302-01 | SCREW P1. 7X4   |        |
| 403      | 3-708-799-01 | SCREW P1. 7X5.5 |        |
| 404      | 3-708-790-01 | FPC, MAIN       |        |
| 405      | 3-708-449-01 | SCREW P1. 7X5   |        |
| 406      | 3-708-791-01 | ENCORDER, ZOOM  |        |
| 407      | 3-708-798-01 | SCREW P1. 7X5   |        |
| 408      | 3-708-797-01 | SCREW P2X4      |        |
| 409      | 3-708-789-01 | BRACKET         |        |
| 410      | A-7030-482-A | VAP BLOCK       |        |

| Ref. No. | Part No.     | Description             | Remark |
|----------|--------------|-------------------------|--------|
| 411      | 3-708-804-01 | SCREW P1. 7X3.5         |        |
| 412      | 3-708-803-01 | PLATE, LOCK             |        |
| 413      | 3-708-802-01 | SPRING, LOCK            |        |
| 414      | 3-708-801-01 | LEVER, LOCK             |        |
| 415      | 3-708-787-01 | RING, F                 |        |
| 416      | 3-708-795-01 | SCREW P2X7              |        |
| M904     | 3-708-792-01 | METER, IG (IRIS)        |        |
| M905     | 3-708-793-01 | MOTOR, STEPPING (FOCUS) |        |
| M906     | 3-708-794-01 | MOTOR, PZ (ZOOM)        |        |



SECTION 6  
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A... uPA...:  $\mu$ PA...  
uPB...:  $\mu$ PB... uPC...:  $\mu$ PC... uPD...:  $\mu$ PD...
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

| Ref. No.                                                                 | Part No.     | Description           | Remark   |
|--------------------------------------------------------------------------|--------------|-----------------------|----------|
| A-7063-695-A AU-149 BOARD, COMPLETE<br>*****<br>(Ref. No. 7, 000 Series) |              |                       |          |
| < CAPACITOR >                                                            |              |                       |          |
| C801                                                                     | 1-162-953-11 | CERAMIC CHIP 100PF    | 5% 50V   |
| C802                                                                     | 1-162-953-11 | CERAMIC CHIP 100PF    | 5% 50V   |
| C803                                                                     | 1-162-953-11 | CERAMIC CHIP 100PF    | 5% 50V   |
| C804                                                                     | 1-104-753-11 | TANTAL. CHIP 47uF     | 20% 6.3V |
| C805                                                                     | 1-126-205-11 | ELECT CHIP 47uF       | 20% 6.3V |
| C806                                                                     | 1-104-753-11 | TANTAL. CHIP 47uF     | 20% 6.3V |
| C807                                                                     | 1-126-205-11 | ELECT CHIP 47uF       | 20% 6.3V |
| C808                                                                     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V |
| C809                                                                     | 1-126-205-11 | ELECT CHIP 47uF       | 20% 6.3V |
| C811                                                                     | 1-126-205-11 | ELECT CHIP 47uF       | 20% 6.3V |
| C812                                                                     | 1-164-489-11 | CERAMIC CHIP 0.22uF   | 10% 16V  |
| C813                                                                     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V |
| C814                                                                     | 1-164-489-11 | CERAMIC CHIP 0.22uF   | 10% 16V  |
| C820                                                                     | 1-124-778-00 | ELECT CHIP 22uF       | 20% 6.3V |
| C821                                                                     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V |
| C822                                                                     | 1-164-489-11 | CERAMIC CHIP 0.22uF   | 10% 16V  |
| C824                                                                     | 1-164-489-11 | CERAMIC CHIP 0.22uF   | 10% 16V  |
| C825                                                                     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V |
| C826                                                                     | 1-135-091-91 | TANTAL. CHIP 1uF      | 20% 16V  |
| C827                                                                     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V |
| C828                                                                     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V |
| C829                                                                     | 1-162-966-11 | CERAMIC CHIP 0.0022uF | 10% 50V  |
| C830                                                                     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V |
| C832                                                                     | 1-162-966-11 | CERAMIC CHIP 0.0022uF | 10% 50V  |
| C833                                                                     | 1-163-809-11 | CERAMIC CHIP 0.047uF  | 10% 25V  |
| C834                                                                     | 1-164-346-11 | CERAMIC CHIP 1uF      | 10% 16V  |
| C835                                                                     | 1-162-967-11 | CERAMIC CHIP 0.0033uF | 10% 50V  |
| C838                                                                     | 1-164-004-11 | CERAMIC CHIP 0.1uF    | 10% 25V  |
| C840                                                                     | 1-164-004-11 | CERAMIC CHIP 0.1uF    | 10% 25V  |
| C841                                                                     | 1-162-970-11 | CERAMIC CHIP 0.01uF   | 10% 25V  |
| C842                                                                     | 1-164-004-11 | CERAMIC CHIP 0.1uF    | 10% 25V  |
| C843                                                                     | 1-164-004-11 | CERAMIC CHIP 0.1uF    | 10% 25V  |
| C844                                                                     | 1-164-004-11 | CERAMIC CHIP 0.1uF    | 10% 25V  |
| C845                                                                     | 1-162-966-11 | CERAMIC CHIP 0.0022uF | 10% 50V  |
| C847                                                                     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V |

| Ref. No.      | Part No.     | Description                   | Remark   |
|---------------|--------------|-------------------------------|----------|
| C848          | 1-162-966-11 | CERAMIC CHIP 0.0022uF         | 10% 50V  |
| C849          | 1-135-181-21 | TANTALUM CHIP 4.7uF           | 20% 6.3V |
| C850          | 1-135-259-11 | TANTAL. CHIP 10uF             | 20% 6.3V |
| C851          | 1-135-091-91 | TANTAL. CHIP 1uF              | 20% 16V  |
| C852          | 1-135-181-21 | TANTALUM CHIP 4.7uF           | 20% 6.3V |
| C853          | 1-135-181-21 | TANTALUM CHIP 4.7uF           | 20% 6.3V |
| C855          | 1-128-003-11 | ELECT CHIP 22uF               | 20% 4V   |
| C856          | 1-128-003-11 | ELECT CHIP 22uF               | 20% 4V   |
| C857          | 1-162-969-11 | CERAMIC CHIP 0.0068uF         | 10% 25V  |
| C858          | 1-162-970-11 | CERAMIC CHIP 0.01uF           | 10% 25V  |
| C859          | 1-164-004-11 | CERAMIC CHIP 0.1uF            | 10% 25V  |
| C860          | 1-162-970-11 | CERAMIC CHIP 0.01uF           | 10% 25V  |
| C864          | 1-162-970-11 | CERAMIC CHIP 0.01uF           | 10% 25V  |
| C865          | 1-162-970-11 | CERAMIC CHIP 0.01uF           | 10% 25V  |
| C870          | 1-164-145-11 | CERAMIC CHIP 390PF            | 5% 50V   |
| C891          | 1-135-259-11 | TANTAL. CHIP 10uF             | 20% 6.3V |
| < CONNECTOR > |              |                               |          |
| CN801         | 1-691-492-21 | CONNECTOR, FFC/FPC 13P        |          |
| * CN802       | 1-691-931-11 | CONNECTOR, BOARD TO BOARD 38P |          |
| CN803         | 1-566-537-11 | CONNECTOR, FPC (NON ZIF) 5P   |          |
| < DIODE >     |              |                               |          |
| D801          | 8-719-404-46 | DIODE MA110                   |          |
| D805          | 8-719-404-35 | DIODE MA141WK                 |          |
| D806          | 8-719-404-35 | DIODE MA141WK                 |          |
| D808          | 8-719-420-15 | DIODE MA8082-M(TX)            |          |
| D809          | 8-719-420-15 | DIODE MA8082-M(TX)            |          |
| D810          | 8-719-404-46 | DIODE MA110                   |          |
| < FILTER >    |              |                               |          |
| FL801         | 1-236-837-21 | FILTER, BAND PASS             |          |
| FL802         | 1-236-838-21 | FILTER, BAND PASS             |          |
| < IC >        |              |                               |          |
| IC801         | 8-759-159-94 | IC LA7491W-TBM                |          |

| Ref. No.       | Part No.     | Description                | Remark |
|----------------|--------------|----------------------------|--------|
| < TRANSISTOR > |              |                            |        |
| Q801           | 8-729-230-63 | TRANSISTOR 2SC4116-YG      |        |
| Q802           | 8-729-230-63 | TRANSISTOR 2SC4116-YG      |        |
| Q803           | 8-729-230-63 | TRANSISTOR 2SC4116-YG      |        |
| Q804           | 8-729-230-63 | TRANSISTOR 2SC4116-YG      |        |
| Q806           | 8-729-402-42 | TRANSISTOR UN5213          |        |
| Q807           | 8-729-230-63 | TRANSISTOR 2SC4116-YG      |        |
| Q808           | 8-729-420-50 | TRANSISTOR UN5215          |        |
| Q810           | 8-729-230-63 | TRANSISTOR 2SC4116-YG      |        |
| Q811           | 8-729-230-63 | TRANSISTOR 2SC4116-YG      |        |
| Q812           | 8-729-402-81 | TRANSISTOR XN4501          |        |
| Q813           | 8-729-402-81 | TRANSISTOR XN4501          |        |
| Q820           | 8-729-402-42 | TRANSISTOR UN5213          |        |
| Q821           | 8-729-402-42 | TRANSISTOR UN5213          |        |
| Q823           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS    |        |
| < RESISTOR >   |              |                            |        |
| R417           | 1-216-817-11 | METAL CHIP 470 5% 1/16W    |        |
| R436           | 1-216-817-11 | METAL CHIP 470 5% 1/16W    |        |
| R437           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R801           | 1-216-824-11 | METAL CHIP 1.8K 5% 1/16W   |        |
| R802           | 1-216-842-11 | METAL CHIP 56K 5% 1/16W    |        |
| R803           | 1-216-810-11 | METAL CHIP 120 5% 1/16W    |        |
| R805           | 1-216-810-11 | METAL CHIP 120 5% 1/16W    |        |
| R807           | 1-216-817-11 | METAL CHIP 470 5% 1/16W    |        |
| R809           | 1-216-817-11 | METAL CHIP 470 5% 1/16W    |        |
| R811           | 1-216-839-11 | METAL CHIP 33K 5% 1/16W    |        |
| R812           | 1-216-824-11 | METAL CHIP 1.8K 5% 1/16W   |        |
| R813           | 1-216-842-11 | METAL CHIP 56K 5% 1/16W    |        |
| R814           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R815           | 1-216-839-11 | METAL CHIP 33K 5% 1/16W    |        |
| R816           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R817           | 1-216-823-11 | METAL CHIP 1.5K 5% 1/16W   |        |
| R819           | 1-216-821-11 | METAL CHIP 1K 5% 1/16W     |        |
| R820           | 1-216-863-11 | METAL GLAZE 3.3M 5% 1/16W  |        |
| R821           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R823           | 1-216-863-11 | METAL GLAZE 3.3M 5% 1/16W  |        |
| R824           | 1-216-841-11 | METAL CHIP 47K 5% 1/16W    |        |
| R825           | 1-218-732-11 | METAL CHIP 47K 0.50% 1/16W |        |
| R826           | 1-218-722-11 | METAL CHIP 18K 0.50% 1/16W |        |
| R827           | 1-216-839-11 | METAL CHIP 33K 5% 1/16W    |        |
| R828           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R829           | 1-216-841-11 | METAL CHIP 47K 5% 1/16W    |        |
| R831           | 1-216-864-11 | METAL CHIP 0 5% 1/16W      |        |
| R832           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R833           | 1-216-864-11 | METAL CHIP 0 5% 1/16W      |        |
| R834           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |

| Ref. No.                                                                 | Part No.     | Description              | Remark  |
|--------------------------------------------------------------------------|--------------|--------------------------|---------|
| R835                                                                     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W   |         |
| R836                                                                     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W   |         |
| R837                                                                     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W   |         |
| R838                                                                     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W   |         |
| R839                                                                     | 1-216-830-11 | METAL CHIP 5.6K 5% 1/16W |         |
| R840                                                                     | 1-216-836-11 | METAL CHIP 18K 5% 1/16W  |         |
| R841                                                                     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W  |         |
| R842                                                                     | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W |         |
| R843                                                                     | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W |         |
| R844                                                                     | 1-216-823-11 | METAL CHIP 1.5K 5% 1/16W |         |
| R845                                                                     | 1-216-827-11 | METAL CHIP 3.3K 5% 1/16W |         |
| R846                                                                     | 1-216-822-11 | METAL CHIP 1.2K 5% 1/16W |         |
| R847                                                                     | 1-216-827-11 | METAL CHIP 3.3K 5% 1/16W |         |
| R848                                                                     | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W |         |
| R849                                                                     | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W |         |
| R850                                                                     | 1-216-824-11 | METAL CHIP 1.8K 5% 1/16W |         |
| R851                                                                     | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W |         |
| R852                                                                     | 1-216-824-11 | METAL CHIP 1.8K 5% 1/16W |         |
| R853                                                                     | 1-216-820-11 | METAL CHIP 820 5% 1/16W  |         |
| R859                                                                     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W  |         |
| R860                                                                     | 1-216-831-11 | METAL CHIP 6.8K 5% 1/16W |         |
| R862                                                                     | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W |         |
| R863                                                                     | 1-216-838-11 | METAL CHIP 27K 5% 1/16W  |         |
| R864                                                                     | 1-216-838-11 | METAL CHIP 27K 5% 1/16W  |         |
| R881                                                                     | 1-216-864-11 | METAL CHIP 0 5% 1/16W    |         |
| R882                                                                     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W  |         |
| R883                                                                     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W  |         |
| R885                                                                     | 1-216-832-11 | METAL CHIP 8.2K 5% 1/16W |         |
| R886                                                                     | 1-216-847-11 | METAL CHIP 150K 5% 1/16W |         |
| R890                                                                     | 1-216-864-11 | METAL CHIP 0 5% 1/16W    |         |
| R891                                                                     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W   |         |
| *****                                                                    |              |                          |         |
| A-7063-690-A CD-105 BOARD, COMPLETE<br>*****<br>(Ref. No. 1, 000 Series) |              |                          |         |
| < CAPACITOR >                                                            |              |                          |         |
| C784                                                                     | 1-128-004-11 | ELECT CHIP 10uF          | 20% 16V |
| C785                                                                     | 1-128-013-11 | ELECT CHIP 1uF           | 20% 50V |
| C786                                                                     | 1-162-964-11 | CERAMIC CHIP 0.001uF     | 10% 50V |
| C787                                                                     | 1-126-607-11 | ELECT CHIP 47uF          | 20% 4V  |
| C788                                                                     | 1-162-974-11 | CERAMIC CHIP 0.01uF      | 50V     |
| C789                                                                     | 1-162-637-11 | CERAMIC CHIP 0.47uF      | 16V     |
| C790                                                                     | 1-135-214-21 | TANTAL. CHIP 4.7uF       | 20% 20V |
| < DIODE >                                                                |              |                          |         |
| D784                                                                     | 8-719-404-46 | DIODE MA110              |         |

| Ref. No.                 | Part No.     | Description                    | Remark |
|--------------------------|--------------|--------------------------------|--------|
| < COIL >                 |              |                                |        |
| L784                     | 1-412-032-11 | INDUCTOR CHIP 100uH            |        |
| < TRANSISTOR >           |              |                                |        |
| Q784                     | 8-729-232-86 | TRANSISTOR 2SK1875             |        |
| Q785                     | 8-729-102-07 | TRANSISTOR 2SC2223-F13         |        |
| < RESISTOR >             |              |                                |        |
| R784                     | 1-216-839-11 | METAL CHIP 33K 5% 1/16W        |        |
| R785                     | 1-216-819-11 | METAL CHIP 680 5% 1/16W        |        |
| R786                     | 1-216-849-11 | METAL CHIP 220K 5% 1/16W       |        |
| R787                     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W        |        |
| R788                     | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W       |        |
| R789                     | 1-216-809-11 | METAL CHIP 100 5% 1/16W        |        |
| R790                     | 1-216-845-11 | METAL CHIP 100K 5% 1/16W       |        |
| R791                     | 1-216-857-11 | METAL CHIP 1M 5% 1/16W         |        |
| < FLAT CABLE >           |              |                                |        |
| W784                     | 1-644-944-11 | FP-580 FLEXIBLE BOARD          |        |
| *****                    |              |                                |        |
| △                        | A-7063-694-A | DD-55 BOARD, COMPLETE          |        |
| *****                    |              |                                |        |
| (Ref. No. 9, 000 Series) |              |                                |        |
| < CAPACITOR >            |              |                                |        |
| C445                     | 1-104-913-11 | TANTAL. CHIP 10uF 20% 16V      |        |
| C446                     | 1-162-953-11 | CERAMIC CHIP 100PF 5% 50V      |        |
| C448                     | 1-135-157-21 | TANTALUM CHIP 10uF 20% 6.3V    |        |
| C449                     | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V    |        |
| C450                     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V   |        |
| C451                     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V   |        |
| C452                     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V   |        |
| C453                     | 1-135-165-11 | TANTAL. CHIP 33uF 20% 16V      |        |
| C454                     | 1-126-204-11 | ELECT CHIP 47uF 20% 16V        |        |
| C455                     | 1-126-204-11 | ELECT CHIP 47uF 20% 16V        |        |
| C456                     | 1-163-133-00 | CERAMIC CHIP 470PF 5% 50V      |        |
| C457                     | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V     |        |
| C458                     | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V     |        |
| C459                     | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V     |        |
| C460                     | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V     |        |
| C461                     | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V     |        |
| C462                     | 1-162-966-11 | CERAMIC CHIP 0.0022uF 10% 50V  |        |
| C463                     | 1-162-967-11 | CERAMIC CHIP 0.0033uF 10% 50V  |        |
| C464                     | 1-163-017-00 | CERAMIC CHIP 0.0047uF 5% 50V   |        |
| C465                     | 1-164-161-11 | CERAMIC CHIP 0.0022uF 10% 100V |        |
| C466                     | 1-164-174-11 | CERAMIC CHIP 0.0082uF 10% 25V  |        |
| C467                     | 1-164-730-11 | CERAMIC CHIP 0.0012uF 10% 50V  |        |

| Ref. No.      | Part No.     | Description                   | Remark |
|---------------|--------------|-------------------------------|--------|
| C468          | 1-162-953-11 | CERAMIC CHIP 100PF 5% 50V     |        |
| C469          | 1-162-953-11 | CERAMIC CHIP 100PF 5% 50V     |        |
| C470          | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V    |        |
| C471          | 1-162-962-11 | CERAMIC CHIP 470PF 10% 50V    |        |
| C472          | 1-162-962-11 | CERAMIC CHIP 470PF 10% 50V    |        |
| C473          | 1-162-958-11 | CERAMIC CHIP 270PF 5% 50V     |        |
| C474          | 1-162-958-11 | CERAMIC CHIP 270PF 5% 50V     |        |
| C475          | 1-162-962-11 | CERAMIC CHIP 470PF 10% 50V    |        |
| C476          | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V  |        |
| C477          | 1-162-963-11 | CERAMIC CHIP 680PF 10% 50V    |        |
| C478          | 1-162-963-11 | CERAMIC CHIP 680PF 10% 50V    |        |
| C479          | 1-162-962-11 | CERAMIC CHIP 470PF 10% 50V    |        |
| C480          | 1-162-963-11 | CERAMIC CHIP 680PF 10% 50V    |        |
| C481          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C482          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C483          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C484          | 1-165-176-11 | CERAMIC CHIP 0.047uF 10% 16V  |        |
| C485          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C486          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C487          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C488          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C489          | 1-165-178-11 | CERAMIC CHIP 6.8uF 16V        |        |
| C490          | 1-164-506-11 | CERAMIC CHIP 4.7uF 16V        |        |
| C491          | 1-164-830-11 | CERAMIC CHIP 1uF 22% 16V      |        |
| C492          | 1-164-337-11 | CERAMIC CHIP 2.2uF 16V        |        |
| C493          | 1-164-337-11 | CERAMIC CHIP 2.2uF 16V        |        |
| C494          | 1-135-157-21 | TANTALUM CHIP 10uF 20% 6.3V   |        |
| C495          | 1-135-157-21 | TANTALUM CHIP 10uF 20% 6.3V   |        |
| C496          | 1-135-157-21 | TANTALUM CHIP 10uF 20% 6.3V   |        |
| C497          | 1-135-157-21 | TANTALUM CHIP 10uF 20% 6.3V   |        |
| C498          | 1-135-157-21 | TANTALUM CHIP 10uF 20% 6.3V   |        |
| C499          | 1-135-157-21 | TANTALUM CHIP 10uF 20% 6.3V   |        |
| < CONNECTOR > |              |                               |        |
| CN451         | 1-691-521-11 | CONNECTOR, BOARD TO BOARD 40P |        |
| CN452         | 1-691-485-21 | CONNECTOR, FFC/FPC 6P         |        |
| < DIODE >     |              |                               |        |
| D450          | 8-719-016-74 | DIODE 1SS352                  |        |
| D451          | 8-719-420-15 | DIODE MA8082-M(TX)            |        |
| D452          | 8-719-420-15 | DIODE MA8082-M(TX)            |        |
| D453          | 8-719-420-15 | DIODE MA8082-M(TX)            |        |
| D454          | 8-719-420-15 | DIODE MA8082-M(TX)            |        |
| D455          | 8-719-027-77 | DIODE MA796                   |        |
| D460          | 8-719-016-74 | DIODE 1SS352                  |        |
| < IC >        |              |                               |        |
| IC450         | 8-759-060-94 | IC MB3785APFV-G-BND-ER        |        |

The components identified by mark △ or dotted line with mark. △ are critical for safety. Replace only with part number specified.

| Ref. No.       | Part No.     | Description                       | Remark |
|----------------|--------------|-----------------------------------|--------|
| IC451          | 8-759-062-00 | IC MB3788PFV                      |        |
| < JACK >       |              |                                   |        |
| J450           | 1-569-809-11 | JACK (SMALL TYPE) (HEADPHONE)     |        |
| J451           | 1-537-281-41 | TERMINAL BOARD (BATTERY TERMINAL) |        |
| J452           | 1-565-276-21 | JACK, ULTRA SMALL 1P (REMOTE)     |        |
| < COIL >       |              |                                   |        |
| L450           | 1-410-192-51 | INDUCTOR CHIP 1uH                 |        |
| L451           | 1-410-192-51 | INDUCTOR CHIP 1uH                 |        |
| L452           | 1-410-192-51 | INDUCTOR CHIP 1uH                 |        |
| L456           | 1-406-864-21 | COIL, CHOKE 4.7uH                 |        |
| L457           | 1-424-643-11 | COIL, CHOKE 10uH                  |        |
| L458           | 1-424-641-11 | COIL, CHOKE 22uH                  |        |
| L459           | 1-424-643-11 | COIL, CHOKE 10uH                  |        |
| L460           | 1-424-641-11 | COIL, CHOKE 22uH                  |        |
| L461           | 1-424-642-11 | COIL, CHOKE 47uH                  |        |
| L462           | 1-424-641-11 | COIL, CHOKE 22uH                  |        |
| L463           | 1-424-641-11 | COIL, CHOKE 22uH                  |        |
| L464           | 1-412-056-11 | INDUCTOR CHIP 4.7uH               |        |
| L465           | 1-412-054-21 | INDUCTOR CHIP 2.2uH               |        |
| L466           | 1-412-054-21 | INDUCTOR CHIP 2.2uH               |        |
| L467           | 1-412-066-21 | INDUCTOR CHIP 220uH               |        |
| L468           | 1-412-066-21 | INDUCTOR CHIP 220uH               |        |
| L469           | 1-412-054-21 | INDUCTOR CHIP 2.2uH               |        |
| L470           | 1-412-056-11 | INDUCTOR CHIP 4.7uH               |        |
| L471           | 1-412-056-11 | INDUCTOR CHIP 4.7uH               |        |
| L472           | 1-412-054-21 | INDUCTOR CHIP 2.2uH               |        |
| < IC LINK >    |              |                                   |        |
| △PS450         | 1-533-284-11 | LINK, CHIP IC (1.6A)              |        |
| △PS451         | 1-533-284-11 | LINK, CHIP IC (1.6A)              |        |
| △PS452         | 1-533-284-11 | LINK, CHIP IC (1.6A)              |        |
| < TRANSISTOR > |              |                                   |        |
| Q450           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS           |        |
| Q451           | 8-729-823-82 | TRANSISTOR FP101                  |        |
| Q452           | 8-729-823-82 | TRANSISTOR FP101                  |        |
| Q453           | 8-729-804-41 | TRANSISTOR 2SB1122-S              |        |
| Q454           | 8-729-823-84 | TRANSISTOR FP102                  |        |
| Q455           | 8-729-823-82 | TRANSISTOR FP101                  |        |
| Q456           | 8-729-823-84 | TRANSISTOR FP102                  |        |
| Q457           | 8-729-017-10 | TRANSISTOR 2SJ244JY               |        |
| Q458           | 8-729-403-35 | TRANSISTOR UN5113                 |        |
| Q459           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS           |        |
| < RESISTOR >   |              |                                   |        |
| R066           | 1-216-837-11 | METAL CHIP 22K 5% 1/16W           |        |
| R067           | 1-218-707-11 | METAL CHIP 4.3K 0.50% 1/16W       |        |

| Ref. No. | Part No.     | Description                 | Remark |
|----------|--------------|-----------------------------|--------|
| R068     | 1-216-842-11 | METAL CHIP 56K 5% 1/16W     |        |
| R069     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R111     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W     |        |
| R112     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R113     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W     |        |
| R114     | 1-218-721-11 | METAL CHIP 16K 0.50% 1/16W  |        |
| R115     | 1-216-834-11 | METAL CHIP 12K 5% 1/16W     |        |
| R116     | 1-218-714-11 | METAL CHIP 8.2K 0.50% 1/16W |        |
| R117     | 1-218-736-11 | METAL CHIP 68K 0.50% 1/16W  |        |
| R118     | 1-218-720-11 | METAL CHIP 15K 0.50% 1/16W  |        |
| R119     | 1-216-843-11 | METAL CHIP 68K 5% 1/16W     |        |
| R227     | 1-216-843-11 | METAL CHIP 68K 5% 1/16W     |        |
| R228     | 1-216-804-11 | METAL CHIP 39 5% 1/16W      |        |
| R229     | 1-216-832-11 | METAL CHIP 8.2K 5% 1/16W    |        |
| R484     | 1-216-041-00 | METAL CHIP 470 5% 1/10W     |        |
| R485     | 1-216-845-11 | METAL CHIP 100K 5% 1/16W    |        |
| R486     | 1-216-055-00 | METAL CHIP 1.8K 5% 1/10W    |        |
| R487     | 1-216-041-00 | METAL CHIP 470 5% 1/10W     |        |
| R488     | 1-216-041-00 | METAL CHIP 470 5% 1/10W     |        |
| R489     | 1-216-041-00 | METAL CHIP 470 5% 1/10W     |        |
| R490     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R491     | 1-216-009-00 | METAL CHIP 22 5% 1/10W      |        |
| R492     | 1-216-845-11 | METAL CHIP 100K 5% 1/16W    |        |
| R493     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R494     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W     |        |
| R495     | 1-216-828-11 | METAL CHIP 3.9K 5% 1/16W    |        |
| R496     | 1-216-296-00 | METAL CHIP 0 5% 1/8W        |        |
| R497     | 1-216-296-00 | METAL CHIP 0 5% 1/8W        |        |
| R498     | 1-216-296-00 | METAL CHIP 0 5% 1/8W        |        |
| R862     | 1-216-830-11 | METAL CHIP 5.6K 5% 1/16W    |        |
| R863     | 1-216-845-11 | METAL CHIP 100K 5% 1/16W    |        |
| R864     | 1-216-847-11 | METAL CHIP 150K 5% 1/16W    |        |
| R865     | 1-218-724-11 | METAL CHIP 22K 0.50% 1/16W  |        |
| R866     | 1-218-720-11 | METAL CHIP 15K 0.50% 1/16W  |        |
| R867     | 1-216-834-11 | METAL CHIP 12K 5% 1/16W     |        |
| R868     | 1-218-727-11 | METAL CHIP 30K 0.50% 1/16W  |        |
| R869     | 1-216-843-11 | METAL CHIP 68K 5% 1/16W     |        |
| R870     | 1-216-843-11 | METAL CHIP 68K 5% 1/16W     |        |
| R885     | 1-216-795-11 | METAL CHIP 6.8K 0.50% 1/16W |        |
| R886     | 1-216-832-11 | METAL CHIP 8.2K 5% 1/16W    |        |
| R887     | 1-216-832-11 | METAL CHIP 8.2K 5% 1/16W    |        |
| R888     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R889     | 1-218-722-11 | METAL CHIP 18K 0.50% 1/16W  |        |
| R890     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R891     | 1-216-864-11 | METAL CHIP 0 5% 1/16W       |        |
| R892     | 1-216-826-11 | METAL CHIP 2.7K 5% 1/16W    |        |
| R893     | 1-216-041-00 | METAL CHIP 470 5% 1/10W     |        |

The components identified by mark △ or dotted line with mark. △ are critical for safety. Replace only with part number specified.

| Ref. No.                            | Part No.     | Description                                      | Remark |
|-------------------------------------|--------------|--------------------------------------------------|--------|
| < SWITCH >                          |              |                                                  |        |
| S451                                | 1-572-467-21 | SWITCH, PUSH (1 KEY) (EJECT)                     |        |
| < TRANSFORMER >                     |              |                                                  |        |
| T450                                | 1-423-820-21 | TRANSFORMER, CONVERTER                           |        |
| *****                               |              |                                                  |        |
| JK-98 BOARD (Ref. No. 4,000 Series) |              |                                                  |        |
| *****                               |              |                                                  |        |
| < CAPACITOR >                       |              |                                                  |        |
| C517                                | 1-164-361-11 | CERAMIC CHIP 0.047uF                             | 16V    |
| < DIODE >                           |              |                                                  |        |
| D517                                | 8-719-420-15 | DIODE MA8082-M(TX)                               |        |
| D518                                | 8-719-420-15 | DIODE MA8082-M(TX)                               |        |
| D519                                | 8-719-420-15 | DIODE MA8082-M(TX)                               |        |
| D520                                | 8-719-420-15 | DIODE MA8082-M(TX)                               |        |
| D521                                | 8-719-420-15 | DIODE MA8082-M(TX)                               |        |
| D522                                | 8-719-420-15 | DIODE MA8082-M(TX)                               |        |
| D523                                | 8-719-420-15 | DIODE MA8082-M(TX)                               |        |
| D524                                | 8-719-404-46 | DIODE MA110                                      |        |
| D525                                | 8-719-404-46 | DIODE MA110                                      |        |
| D526                                | 8-719-404-46 | DIODE MA110                                      |        |
| < JACK >                            |              |                                                  |        |
| J517                                | 1-537-415-11 | TERMINAL BOARD<br>(VIDEO, AUDIO L/R, RFU DC OUT) |        |
| < TRANSISTOR >                      |              |                                                  |        |
| Q517                                | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS                          |        |
| < RESISTOR >                        |              |                                                  |        |
| R518                                | 1-216-853-11 | METAL CHIP 470K 5%                               | 1/16W  |
| R519                                | 1-216-841-11 | METAL CHIP 47K 5%                                | 1/16W  |
| R520                                | 1-216-853-11 | METAL CHIP 470K 5%                               | 1/16W  |
| R521                                | 1-216-864-11 | METAL CHIP 0 5%                                  | 1/16W  |
| R522                                | 1-216-864-11 | METAL CHIP 0 5%                                  | 1/16W  |
| R523                                | 1-216-296-00 | METAL CHIP 0 5%                                  | 1/8W   |
| < FLAT CABLE >                      |              |                                                  |        |
| W517                                | 1-537-590-11 | FP-10 FLEXIBLE BOARD                             |        |
| *****                               |              |                                                  |        |

| Ref. No.                            | Part No.     | Description                                          | Remark |
|-------------------------------------|--------------|------------------------------------------------------|--------|
| LS-33 BOARD (Ref. No. 5,000 Series) |              |                                                      |        |
| *****                               |              |                                                      |        |
| < DIODE >                           |              |                                                      |        |
| D001                                | 8-719-989-52 | DIODE GL4600S                                        |        |
| < HOLE ELEMENT >                    |              |                                                      |        |
| H001                                | 8-719-987-62 | DIODE LT140SAZ                                       |        |
| H002                                | 8-719-987-62 | DIODE LT140SAZ                                       |        |
| < TRANSISTOR >                      |              |                                                      |        |
| Q001                                | 8-729-012-46 | TRANSISTOR PT4600FS                                  |        |
| Q002                                | 8-729-012-46 | TRANSISTOR PT4600FS                                  |        |
| < RESISTOR >                        |              |                                                      |        |
| R003                                | 1-216-033-00 | METAL CHIP 220 5%                                    | 1/10W  |
| R004                                | 1-216-033-00 | METAL CHIP 220 5%                                    | 1/10W  |
| R010                                | 1-216-033-00 | METAL CHIP 220 5%                                    | 1/10W  |
| R011                                | 1-216-033-00 | METAL CHIP 220 5%                                    | 1/10W  |
| < SWITCH >                          |              |                                                      |        |
| S002                                | 1-572-987-11 | SWITCH, PUSH (3 KEY)<br>(REC PROOF, ME/MP, MP/MP-HG) |        |
| *****                               |              |                                                      |        |
| A-7063-696-A MA-169 BOARD, COMPLETE |              |                                                      |        |
| *****                               |              |                                                      |        |
| (Ref. No. 7,000 Series)             |              |                                                      |        |
| < CAPACITOR >                       |              |                                                      |        |
| C553                                | 1-162-953-11 | CERAMIC CHIP 100PF 5%                                | 50V    |
| C554                                | 1-162-953-11 | CERAMIC CHIP 100PF 5%                                | 50V    |
| C560                                | 1-135-148-21 | TANTAL. CHIP 1.5uF 20%                               | 10V    |
| C563                                | 1-163-037-91 | CERAMIC CHIP 0.022uF 10%                             | 25V    |
| C564                                | 1-163-037-91 | CERAMIC CHIP 0.022uF 10%                             | 25V    |
| C566                                | 1-126-205-11 | ELECT CHIP 47uF 20%                                  | 6.3V   |
| C567                                | 1-164-633-11 | CERAMIC CHIP 0.1uF 10%                               | 25V    |
| C568                                | 1-163-809-11 | CERAMIC CHIP 0.047uF 10%                             | 25V    |
| C569                                | 1-135-091-91 | TANTAL. CHIP 1uF 20%                                 | 16V    |
| C570                                | 1-164-343-11 | CERAMIC CHIP 0.056uF 10%                             | 25V    |
| C571                                | 1-163-809-11 | CERAMIC CHIP 0.047uF 10%                             | 25V    |
| C572                                | 1-163-023-00 | CERAMIC CHIP 0.015uF 5%                              | 50V    |
| C573                                | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V                              |        |
| C574                                | 1-163-037-91 | CERAMIC CHIP 0.022uF 10%                             | 25V    |
| C575                                | 1-163-037-91 | CERAMIC CHIP 0.022uF 10%                             | 25V    |
| C577                                | 1-164-360-11 | CERAMIC CHIP 0.1uF 16V                               |        |
| C578                                | 1-164-633-11 | CERAMIC CHIP 0.1uF 10%                               | 25V    |
| C579                                | 1-163-809-11 | CERAMIC CHIP 0.047uF 10%                             | 25V    |
| C580                                | 1-135-091-91 | TANTAL. CHIP 1uF 20%                                 | 16V    |

| Ref. No.       | Part No.     | Description                     | Remark |
|----------------|--------------|---------------------------------|--------|
| C581           | 1-164-343-11 | CERAMIC CHIP 0.056uF 10%        | 25V    |
| C582           | 1-163-809-11 | CERAMIC CHIP 0.047uF 10%        | 25V    |
| C583           | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V         |        |
| C584           | 1-163-023-00 | CERAMIC CHIP 0.015uF 5%         | 50V    |
| C585           | 1-163-037-91 | CERAMIC CHIP 0.022uF 10%        | 25V    |
| C586           | 1-163-037-91 | CERAMIC CHIP 0.022uF 10%        | 25V    |
| < CONNECTOR >  |              |                                 |        |
| CN551          | 1-573-290-21 | PIN, CONNECTOR (1.5MM) (SMD) 4P |        |
| CN552          | 1-573-290-21 | PIN, CONNECTOR (1.5MM) (SMD) 4P |        |
| CN553          | 1-691-492-21 | CONNECTOR, FFC/FPC 13P          |        |
| < DIODE >      |              |                                 |        |
| D551           | 8-719-016-74 | DIODE 1SS352                    |        |
| < IC >         |              |                                 |        |
| IC551          | 8-759-084-53 | IC CXA1618AN                    |        |
| IC552          | 8-749-923-29 | IC RS-20E-T                     |        |
| < JACK >       |              |                                 |        |
| J551           | 1-691-737-11 | JACK (SMALL TYPE) (MIC)         |        |
| < COIL >       |              |                                 |        |
| L551           | 1-410-369-11 | INDUCTOR CHIP 1uH               |        |
| L552           | 1-410-369-11 | INDUCTOR CHIP 1uH               |        |
| L553           | 1-410-369-11 | INDUCTOR CHIP 1uH               |        |
| < TRANSISTOR > |              |                                 |        |
| Q551           | 8-729-010-80 | TRANSISTOR FC13                 |        |
| Q555           | 8-729-822-97 | TRANSISTOR 2SC4211-5.6.7        |        |
| < RESISTOR >   |              |                                 |        |
| R551           | 1-216-823-11 | METAL CHIP 1.5K 5%              | 1/16W  |
| R552           | 1-216-823-11 | METAL CHIP 1.5K 5%              | 1/16W  |
| R553           | 1-216-831-11 | METAL CHIP 6.8K 5%              | 1/16W  |
| R554           | 1-216-831-11 | METAL CHIP 6.8K 5%              | 1/16W  |
| R562           | 1-216-864-11 | METAL CHIP 0 5%                 | 1/16W  |
| R566           | 1-216-841-11 | METAL CHIP 47K 5%               | 1/16W  |
| R568           | 1-216-857-11 | METAL CHIP 1M 5%                | 1/16W  |
| R569           | 1-216-857-11 | METAL CHIP 1M 5%                | 1/16W  |
| R570           | 1-216-829-11 | METAL CHIP 4.7K 5%              | 1/16W  |
| R571           | 1-216-833-11 | METAL CHIP 10K 5%               | 1/16W  |
| R572           | 1-216-833-11 | METAL CHIP 10K 5%               | 1/16W  |
| R573           | 1-216-834-11 | METAL CHIP 12K 5%               | 1/16W  |
| R574           | 1-216-821-11 | METAL CHIP 1K 5%                | 1/16W  |
| R575           | 1-216-835-11 | METAL CHIP 15K 5%               | 1/16W  |
| R576           | 1-216-839-11 | METAL CHIP 33K 5%               | 1/16W  |

| Ref. No.                            | Part No.     | Description                                      | Remark |
|-------------------------------------|--------------|--------------------------------------------------|--------|
| R577                                | 1-216-834-11 | METAL CHIP 12K 5%                                | 1/16W  |
| R580                                | 1-216-833-11 | METAL CHIP 10K 5%                                | 1/16W  |
| R581                                | 1-216-829-11 | METAL CHIP 4.7K 5%                               | 1/16W  |
| R582                                | 1-216-833-11 | METAL CHIP 10K 5%                                | 1/16W  |
| R583                                | 1-216-821-11 | METAL CHIP 1K 5%                                 | 1/16W  |
| R584                                | 1-216-834-11 | METAL CHIP 12K 5%                                | 1/16W  |
| R585                                | 1-216-833-11 | METAL CHIP 10K 5%                                | 1/16W  |
| R586                                | 1-216-835-11 | METAL CHIP 15K 5%                                | 1/16W  |
| R587                                | 1-216-839-11 | METAL CHIP 33K 5%                                | 1/16W  |
| R588                                | 1-216-834-11 | METAL CHIP 12K 5%                                | 1/16W  |
| R590                                | 1-216-841-11 | METAL CHIP 47K 5%                                | 1/16W  |
| R593                                | 1-216-820-11 | METAL CHIP 820 5%                                | 1/16W  |
| R594                                | 1-216-820-11 | METAL CHIP 820 5%                                | 1/16W  |
| *****                               |              |                                                  |        |
| A-7071-863-A MF-213 BOARD, COMPLETE |              |                                                  |        |
| *****                               |              |                                                  |        |
| (Ref. No. 6,000 Series)             |              |                                                  |        |
| < CAPACITOR >                       |              |                                                  |        |
| C971                                | 1-163-038-91 | CERAMIC CHIP 0.1uF                               | 25V    |
| < CONNECTOR >                       |              |                                                  |        |
| CN971                               | 1-691-483-21 | CONNECTOR, FFC/FPC 4P                            |        |
| < RESISTOR >                        |              |                                                  |        |
| R971                                | 1-216-864-11 | METAL CHIP 0 5%                                  | 1/16W  |
| < SWITCH >                          |              |                                                  |        |
| S972                                | 1-241-865-11 | RES, VAR, CARBON 10K/10K<br>(MANUAL FOCUS RING)) |        |
| *****                               |              |                                                  |        |
| A-7063-693-A SL-32 BOARD, COMPLETE  |              |                                                  |        |
| *****                               |              |                                                  |        |
| (Ref. No. 4,000 Series)             |              |                                                  |        |
| < CAPACITOR >                       |              |                                                  |        |
| C871                                | 1-128-004-11 | ELECT CHIP 10uF 20%                              | 16V    |
| C872                                | 1-128-004-11 | ELECT CHIP 10uF 20%                              | 16V    |
| C874                                | 1-128-013-11 | ELECT CHIP 1uF 20%                               | 50V    |
| C875                                | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V                          |        |
| C876                                | 1-163-809-11 | CERAMIC CHIP 0.047uF 10%                         | 25V    |
| C877                                | 1-162-968-11 | CERAMIC CHIP 0.0047uF 10%                        | 50V    |
| < CONNECTOR >                       |              |                                                  |        |
| CN871                               | 1-691-473-21 | CONNECTOR, FFC/FPC 7P                            |        |
| CN872                               | 1-691-472-21 | CONNECTOR, FFC/FPC 6P                            |        |
| CN873                               | 1-691-482-21 | CONNECTOR, FFC/FPC 15P                           |        |

| Ref. No.                            | Part No.     | Description                              | Remark |
|-------------------------------------|--------------|------------------------------------------|--------|
| < IC >                              |              |                                          |        |
| IC871                               | 8-759-059-09 | IC LB8111V                               |        |
| < TRANSISTOR >                      |              |                                          |        |
| Q871                                | 8-729-402-81 | TRANSISTOR XN4501                        |        |
| < RESISTOR >                        |              |                                          |        |
| R872                                | 1-216-845-11 | METAL CHIP 100K 5% 1/16W                 |        |
| R873                                | 1-216-845-11 | METAL CHIP 100K 5% 1/16W                 |        |
| R877                                | 1-216-845-11 | METAL CHIP 100K 5% 1/16W                 |        |
| R878                                | 1-216-840-11 | METAL CHIP 39K 5% 1/16W                  |        |
| R879                                | 1-216-174-00 | METAL GLAZE 100 5% 1/8W                  |        |
| R881                                | 1-216-864-11 | METAL CHIP 0 5% 1/16W                    |        |
| R883                                | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W                 |        |
| R884                                | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W                 |        |
| R895                                | 1-216-864-11 | METAL CHIP 0 5% 1/16W                    |        |
| < NETWORK RESISTOR >                |              |                                          |        |
| RB871                               | 1-236-424-11 | NETWORK, RES 10KX2                       |        |
| RB872                               | 1-236-424-11 | NETWORK, RES 10KX2                       |        |
| < FLAT CABLE >                      |              |                                          |        |
| W871                                | 1-642-186-11 | FP-437 FLEXIBLE BOARD                    |        |
| W872                                | 1-750-967-11 | FP-697 FLEXIBLE BOARD                    |        |
| *****                               |              |                                          |        |
| A-7071-862-A SW-222 BOARD, COMPLETE |              |                                          |        |
| *****                               |              |                                          |        |
| (Ref. No. 5,000 Series)             |              |                                          |        |
| < SWITCH >                          |              |                                          |        |
| S903                                | 1-553-977-11 | SWITCH, SLIDE (STANDBY)                  |        |
| S904                                | 1-692-682-11 | SWITCH, TACTIL (RUBBER) (REC START/STOP) |        |
| < FLAT CABLE >                      |              |                                          |        |
| W903                                | 1-537-594-11 | FP-699 FLEXIBLE BOARD                    |        |
| *****                               |              |                                          |        |
| A-7063-688-A VC-132 BOARD, COMPLETE |              |                                          |        |
| *****                               |              |                                          |        |
| (Ref. No. 2,000 Series)             |              |                                          |        |
| < CAPACITOR >                       |              |                                          |        |
| C600                                | 1-135-145-11 | TANTALUM CHIP 0.47uF 10% 35V             |        |
| C601                                | 1-135-145-11 | TANTALUM CHIP 0.47uF 10% 35V             |        |
| C602                                | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V                   |        |
| C603                                | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V                   |        |
| C604                                | 1-135-214-21 | TANTAL. CHIP 4.7uF 20% 20V               |        |

| Ref. No. | Part No.     | Description                  | Remark |
|----------|--------------|------------------------------|--------|
| C605     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V |        |
| C607     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C608     | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V   |        |
| C609     | 1-162-949-11 | CERAMIC CHIP 47PF 5% 50V     |        |
| C612     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V |        |
| C613     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V |        |
| C614     | 1-162-918-11 | CERAMIC CHIP 18PF 5% 50V     |        |
| C616     | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V   |        |
| C617     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C618     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C619     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C620     | 1-135-091-91 | TANTAL. CHIP 1uF 20% 16V     |        |
| C621     | 1-135-091-91 | TANTAL. CHIP 1uF 20% 16V     |        |
| C622     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C623     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V |        |
| C624     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V |        |
| C625     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C626     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V |        |
| C627     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C628     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V |        |
| C629     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C632     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C633     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C634     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C641     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C642     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C643     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C644     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C645     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C646     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C647     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V |        |
| C648     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C649     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V |        |
| C650     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V |        |
| C651     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C652     | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V   |        |
| C653     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C654     | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V   |        |
| C656     | 1-164-633-11 | CERAMIC CHIP 0.1uF 10% 25V   |        |
| C657     | 1-135-149-21 | TANTALUM CHIP 2.2uF 20% 10V  |        |
| C658     | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V   |        |
| C659     | 1-128-003-11 | ELECT CHIP 22uF 20% 4V       |        |
| C660     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C661     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C662     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C663     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V      |        |
| C664     | 1-162-910-11 | CERAMIC CHIP 5P 0.25PF 50V   |        |
| C665     | 1-162-910-11 | CERAMIC CHIP 5P 0.25PF 50V   |        |
| C667     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C668     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |
| C669     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V       |        |

| Ref. No. | Part No.     | Description                   | Remark |
|----------|--------------|-------------------------------|--------|
| C670     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C673     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C674     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C675     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C676     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C677     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C678     | 1-162-943-11 | CERAMIC CHIP 15PF 5% 50V      |        |
| C679     | 1-135-181-21 | TANTALUM CHIP 4.7uF 20% 6.3V  |        |
| C680     | 1-162-947-11 | CERAMIC CHIP 33PF 5% 50V      |        |
| C681     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C711     | 1-164-633-11 | CERAMIC CHIP 0.1uF 10% 25V    |        |
| C712     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V  |        |
| C713     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C714     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C715     | 1-162-638-11 | CERAMIC CHIP 1uF 16V          |        |
| C716     | 1-126-205-11 | ELECT CHIP 47uF 20% 6.3V      |        |
| C717     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C718     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C719     | 1-164-173-11 | CERAMIC CHIP 0.0039uF 10% 50V |        |
| C720     | 1-164-005-11 | CERAMIC CHIP 0.47uF 25V       |        |
| C721     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C722     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C723     | 1-162-638-11 | CERAMIC CHIP 1uF 16V          |        |
| C724     | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V  |        |
| C726     | 1-128-004-11 | ELECT CHIP 10uF 20% 16V       |        |
| C727     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C728     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C729     | 1-162-638-11 | CERAMIC CHIP 1uF 16V          |        |
| C740     | 1-163-809-11 | CERAMIC CHIP 0.047uF 10% 25V  |        |
| C741     | 1-135-211-11 | TANTAL. CHIP 6.8uF 20% 6.3V   |        |
| C742     | 1-163-037-91 | CERAMIC CHIP 0.022uF 10% 25V  |        |
| C743     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C744     | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C745     | 1-163-809-11 | CERAMIC CHIP 0.047uF 10% 25V  |        |
| C746     | 1-163-809-11 | CERAMIC CHIP 0.047uF 10% 25V  |        |
| C747     | 1-163-809-11 | CERAMIC CHIP 0.047uF 10% 25V  |        |
| C748     | 1-162-967-11 | CERAMIC CHIP 0.0033uF 10% 50V |        |
| C749     | 1-162-967-11 | CERAMIC CHIP 0.0033uF 10% 50V |        |
| C750     | 1-163-037-91 | CERAMIC CHIP 0.022uF 10% 25V  |        |
| C751     | 1-163-037-91 | CERAMIC CHIP 0.022uF 10% 25V  |        |
| C752     | 1-163-037-91 | CERAMIC CHIP 0.022uF 10% 25V  |        |
| C753     | 1-163-037-91 | CERAMIC CHIP 0.022uF 10% 25V  |        |
| C754     | 1-163-037-91 | CERAMIC CHIP 0.022uF 10% 25V  |        |
| C755     | 1-163-809-11 | CERAMIC CHIP 0.047uF 10% 25V  |        |
| C756     | 1-163-809-11 | CERAMIC CHIP 0.047uF 10% 25V  |        |
| C757     | 1-135-211-11 | TANTAL. CHIP 6.8uF 20% 6.3V   |        |
| C758     | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V    |        |
| C761     | 1-135-180-21 | TANTALUM CHIP 3.3uF 20% 6.3V  |        |
| C765     | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |

| Ref. No.      | Part No.     | Description                   | Remark |
|---------------|--------------|-------------------------------|--------|
| C766          | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C767          | 1-135-091-91 | TANTAL. CHIP 1uF 20% 16V      |        |
| C768          | 1-165-128-11 | CERAMIC CHIP 0.22uF 16V       |        |
| C771          | 1-135-210-11 | TANTALUM CHIP 4.7uF 20% 10V   |        |
| C772          | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C773          | 1-135-211-11 | TANTAL. CHIP 6.8uF 20% 6.3V   |        |
| C901          | 1-165-319-11 | CERAMIC CHIP 0.1uF 50V        |        |
| C902          | 1-164-361-11 | CERAMIC CHIP 0.047uF 16V      |        |
| C903          | 1-164-156-11 | CERAMIC CHIP 0.1uF 25V        |        |
| C905          | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V    |        |
| C906          | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C907          | 1-165-319-11 | CERAMIC CHIP 0.1uF 50V        |        |
| C908          | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C909          | 1-164-346-11 | CERAMIC CHIP 1uF 16V          |        |
| C910          | 1-162-918-11 | CERAMIC CHIP 18PF 5% 50V      |        |
| C911          | 1-162-915-11 | CERAMIC CHIP 10PF 0.5PF 50V   |        |
| C912          | 1-164-346-11 | CERAMIC CHIP 1uF 16V          |        |
| C913          | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V    |        |
| C917          | 1-135-156-21 | TANTALUM CHIP 6.8uF 10% 10V   |        |
| C918          | 1-164-361-11 | CERAMIC CHIP 0.047uF 16V      |        |
| C919          | 1-164-361-11 | CERAMIC CHIP 0.047uF 16V      |        |
| C920          | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C921          | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C922          | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V    |        |
| C923          | 1-162-974-11 | CERAMIC CHIP 0.01uF 50V       |        |
| C924          | 1-135-259-11 | TANTAL. CHIP 10uF 20% 6.3V    |        |
| < CONNECTOR > |              |                               |        |
| CN601         | 1-695-409-11 | CONNECTOR, BOARD TO BOARD 16P |        |
| CN641         | 1-691-487-21 | CONNECTOR, FFC/FPC 8P         |        |
| CN711         | 1-573-361-11 | CONNECTOR, FFC/FPC 21P        |        |
| CN740         | 1-691-491-21 | CONNECTOR, FFC/FPC 12P        |        |
| CN743         | 1-691-485-21 | CONNECTOR, FFC/FPC 6P         |        |
| * CN901       | 1-750-982-21 | CONNECTOR, BOARD TO BOARD 40P |        |
| CN903         | 1-691-486-11 | CONNECTOR, FFC/FPC 7P         |        |
| < TRIMMER >   |              |                               |        |
| CT601         | 1-141-356-11 | CAP, ADJ 6PF (28MHz OSC)      |        |
| < DIODE >     |              |                               |        |
| D601          | 8-719-404-46 | DIODE MA110                   |        |
| D602          | 8-719-404-35 | DIODE MA141WK                 |        |
| AD901         | 8-719-421-27 | DIODE MA728                   |        |
| D917          | 8-719-404-35 | DIODE MA141WK                 |        |
| < FILTER >    |              |                               |        |
| FL641         | 1-236-834-21 | FILTER, LOW PASS              |        |
| FL642         | 1-415-751-21 | DELAY LINE, LC (YH)           |        |

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.



| Ref. No. | Part No.     | Description             | Remark |
|----------|--------------|-------------------------|--------|
| FL901    | 1-406-452-11 | COIL, OSC               |        |
| < IC >   |              |                         |        |
| IC601    | 8-752-355-07 | IC CXD1267N-T4          |        |
| IC602    | 8-752-350-16 | IC CXD1257AR            |        |
| IC603    | 8-752-053-26 | IC CXA1399Q             |        |
| IC604    | 8-752-060-50 | IC CXA1577R             |        |
| IC641    | 8-759-069-20 | IC AK6420F              |        |
| IC653    | 8-759-249-79 | IC SC424605FU5 (68HC11) |        |
| IC654    | 8-759-064-36 | IC MB88346BPFV          |        |
| IC655    | 8-752-355-56 | IC CXD2104BN            |        |
| IC656    | 8-759-180-77 | IC CXD2133AR            |        |
| IC659    | 8-752-350-13 | IC CXD2130R             |        |
| IC660    | 8-752-358-10 | IC CXD2101BR            |        |
| IC661    | 8-759-031-58 | IC SC7SU04F             |        |
| IC662    | 8-759-710-29 | IC NJM2235M             |        |
| IC711    | 8-759-701-24 | IC NJM3414M             |        |
| IC712    | 8-759-998-98 | IC LM358D               |        |
| IC713    | 8-759-058-47 | IC MPC1724VM            |        |
| IC714    | 8-759-998-96 | IC LM324D               |        |
| IC715    | 8-759-823-51 | IC LB1830M              |        |
| IC740    | 8-759-701-24 | IC NJM3414M             |        |
| IC741    | 8-759-998-96 | IC LM324D               |        |
| IC742    | 8-759-981-75 | IC RC3403AM             |        |
| IC743    | 8-759-701-24 | IC NJM3414M             |        |
| IC744    | 8-759-058-98 | IC SC370605D            |        |
| IC745    | 8-752-842-54 | IC CXP80620A-020R       |        |
| IC901    | 8-759-044-78 | IC AK6420F              |        |
| IC902    | 8-759-197-66 | IC MB89092PFV-G-135     |        |
| IC903    | 8-759-056-84 | IC S-8420AF             |        |
| IC904    | 8-759-059-05 | IC TL1596CPW            |        |
| IC905    | 8-759-168-42 | IC uPD6461GS-606-GLG    |        |
| < COIL > |              |                         |        |
| L602     | 1-412-058-11 | INDUCTOR CHIP 10uH      |        |
| L603     | 1-412-058-11 | INDUCTOR CHIP 10uH      |        |
| L604     | 1-412-058-11 | INDUCTOR CHIP 10uH      |        |
| L641     | 1-412-006-31 | INDUCTOR CHIP 10uH      |        |
| L642     | 1-412-058-11 | INDUCTOR CHIP 10uH      |        |
| L643     | 1-412-058-11 | INDUCTOR CHIP 10uH      |        |
| L644     | 1-412-058-11 | INDUCTOR CHIP 10uH      |        |
| L645     | 1-412-006-31 | INDUCTOR CHIP 10uH      |        |
| L646     | 1-410-392-11 | INDUCTOR CHIP 82uH      |        |
| L647     | 1-412-006-31 | INDUCTOR CHIP 10uH      |        |
| L648     | 1-412-052-21 | INDUCTOR CHIP 1uH       |        |
| L649     | 1-412-052-21 | INDUCTOR CHIP 1uH       |        |
| L650     | 1-412-979-21 | INDUCTOR 1uH            |        |
| L651     | 1-412-979-21 | INDUCTOR 1uH            |        |
| L652     | 1-412-052-21 | INDUCTOR CHIP 1uH       |        |

| Ref. No.       | Part No.     | Description                | Remark |
|----------------|--------------|----------------------------|--------|
| L653           | 1-412-052-21 | INDUCTOR CHIP 1uH          |        |
| L711           | 1-412-062-11 | INDUCTOR CHIP 47uH         |        |
| L712           | 1-412-058-11 | INDUCTOR CHIP 10uH         |        |
| L740           | 1-412-058-11 | INDUCTOR CHIP 10uH         |        |
| L741           | 1-412-006-31 | INDUCTOR CHIP 10uH         |        |
| L742           | 1-412-058-11 | INDUCTOR CHIP 10uH         |        |
| L743           | 1-412-058-11 | INDUCTOR CHIP 10uH         |        |
| L744           | 1-410-993-11 | INDUCTOR CHIP 1uH          |        |
| L901           | 1-410-389-31 | INDUCTOR CHIP 47uH         |        |
| L902           | 1-412-026-11 | INDUCTOR CHIP 1uH          |        |
| L903           | 1-410-389-31 | INDUCTOR CHIP 47uH         |        |
| L904           | 1-412-026-11 | INDUCTOR CHIP 1uH          |        |
| L905           | 1-410-389-31 | INDUCTOR CHIP 47uH         |        |
| < IC LINK >    |              |                            |        |
| △PS901         | 1-576-123-21 | LINK, IC (0.8A)            |        |
| < TRANSISTOR > |              |                            |        |
| Q601           | 8-729-403-27 | TRANSISTOR XN4401          |        |
| Q602           | 8-729-402-84 | TRANSISTOR XN4601          |        |
| Q642           | 8-729-010-60 | TRANSISTOR MSA1586-BC      |        |
| Q643           | 8-729-010-75 | TRANSISTOR MSC4116-B/C     |        |
| Q644           | 8-729-010-75 | TRANSISTOR MSC4116-B/C     |        |
| Q645           | 8-729-010-60 | TRANSISTOR MSA1586-BC      |        |
| Q711           | 8-729-602-21 | TRANSISTOR 2SC4154-F       |        |
| Q712           | 8-729-403-27 | TRANSISTOR XN4401          |        |
| Q713           | 8-729-013-88 | TRANSISTOR RN1302-TE85L    |        |
| < RESISTOR >   |              |                            |        |
| R601           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R602           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R603           | 1-216-864-11 | METAL CHIP 0 5% 1/16W      |        |
| R604           | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W   |        |
| R605           | 1-218-721-11 | METAL CHIP 16K 0.50% 1/16W |        |
| R606           | 1-216-821-11 | METAL CHIP 1K 5% 1/16W     |        |
| R607           | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W   |        |
| R608           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R609           | 1-216-837-11 | METAL CHIP 22K 5% 1/16W    |        |
| R610           | 1-216-805-11 | METAL CHIP 47 5% 1/16W     |        |
| R611           | 1-216-832-11 | METAL CHIP 8.2K 5% 1/16W   |        |
| R612           | 1-216-801-11 | METAL CHIP 22 5% 1/16W     |        |
| R613           | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W   |        |
| R614           | 1-216-816-11 | METAL CHIP 390 5% 1/16W    |        |
| R615           | 1-216-864-11 | METAL CHIP 0 5% 1/16W      |        |
| R616           | 1-216-864-11 | METAL CHIP 0 5% 1/16W      |        |
| R636           | 1-216-864-11 | METAL CHIP 0 5% 1/16W      |        |
| R637           | 1-216-833-11 | METAL CHIP 10K 5% 1/16W    |        |
| R638           | 1-216-864-11 | METAL CHIP 0 5% 1/16W      |        |

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No.     | Description                 | Remark |
|----------|--------------|-----------------------------|--------|
| R639     | 1-216-864-11 | METAL CHIP 0 5% 1/16W       |        |
| R641     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R642     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R643     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R644     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R645     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R646     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R647     | 1-216-857-11 | METAL CHIP 1M 5% 1/16W      |        |
| R648     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R649     | 1-216-864-11 | METAL CHIP 0 5% 1/16W       |        |
| R650     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R651     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R652     | 1-216-827-11 | METAL CHIP 3.3K 5% 1/16W    |        |
| R653     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R654     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R655     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R656     | 1-216-857-11 | METAL CHIP 1M 5% 1/16W      |        |
| R657     | 1-216-857-11 | METAL CHIP 1M 5% 1/16W      |        |
| R660     | 1-216-864-11 | METAL CHIP 0 5% 1/16W       |        |
| R662     | 1-216-805-11 | METAL CHIP 47 5% 1/16W      |        |
| R663     | 1-216-857-11 | METAL CHIP 1M 5% 1/16W      |        |
| R664     | 1-216-863-11 | METAL GLAZE 3.3M 5% 1/16W   |        |
| R668     | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W    |        |
| R669     | 1-216-864-11 | METAL CHIP 0 5% 1/16W       |        |
| R670     | 1-216-864-11 | METAL CHIP 0 5% 1/16W       |        |
| R671     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R672     | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W    |        |
| R673     | 1-216-845-11 | METAL CHIP 100K 5% 1/16W    |        |
| R674     | 1-216-827-11 | METAL CHIP 3.3K 5% 1/16W    |        |
| R675     | 1-216-838-11 | METAL CHIP 27K 5% 1/16W     |        |
| R676     | 1-216-839-11 | METAL CHIP 33K 5% 1/16W     |        |
| R677     | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W    |        |
| R678     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R679     | 1-216-847-11 | METAL CHIP 150K 5% 1/16W    |        |
| R680     | 1-216-839-11 | METAL CHIP 33K 5% 1/16W     |        |
| R681     | 1-216-830-11 | METAL CHIP 5.6K 5% 1/16W    |        |
| R682     | 1-216-830-11 | METAL CHIP 5.6K 5% 1/16W    |        |
| R683     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R684     | 1-216-839-11 | METAL CHIP 33K 5% 1/16W     |        |
| R694     | 1-216-815-11 | METAL CHIP 330 5% 1/16W     |        |
| R695     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R696     | 1-216-817-11 | METAL CHIP 470 5% 1/16W     |        |
| R697     | 1-216-817-11 | METAL CHIP 470 5% 1/16W     |        |
| R698     | 1-216-834-11 | METAL CHIP 12K 5% 1/16W     |        |
| R699     | 1-216-834-11 | METAL CHIP 12K 5% 1/16W     |        |
| R701     | 1-216-827-11 | METAL CHIP 3.3K 5% 1/16W    |        |
| R702     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W     |        |
| R703     | 1-216-817-11 | METAL CHIP 470 5% 1/16W     |        |
| R704     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W     |        |
| R705     | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W    |        |
| R706     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R707     | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W    |        |
| R708     | 1-216-827-11 | METAL CHIP 3.3K 5% 1/16W    |        |
| R709     | 1-216-857-11 | METAL CHIP 1M 5% 1/16W      |        |
| R710     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R711     | 1-216-815-11 | METAL CHIP 330 5% 1/16W     |        |
| R712     | 1-216-821-11 | METAL CHIP 1K 5% 1/16W      |        |
| R713     | 1-216-845-11 | METAL CHIP 100K 5% 1/16W    |        |
| R714     | 1-216-855-11 | METAL CHIP 680K 5% 1/16W    |        |
| R715     | 1-216-848-11 | METAL CHIP 180K 5% 1/16W    |        |
| R716     | 1-216-848-11 | METAL CHIP 180K 5% 1/16W    |        |
| R717     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R718     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R719     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R720     | 1-216-825-11 | METAL CHIP 2.2K 5% 1/16W    |        |
| R721     | 1-216-842-11 | METAL CHIP 56K 5% 1/16W     |        |
| R722     | 1-218-871-11 | METAL CHIP 10K 0.50% 1/16W  |        |
| R723     | 1-218-744-11 | METAL CHIP 150K 0.50% 1/16W |        |
| R724     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R725     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R726     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R727     | 1-216-820-11 | METAL CHIP 820 5% 1/16W     |        |
| R728     | 1-216-841-11 | METAL CHIP 47K 5% 1/16W     |        |
| R729     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R730     | 1-216-851-11 | METAL CHIP 330K 5% 1/16W    |        |
| R731     | 1-216-828-11 | METAL CHIP 3.9K 5% 1/16W    |        |
| R732     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R733     | 1-216-827-11 | METAL CHIP 3.3K 5% 1/16W    |        |
| R734     | 1-218-881-11 | METAL CHIP 27K 0.50% 1/16W  |        |
| R735     | 1-216-134-00 | METAL CHIP 2.2 5% 1/8W      |        |
| R736     | 1-216-833-11 | METAL CHIP 10K 5% 1/16W     |        |
| R737     | 1-216-829-11 | METAL CHIP 4.7K 5% 1/16W    |        |
| R738     | 1-218-879-11 | METAL CHIP 22K 0.50% 1/16W  |        |
| R739     | 1-216-857-11 | METAL CHIP 1M 5% 1/16W      |        |
| R740     | 1-218-688-11 | METAL CHIP 680 0.50% 1/16W  |        |
| R741     | 1-218-716-11 | METAL CHIP 10K 0.50% 1/16W  |        |
| R742     | 1-218-716-11 | METAL CHIP 10K 0.50% 1/16W  |        |
| R743     | 1-218-740-11 | METAL CHIP 100K 0.50% 1/16W |        |
| R744     | 1-216-823-11 | METAL CHIP 1.5K 5% 1/16W    |        |
| R745     | 1-218-708-11 | METAL CHIP 4.7K 0.50% 1/16W |        |
| R746     | 1-218-688-11 | METAL CHIP 680 0.50% 1/16W  |        |
| R747     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R748     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R749     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R750     | 1-216-837-11 | METAL CHIP 22K 5% 1/16W     |        |
| R751     | 1-218-716-11 | METAL CHIP 10K 0.50% 1/16W  |        |
| R752     | 1-218-716-11 | METAL CHIP 10K 0.50% 1/16W  |        |
| R753     | 1-218-740-11 | METAL CHIP 100K 0.50% 1/16W |        |



| Ref. No. | Part No.     | Description | Remark           |
|----------|--------------|-------------|------------------|
| R754     | 1-216-823-11 | METAL CHIP  | 1.5K 5% 1/16W    |
| R755     | 1-218-740-11 | METAL CHIP  | 100K 0.50% 1/16W |
| R756     | 1-218-740-11 | METAL CHIP  | 100K 0.50% 1/16W |
| R757     | 1-218-708-11 | METAL CHIP  | 4.7K 0.50% 1/16W |
| R758     | 1-216-840-11 | METAL CHIP  | 39K 5% 1/16W     |
| R759     | 1-218-740-11 | METAL CHIP  | 100K 0.50% 1/16W |
| R760     | 1-218-748-11 | METAL CHIP  | 220K 0.50% 1/16W |
| R761     | 1-218-748-11 | METAL CHIP  | 220K 0.50% 1/16W |
| R762     | 1-218-740-11 | METAL CHIP  | 100K 0.50% 1/16W |
| R763     | 1-216-840-11 | METAL CHIP  | 39K 5% 1/16W     |
| R764     | 1-218-887-11 | METAL CHIP  | 47K 0.50% 1/16W  |
| R765     | 1-218-887-11 | METAL CHIP  | 47K 0.50% 1/16W  |
| R766     | 1-216-821-11 | METAL CHIP  | 1K 5% 1/16W      |
| R768     | 1-216-837-11 | METAL CHIP  | 22K 5% 1/16W     |
| R769     | 1-216-837-11 | METAL CHIP  | 22K 5% 1/16W     |
| R770     | 1-216-864-11 | METAL CHIP  | 0 5% 1/16W       |
| R771     | 1-216-864-11 | METAL CHIP  | 0 5% 1/16W       |
| R772     | 1-216-864-11 | METAL CHIP  | 0 5% 1/16W       |
| R773     | 1-216-864-11 | METAL CHIP  | 0 5% 1/16W       |
| R778     | 1-216-814-11 | METAL CHIP  | 270 5% 1/16W     |
| R779     | 1-216-827-11 | METAL CHIP  | 3.3K 5% 1/16W    |
| R780     | 1-216-857-11 | METAL CHIP  | 1M 5% 1/16W      |
| R900     | 1-216-809-11 | METAL CHIP  | 100 5% 1/16W     |
| R902     | 1-216-821-11 | METAL CHIP  | 1K 5% 1/16W      |
| R903     | 1-216-864-11 | METAL CHIP  | 0 5% 1/16W       |
| R906     | 1-216-853-11 | METAL CHIP  | 470K 5% 1/16W    |
| R907     | 1-216-853-11 | METAL CHIP  | 470K 5% 1/16W    |
| R908     | 1-216-817-11 | METAL CHIP  | 470 5% 1/16W     |
| R909     | 1-216-817-11 | METAL CHIP  | 470 5% 1/16W     |
| R910     | 1-216-853-11 | METAL CHIP  | 470K 5% 1/16W    |
| R911     | 1-216-853-11 | METAL CHIP  | 470K 5% 1/16W    |
| R912     | 1-216-817-11 | METAL CHIP  | 470 5% 1/16W     |
| R913     | 1-216-845-11 | METAL CHIP  | 100K 5% 1/16W    |
| R914     | 1-216-845-11 | METAL CHIP  | 100K 5% 1/16W    |
| R915     | 1-216-817-11 | METAL CHIP  | 470 5% 1/16W     |
| R916     | 1-216-845-11 | METAL CHIP  | 100K 5% 1/16W    |
| R917     | 1-216-853-11 | METAL CHIP  | 470K 5% 1/16W    |
| R918     | 1-216-841-11 | METAL CHIP  | 47K 5% 1/16W     |
| R919     | 1-216-845-11 | METAL CHIP  | 100K 5% 1/16W    |
| R920     | 1-216-864-11 | METAL CHIP  | 0 5% 1/16W       |
| R921     | 1-216-845-11 | METAL CHIP  | 100K 5% 1/16W    |
| R922     | 1-216-845-11 | METAL CHIP  | 100K 5% 1/16W    |
| R923     | 1-216-821-11 | METAL CHIP  | 1K 5% 1/16W      |
| R925     | 1-216-821-11 | METAL CHIP  | 1K 5% 1/16W      |
| R926     | 1-216-809-11 | METAL CHIP  | 100 5% 1/16W     |
| R927     | 1-216-809-11 | METAL CHIP  | 100 5% 1/16W     |
| R929     | 1-216-817-11 | METAL CHIP  | 470 5% 1/16W     |
| R930     | 1-216-821-11 | METAL CHIP  | 1K 5% 1/16W      |

| Ref. No. | Part No.     | Description         | Remark        |
|----------|--------------|---------------------|---------------|
| R932     | 1-216-851-11 | METAL CHIP          | 330K 5% 1/16W |
| R933     | 1-216-864-11 | METAL CHIP          | 0 5% 1/16W    |
| R935     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R936     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R937     | 1-216-827-11 | METAL CHIP          | 3.3K 5% 1/16W |
| R938     | 1-216-845-11 | METAL CHIP          | 100K 5% 1/16W |
| R939     | 1-216-821-11 | METAL CHIP          | 1K 5% 1/16W   |
| R940     | 1-216-821-11 | METAL CHIP          | 1K 5% 1/16W   |
| R941     | 1-216-817-11 | METAL CHIP          | 470 5% 1/16W  |
| R942     | 1-216-817-11 | METAL CHIP          | 470 5% 1/16W  |
| R943     | 1-216-864-11 | METAL CHIP          | 0 5% 1/16W    |
| R944     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R945     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R946     | 1-216-817-11 | METAL CHIP          | 470 5% 1/16W  |
| R947     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R948     | 1-216-809-11 | METAL CHIP          | 100 5% 1/16W  |
| R949     | 1-216-826-11 | METAL CHIP          | 2.7K 5% 1/16W |
| R950     | 1-216-809-11 | METAL CHIP          | 100 5% 1/16W  |
| R951     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R952     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R953     | 1-216-841-11 | METAL CHIP          | 47K 5% 1/16W  |
| R954     | 1-216-864-11 | METAL CHIP          | 0 5% 1/16W    |
| R955     | 1-216-825-11 | METAL CHIP          | 2.2K 5% 1/16W |
| R956     | 1-216-864-11 | METAL CHIP          | 0 5% 1/16W    |
| R957     | 1-216-825-11 | METAL CHIP          | 2.2K 5% 1/16W |
| R958     | 1-216-825-11 | METAL CHIP          | 2.2K 5% 1/16W |
| R959     | 1-216-825-11 | METAL CHIP          | 2.2K 5% 1/16W |
| R960     | 1-216-825-11 | METAL CHIP          | 2.2K 5% 1/16W |
| R962     | 1-216-845-11 | METAL CHIP          | 100K 5% 1/16W |
| R963     | 1-216-845-11 | METAL CHIP          | 100K 5% 1/16W |
| R966     | 1-216-864-11 | METAL CHIP          | 0 5% 1/16W    |
| R967     | 1-216-864-11 | METAL CHIP          | 0 5% 1/16W    |
| R968     | 1-216-809-11 | METAL CHIP          | 100 5% 1/16W  |
| R969     | 1-216-809-11 | METAL CHIP          | 100 5% 1/16W  |
| R970     | 1-216-809-11 | METAL CHIP          | 100 5% 1/16W  |
| RB903    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB904    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB905    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB906    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB907    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB908    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB909    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB910    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB911    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |
| RB912    | 1-236-412-11 | NETWORK, RES 1.0KX2 |               |

## &lt; NETWORK RESISTOR &gt;

| Ref. No.                           | Part No.     | Description                   | Remark           |
|------------------------------------|--------------|-------------------------------|------------------|
| < VIBRATOR >                       |              |                               |                  |
| X601                               | 1-579-622-11 | VIBRATOR, CRYSTAL (28.375MHz) |                  |
| X641                               | 1-760-165-21 | VIBRATOR, CERAMIC (16MHz)     |                  |
| X740                               | 1-579-553-11 | VIBRATOR (12MHz)              |                  |
| X901                               | 1-579-049-21 | VIBRATOR, CRYSTAL (32KHz)     |                  |
| < VIBRATOR >                       |              |                               |                  |
| XTL901                             | 1-579-369-21 | VIBRATOR (10MHz)              |                  |
| *****                              |              |                               |                  |
| A-7063-220-A VF-42 BOARD, COMPLETE |              |                               |                  |
| *****                              |              |                               |                  |
| (Ref. No. 8, 000 Series)           |              |                               |                  |
| 3-942-888-01 HOLDER, LED           |              |                               |                  |
| < CAPACITOR >                      |              |                               |                  |
| C501                               | 1-126-176-11 | ELECT                         | 220uF 20% 10V    |
| C502                               | 1-163-077-00 | CERAMIC CHIP                  | 0.1uF 10% 25V    |
| C503                               | 1-163-109-00 | CERAMIC CHIP                  | 47PF 5% 50V      |
| △C504                              | 1-163-009-11 | CERAMIC CHIP                  | 0.001uF 10% 50V  |
| △C505                              | 1-164-758-11 | CERAMIC CHIP                  | 0.0039uF 5% 50V  |
| △C506                              | 1-164-715-11 | CERAMIC CHIP                  | 0.0068uF 5% 50V  |
| △C507                              | 1-127-515-11 | ELECT(SOLID)                  | 47uF 20% 6.3V    |
| C508                               | 1-164-611-11 | CERAMIC CHIP                  | 0.001uF 10% 500V |
| C509                               | 1-124-257-00 | ELECT                         | 2.2uF 20% 50V    |
| C510                               | 1-163-037-91 | CERAMIC CHIP                  | 0.022uF 10% 25V  |
| C511                               | 1-126-090-11 | ELECT                         | 82uF 20% 10V     |
| C512                               | 1-137-306-11 | FILM CHIP                     | 0.1uF 5% 16V     |
| C513                               | 1-135-149-21 | TANTALUM CHIP                 | 2.2uF 20% 10V    |
| C514                               | 1-131-381-00 | TANTALUM                      | 47uF 10% 10V     |
| C515                               | 1-163-037-91 | CERAMIC CHIP                  | 0.022uF 10% 25V  |
| C516                               | 1-135-149-21 | TANTALUM CHIP                 | 2.2uF 20% 10V    |
| < CONNECTOR >                      |              |                               |                  |
| * CN501                            | 1-566-759-11 | PIN, CONNECTOR (PC BOARD) 4P  |                  |
| * CN502                            | 1-566-195-11 | PIN, CONNECTOR (PC BOARD) 2P  |                  |
| * CN503                            | 1-566-195-11 | PIN, CONNECTOR (PC BOARD) 2P  |                  |
| < DIODE >                          |              |                               |                  |
| D501                               | 8-719-820-65 | DIODE TLS221 (TALLY)          |                  |
| D502                               | 8-719-984-02 | BR4371F (TALLY)               |                  |
| D503                               | 8-719-400-20 | DIODE MA152WA                 |                  |
| < IC >                             |              |                               |                  |
| IC501                              | 8-759-420-01 | IC AN2512S                    |                  |

| Ref. No.              | Part No.     | Description                           | Remark         |
|-----------------------|--------------|---------------------------------------|----------------|
| < COIL >              |              |                                       |                |
| L501                  | 1-408-976-21 | INDUCTOR 33uH                         |                |
| L502                  | 1-408-785-21 | INDUCTOR CHIP 47uH                    |                |
| △L503                 | 1-459-876-41 | COIL, FERRITE (HLC)                   |                |
| < TRANSISTOR >        |              |                                       |                |
| Q501                  | 8-729-120-28 | TRANSISTOR 2SC1623-L5L6               |                |
| Q502                  | 8-729-216-31 | TRANSISTOR 2SA1163-G                  |                |
| Q504                  | 8-729-106-68 | TRANSISTOR 2SD1615A-GP                |                |
| < RESISTOR >          |              |                                       |                |
| R501                  | 1-216-033-00 | METAL CHIP                            | 220 5% 1/10W   |
| R502                  | 1-216-041-00 | METAL CHIP                            | 470 5% 1/10W   |
| R503                  | 1-216-041-00 | METAL CHIP                            | 470 5% 1/10W   |
| R506                  | 1-216-069-00 | METAL CHIP                            | 6.8K 5% 1/10W  |
| R507                  | 1-216-047-00 | METAL CHIP                            | 820 5% 1/10W   |
| R508                  | 1-216-689-11 | METAL CHIP                            | 39K 0.5% 1/10W |
| R509                  | 1-216-689-11 | METAL CHIP                            | 39K 0.5% 1/10W |
| R510                  | 1-216-005-00 | METAL CHIP                            | 15 5% 1/10W    |
| R511                  | 1-216-121-00 | METAL CHIP                            | 1M 5% 1/10W    |
| R512                  | 1-216-131-11 | METAL CHIP                            | 2.7M 5% 1/10W  |
| R513                  | 1-216-101-00 | METAL CHIP                            | 150K 5% 1/10W  |
| R514                  | 1-216-121-00 | METAL CHIP                            | 1M 5% 1/10W    |
| R515                  | 1-216-131-11 | METAL CHIP                            | 2.7M 5% 1/10W  |
| R516                  | 1-216-055-00 | METAL CHIP                            | 1.8K 5% 1/10W  |
| R517                  | 1-216-025-00 | METAL CHIP                            | 100 5% 1/10W   |
| R518                  | 1-216-308-00 | METAL CHIP                            | 4.7 5% 1/10W   |
| R519                  | 1-216-336-11 | METAL CHIP                            | 47K 1% 1/10W   |
| R520                  | 1-216-107-00 | METAL CHIP                            | 270K 5% 1/10W  |
| R521                  | 1-216-121-00 | METAL CHIP                            | 1M 5% 1/10W    |
| R522                  | 1-216-160-00 | METAL GLAZE                           | 27 5% 1/8W     |
| R523                  | 1-216-053-00 | METAL CHIP                            | 1.5K 5% 1/10W  |
| R524                  | 1-216-113-00 | METAL CHIP                            | 470K 5% 1/10W  |
| R525                  | 1-216-097-00 | METAL CHIP                            | 100K 5% 1/10W  |
| < VARIABLE RESISTOR > |              |                                       |                |
| RV501                 | 1-241-596-11 | RES, ADJ, METAL GRAZE 47K (H FREQ)    |                |
| RV502                 | 1-241-590-11 | RES, ADJ, METAL GRAZE 470 (V SIZE)    |                |
| RV503                 | 1-241-592-11 | RES, ADJ, METAL GRAZE 2.2K (CONTRAST) |                |
| RV504                 | 1-228-762-00 | RES, ADJ, METAL GLAZE 1M (BRIGHTNESS) |                |
| < TRANSFORMER >       |              |                                       |                |
| △T501                 | 1-439-486-11 | TRANSFORMER ASSY, FLYBACK             |                |
| < THERMISTOR >        |              |                                       |                |
| TH501                 | 1-809-350-21 | THERMISTOR, NTC (2125)                |                |

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

| Ref. No.                           | Part No.     | Description          | Remark    |
|------------------------------------|--------------|----------------------|-----------|
| < FLAT CABLE >                     |              |                      |           |
| W501                               | 1-540-019-21 | SOCKET ASSY, CRT     |           |
| *****                              |              |                      |           |
| A-7063-687-A VS-99 BOARD, COMPLETE |              |                      |           |
| *****                              |              |                      |           |
| (Ref. No. 3, 000 Series)           |              |                      |           |
| < CAPACITOR >                      |              |                      |           |
| C002                               | 1-164-360-11 | CERAMIC CHIP 0.1uF   | 16V       |
| C003                               | 1-162-953-11 | CERAMIC CHIP 100PF   | 5% 50V    |
| C004                               | 1-162-926-11 | CERAMIC CHIP 82PF    | 5% 50V    |
| C005                               | 1-162-927-11 | CERAMIC CHIP 100PF   | 5% 50V    |
| C006                               | 1-164-217-11 | CERAMIC CHIP 150PF   | 5% 50V    |
| C020                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C021                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C022                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C023                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C024                               | 1-162-915-11 | CERAMIC CHIP 10PF    | 0.5PF 50V |
| C025                               | 1-162-915-11 | CERAMIC CHIP 10PF    | 0.5PF 50V |
| C026                               | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V  |
| C027                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C029                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C030                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C038                               | 1-164-360-11 | CERAMIC CHIP 0.1uF   | 16V       |
| C039                               | 1-164-004-11 | CERAMIC CHIP 0.1uF   | 10% 25V   |
| C040                               | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V  |
| C041                               | 1-164-004-11 | CERAMIC CHIP 0.1uF   | 10% 25V   |
| C043                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C044                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C046                               | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V  |
| C047                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C048                               | 1-164-004-11 | CERAMIC CHIP 0.1uF   | 10% 25V   |
| C049                               | 1-164-360-11 | CERAMIC CHIP 0.1uF   | 16V       |
| C050                               | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V  |
| C051                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C052                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C053                               | 1-164-004-11 | CERAMIC CHIP 0.1uF   | 10% 25V   |
| C054                               | 1-165-176-11 | CERAMIC CHIP 0.047uF | 10% 16V   |
| C055                               | 1-165-176-11 | CERAMIC CHIP 0.047uF | 10% 16V   |
| C056                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C057                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C058                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C059                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C060                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C061                               | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V  |
| C062                               | 1-162-970-11 | CERAMIC CHIP 0.01uF  | 10% 25V   |
| C064                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |
| C095                               | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V       |

| Ref. No. | Part No.     | Description           | Remark     |
|----------|--------------|-----------------------|------------|
| C096     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C104     | 1-165-128-11 | CERAMIC CHIP 0.22uF   | 16V        |
| C121     | 1-162-995-11 | CERAMIC CHIP 0.022uF  | 50V        |
| C122     | 1-162-995-11 | CERAMIC CHIP 0.022uF  | 50V        |
| C123     | 1-162-944-11 | CERAMIC CHIP 18PF     | 5% 50V     |
| C125     | 1-162-949-11 | CERAMIC CHIP 47PF     | 5% 50V     |
| C126     | 1-162-934-11 | CERAMIC CHIP 3PF      | 0.25PF 50V |
| C128     | 1-162-970-11 | CERAMIC CHIP 0.01uF   | 10% 25V    |
| C129     | 1-162-976-11 | CERAMIC CHIP 75PF     | 5% 50V     |
| C130     | 1-162-942-11 | CERAMIC CHIP 12PF     | 5% 50V     |
| C131     | 1-162-970-11 | CERAMIC CHIP 0.01uF   | 10% 25V    |
| C132     | 1-162-956-11 | CERAMIC CHIP 180PF    | 5% 50V     |
| C133     | 1-162-970-11 | CERAMIC CHIP 0.01uF   | 10% 25V    |
| C134     | 1-162-995-11 | CERAMIC CHIP 0.022uF  | 50V        |
| C135     | 1-162-948-11 | CERAMIC CHIP 39PF     | 5% 50V     |
| C136     | 1-162-943-11 | CERAMIC CHIP 15PF     | 5% 50V     |
| C137     | 1-162-970-11 | CERAMIC CHIP 0.01uF   | 10% 25V    |
| C139     | 1-162-947-11 | CERAMIC CHIP 33PF     | 5% 50V     |
| C140     | 1-162-958-11 | CERAMIC CHIP 270PF    | 5% 50V     |
| C141     | 1-164-360-11 | CERAMIC CHIP 0.1uF    | 16V        |
| C146     | 1-162-970-11 | CERAMIC CHIP 0.01uF   | 10% 25V    |
| C156     | 1-162-970-11 | CERAMIC CHIP 0.01uF   | 10% 25V    |
| C160     | 1-162-947-11 | CERAMIC CHIP 33PF     | 5% 50V     |
| C164     | 1-162-966-11 | CERAMIC CHIP 0.0022uF | 10% 50V    |
| C170     | 1-162-958-11 | CERAMIC CHIP 270PF    | 5% 50V     |
| C195     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C200     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C201     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C231     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C232     | 1-162-951-11 | CERAMIC CHIP 68PF     | 5% 50V     |
| C233     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C234     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C235     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C236     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C237     | 1-126-246-11 | ELECT CHIP 220uF      | 20% 4V     |
| C238     | 1-164-361-11 | CERAMIC CHIP 0.047uF  | 16V        |
| C239     | 1-135-192-21 | TANTAL. CHIP 0.47uF   | 20% 20V    |
| C240     | 1-164-005-11 | CERAMIC CHIP 0.47uF   | 25V        |
| C241     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C242     | 1-135-180-21 | TANTALUM CHIP 3.3uF   | 20% 6.3V   |
| C243     | 1-162-944-11 | CERAMIC CHIP 18PF     | 5% 50V     |
| C244     | 1-164-005-11 | CERAMIC CHIP 0.47uF   | 25V        |
| C245     | 1-163-029-11 | CERAMIC CHIP 0.0047uF | 50V        |
| C246     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C247     | 1-162-967-11 | CERAMIC CHIP 0.0033uF | 10% 50V    |
| C248     | 1-164-360-11 | CERAMIC CHIP 0.1uF    | 16V        |
| C249     | 1-162-956-11 | CERAMIC CHIP 180PF    | 5% 50V     |
| C250     | 1-164-005-11 | CERAMIC CHIP 0.47uF   | 25V        |
| C251     | 1-164-471-11 | CERAMIC CHIP 680PF    | 5% 50V     |

The components identified by mark  $\Delta$  or dotted line with mark.  $\Delta$  are critical for safety. Replace only with part number specified.

| Ref. No. | Part No.     | Description          | Remark   |
|----------|--------------|----------------------|----------|
| C253     | 1-164-346-11 | CERAMIC CHIP 1uF     | 16V      |
| C254     | 1-126-205-11 | ELECT CHIP 47uF      | 20% 6.3V |
| C255     | 1-135-151-21 | TANTALUM CHIP 4.7uF  | 20% 4V   |
| C256     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C257     | 1-135-180-21 | TANTALUM CHIP 3.3uF  | 20% 6.3V |
| C258     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C259     | 1-162-995-11 | CERAMIC CHIP 0.022uF | 50V      |
| C260     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C261     | 1-135-259-11 | TANTALUM CHIP 10uF   | 20% 6.3V |
| C262     | 1-163-038-91 | CERAMIC CHIP 0.1uF   | 25V      |
| C263     | 1-164-149-11 | CERAMIC CHIP 36PF    | 5% 50V   |
| C264     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C267     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C268     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C269     | 1-162-957-11 | CERAMIC CHIP 220PF   | 5% 50V   |
| C272     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C275     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C276     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C277     | 1-162-949-11 | CERAMIC CHIP 47PF    | 5% 50V   |
| C278     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C279     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C280     | 1-162-955-11 | CERAMIC CHIP 150PF   | 5% 50V   |
| C281     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C282     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C284     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C285     | 1-162-953-11 | CERAMIC CHIP 100PF   | 5% 50V   |
| C286     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C287     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C288     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C290     | 1-164-005-11 | CERAMIC CHIP 0.47uF  | 25V      |
| C291     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C292     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C293     | 1-162-954-11 | CERAMIC CHIP 120PF   | 5% 50V   |
| C294     | 1-164-392-11 | CERAMIC CHIP 390PF   | 5% 50V   |
| C295     | 1-162-959-11 | CERAMIC CHIP 330PF   | 5% 50V   |
| C296     | 1-135-180-21 | TANTALUM CHIP 3.3uF  | 20% 6.3V |
| C297     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C298     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C299     | 1-135-180-21 | TANTALUM CHIP 3.3uF  | 20% 6.3V |
| C300     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C301     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C302     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C303     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C304     | 1-135-259-11 | TANTAL. CHIP 10uF    | 20% 6.3V |
| C305     | 1-162-959-11 | CERAMIC CHIP 330PF   | 5% 50V   |
| C307     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C312     | 1-162-949-11 | CERAMIC CHIP 47PF    | 5% 50V   |
| C316     | 1-162-974-11 | CERAMIC CHIP 0.01uF  | 50V      |
| C323     | 1-162-945-11 | CERAMIC CHIP 22PF    | 5% 50V   |

| Ref. No. | Part No.     | Description           | Remark     |
|----------|--------------|-----------------------|------------|
| C324     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C325     | 1-162-948-11 | CERAMIC CHIP 39PF     | 5% 50V     |
| C328     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C330     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C331     | 1-162-947-11 | CERAMIC CHIP 33PF     | 5% 50V     |
| C332     | 1-162-955-11 | CERAMIC CHIP 150PF    | 5% 50V     |
| C333     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C334     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C335     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C336     | 1-162-956-11 | CERAMIC CHIP 180PF    | 5% 50V     |
| C338     | 1-162-946-11 | CERAMIC CHIP 27PF     | 5% 50V     |
| C340     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C342     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C344     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C346     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C348     | 1-162-936-11 | CERAMIC CHIP 5PF      | 0.25PF 50V |
| C350     | 1-162-951-11 | CERAMIC CHIP 68PF     | 5% 50V     |
| C351     | 1-164-217-11 | CERAMIC CHIP 150PF    | 5% 50V     |
| C352     | 1-162-950-11 | CERAMIC CHIP 56PF     | 5% 50V     |
| C354     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C355     | 1-162-957-11 | CERAMIC CHIP 220PF    | 5% 50V     |
| C356     | 1-135-259-11 | TANTAL. CHIP 10uF     | 20% 6.3V   |
| C357     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C358     | 1-162-953-11 | CERAMIC CHIP 100PF    | 5% 50V     |
| C360     | 1-164-383-11 | CERAMIC CHIP 110PF    | 5% 50V     |
| C361     | 1-162-918-11 | CERAMIC CHIP 18PF     | 5% 50V     |
| C362     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C363     | 1-162-964-11 | CERAMIC CHIP 0.001uF  | 10% 50V    |
| C364     | 1-135-179-21 | TANTAL. CHIP 2.2uF    | 20% 16V    |
| C365     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C366     | 1-162-949-11 | CERAMIC CHIP 47PF     | 5% 50V     |
| C367     | 1-135-091-91 | TANTAL. CHIP 1uF      | 20% 16V    |
| C368     | 1-162-959-11 | CERAMIC CHIP 330PF    | 5% 50V     |
| C369     | 1-162-964-11 | CERAMIC CHIP 0.001uF  | 10% 50V    |
| C370     | 1-163-038-91 | CERAMIC CHIP 0.1uF    | 25V        |
| C371     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C372     | 1-162-967-11 | CERAMIC CHIP 0.0033uF | 10% 50V    |
| C373     | 1-162-952-11 | CERAMIC CHIP 82PF     | 5% 50V     |
| C374     | 1-135-181-21 | TANTALUM CHIP 4.7uF   | 20% 6.3V   |
| C375     | 1-164-145-11 | CERAMIC CHIP 390PF    | 5% 50V     |
| C376     | 1-128-004-11 | ELECT CHIP 10uF       | 20% 16V    |
| C378     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C379     | 1-126-205-11 | ELECT CHIP 47uF       | 20% 6.3V   |
| C380     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C383     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C384     | 1-164-360-11 | CERAMIC CHIP 0.1uF    | 16V        |
| C386     | 1-162-974-11 | CERAMIC CHIP 0.01uF   | 50V        |
| C388     | 1-162-947-11 | CERAMIC CHIP 33PF     | 5% 50V     |

| Ref. No. | Part No.     | Description   | Remark           |
|----------|--------------|---------------|------------------|
| C389     | 1-128-004-11 | ELECT CHIP    | 10uF 20% 16V     |
| C390     | 1-128-013-11 | ELECT CHIP    | 1uF 20% 50V      |
| C391     | 1-162-941-11 | CERAMIC CHIP  | 10PF 0.5PF 50V   |
| C392     | 1-162-969-11 | CERAMIC CHIP  | 0.0068uF 10% 25V |
| C393     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C394     | 1-162-995-11 | CERAMIC CHIP  | 0.022uF 50V      |
| C395     | 1-135-176-21 | TANTALUM CHIP | 0.68uF 10% 20V   |
| C396     | 1-162-947-11 | CERAMIC CHIP  | 33PF 5% 50V      |
| C397     | 1-128-013-11 | ELECT CHIP    | 1uF 20% 50V      |
| C502     | 1-128-530-11 | ELECT CHIP    | 33uF 20% 10V     |
| C503     | 1-163-038-91 | CERAMIC CHIP  | 0.1uF 25V        |
| C504     | 1-128-004-11 | ELECT CHIP    | 10uF 20% 16V     |
| C506     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C507     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C508     | 1-135-259-11 | TANTAL. CHIP  | 10uF 20% 6.3V    |
| C509     | 1-162-937-11 | CERAMIC CHIP  | 6PF 0.5PF 50V    |
| C511     | 1-162-909-11 | CERAMIC CHIP  | 4PF 0.25PF 50V   |
| C512     | 1-163-077-00 | CERAMIC CHIP  | 0.1uF 10% 25V    |
| C513     | 1-164-298-11 | CERAMIC CHIP  | 0.15uF 10% 25V   |
| C514     | 1-164-298-11 | CERAMIC CHIP  | 0.15uF 10% 25V   |
| C515     | 1-162-942-11 | CERAMIC CHIP  | 12PF 5% 50V      |
| C516     | 1-163-037-91 | CERAMIC CHIP  | 0.022uF 10% 25V  |
| C517     | 1-135-259-11 | TANTAL. CHIP  | 10uF 20% 6.3V    |
| C518     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C519     | 1-164-004-11 | CERAMIC CHIP  | 0.1uF 10% 25V    |
| C520     | 1-164-004-11 | CERAMIC CHIP  | 0.1uF 10% 25V    |
| C521     | 1-162-970-11 | CERAMIC CHIP  | 0.01uF 10% 25V   |
| C522     | 1-162-967-11 | CERAMIC CHIP  | 0.0033uF 10% 50V |
| C523     | 1-162-967-11 | CERAMIC CHIP  | 0.0033uF 10% 50V |
| C524     | 1-162-967-11 | CERAMIC CHIP  | 0.0033uF 10% 50V |
| C525     | 1-162-964-11 | CERAMIC CHIP  | 0.001uF 10% 50V  |
| C526     | 1-162-969-11 | CERAMIC CHIP  | 0.0068uF 10% 25V |
| C527     | 1-162-969-11 | CERAMIC CHIP  | 0.0068uF 10% 25V |
| C528     | 1-162-964-11 | CERAMIC CHIP  | 0.001uF 10% 50V  |
| C529     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C530     | 1-135-259-11 | TANTAL. CHIP  | 10uF 20% 6.3V    |
| C532     | 1-162-965-11 | CERAMIC CHIP  | 0.0015uF 10% 50V |
| C533     | 1-164-361-11 | CERAMIC CHIP  | 0.047uF 16V      |
| C534     | 1-162-995-11 | CERAMIC CHIP  | 0.022uF 50V      |
| C535     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C536     | 1-162-970-11 | CERAMIC CHIP  | 0.01uF 10% 25V   |
| C537     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C538     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C539     | 1-135-259-11 | TANTAL. CHIP  | 10uF 20% 6.3V    |
| C540     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C541     | 1-162-974-11 | CERAMIC CHIP  | 0.01uF 50V       |
| C542     | 1-165-176-11 | CERAMIC CHIP  | 0.047uF 10% 16V  |
| C543     | 1-135-259-11 | TANTAL. CHIP  | 10uF 20% 6.3V    |
| C544     | 1-164-471-11 | CERAMIC CHIP  | 680PF 5% 50V     |

| Ref. No.      | Part No.     | Description                    | Remark           |
|---------------|--------------|--------------------------------|------------------|
| C545          | 1-162-995-11 | CERAMIC CHIP                   | 0.022uF 50V      |
| C546          | 1-162-974-11 | CERAMIC CHIP                   | 0.01uF 50V       |
| C548          | 1-162-970-11 | CERAMIC CHIP                   | 0.01uF 10% 25V   |
| C549          | 1-162-974-11 | CERAMIC CHIP                   | 0.01uF 50V       |
| C550          | 1-165-128-11 | CERAMIC CHIP                   | 0.22uF 16V       |
| C551          | 1-162-974-11 | CERAMIC CHIP                   | 0.01uF 50V       |
| C552          | 1-135-259-11 | TANTAL. CHIP                   | 10uF 20% 6.3V    |
| C553          | 1-162-995-11 | CERAMIC CHIP                   | 0.022uF 50V      |
| C554          | 1-162-964-11 | CERAMIC CHIP                   | 0.001uF 10% 50V  |
| C555          | 1-162-995-11 | CERAMIC CHIP                   | 0.022uF 50V      |
| C556          | 1-162-964-11 | CERAMIC CHIP                   | 0.001uF 10% 50V  |
| C557          | 1-162-995-11 | CERAMIC CHIP                   | 0.022uF 50V      |
| C558          | 1-164-360-11 | CERAMIC CHIP                   | 0.1uF 16V        |
| C559          | 1-164-173-11 | CERAMIC CHIP                   | 0.0039uF 10% 50V |
| C560          | 1-162-964-11 | CERAMIC CHIP                   | 0.001uF 10% 50V  |
| C561          | 1-162-995-11 | CERAMIC CHIP                   | 0.022uF 50V      |
| C563          | 1-162-974-11 | CERAMIC CHIP                   | 0.01uF 50V       |
| C564          | 1-135-259-11 | TANTAL. CHIP                   | 10uF 20% 6.3V    |
| C565          | 1-162-995-11 | CERAMIC CHIP                   | 0.022uF 50V      |
| C566          | 1-162-953-11 | CERAMIC CHIP                   | 100PF 5% 50V     |
| < CONNECTOR > |              |                                |                  |
| CN002         | 1-580-789-21 | PIN, CONNECTOR (SMD) 6P        |                  |
| CN101         | 1-691-492-21 | CONNECTOR, FFC/FPC 13P         |                  |
| CN501         | 1-691-540-11 | CONNECTOR, BOARD TO BOARD 40P  |                  |
| CN502         | 1-580-789-21 | PIN, CONNECTOR (SMD) 6P        |                  |
| CN504         | 1-691-928-11 | CONNECTOR, BOARD TO BOARD 32P  |                  |
| * CN505       | 1-691-935-11 | CONNECTOR, BOARD TO BOARD 38P  |                  |
| < DIODE >     |              |                                |                  |
| D073          | 8-719-404-46 | DIODE MA110                    |                  |
| D120          | 8-719-800-76 | DIODE 1SS226                   |                  |
| D232          | 8-719-404-35 | DIODE MA141WK                  |                  |
| D235          | 8-719-404-35 | DIODE MA141WK                  |                  |
| D236          | 8-719-404-35 | DIODE MA141WK                  |                  |
| D237          | 8-719-820-05 | DIODE 1SS181                   |                  |
| D239          | 8-719-820-05 | DIODE 1SS181                   |                  |
| D242          | 8-719-404-46 | DIODE MA110                    |                  |
| D243          | 8-719-404-46 | DIODE MA110                    |                  |
| D244          | 8-719-404-46 | DIODE MA110                    |                  |
| D245          | 8-719-404-35 | DIODE MA141WK                  |                  |
| D504          | 8-719-404-46 | DIODE MA110                    |                  |
| D505          | 8-719-027-50 | DIODE MA142WK                  |                  |
| < FILTER >    |              |                                |                  |
| FL161         | 1-236-848-21 | FILTER, LOW PASS               |                  |
| FL162         | 1-239-010-11 | FILTER, LOW PASS (CCD. PAL. Y) |                  |
| FL201         | 1-239-113-21 | FILTER, LOW PASS (REC. Y)      |                  |
| FL301         | 1-239-110-11 | FILTER, BAND PASS              |                  |

| Ref. No. | Part No.     | Description         | Remark |
|----------|--------------|---------------------|--------|
| FL302    | 1-236-186-11 | FILTER, BAND PASS   |        |
| FL303    | 1-579-371-11 | FILTER, CERAMIC     |        |
| FL371    | 1-236-850-21 | FILTER, BAND PASS   |        |
| < IC >   |              |                     |        |
| IC001    | 8-759-173-71 | IC CXA1555CR-E2     |        |
| IC003    | 8-759-064-36 | IC MB88346BPFV      |        |
| IC005    | 8-759-064-36 | IC MB88346BPFV      |        |
| IC171    | 8-759-605-61 | IC CXA1203N         |        |
| IC201    | 8-752-065-54 | IC CXA1207AR        |        |
| IC202    | 8-759-636-33 | IC CXA1452          |        |
| IC203    | 8-752-053-21 | IC CXA1211M         |        |
| IC301    | 8-752-065-56 | IC CXA1208R         |        |
| IC302    | 8-752-053-21 | IC CXA1211M         |        |
| IC501    | 8-752-842-48 | IC CXP80624A-019R   |        |
| IC502    | 8-759-169-11 | IC CXA1575M-E2      |        |
| IC503    | 8-759-062-02 | IC MPC1720VM        |        |
| IC504    | 8-759-059-42 | IC CXA1481AR        |        |
| IC551    | 8-752-351-95 | IC CXL1506N         |        |
| < COIL > |              |                     |        |
| L001     | 1-412-033-11 | INDUCTOR CHIP 220uH |        |
| L002     | 1-410-381-11 | INDUCTOR CHIP 10uH  |        |
| L004     | 1-410-385-41 | INDUCTOR CHIP 22uH  |        |
| L006     | 1-412-032-11 | INDUCTOR CHIP 100uH |        |
| L007     | 1-412-032-11 | INDUCTOR CHIP 100uH |        |
| L008     | 1-410-385-41 | INDUCTOR CHIP 22uH  |        |
| L012     | 1-412-029-11 | INDUCTOR CHIP 10uH  |        |
| L024     | 1-412-029-11 | INDUCTOR CHIP 10uH  |        |
| L025     | 1-412-029-11 | INDUCTOR CHIP 10uH  |        |
| L101     | 1-412-282-41 | INDUCTOR 470uH      |        |
| L102     | 1-410-657-21 | INDUCTOR CHIP 180uH |        |
| L105     | 1-412-029-11 | INDUCTOR CHIP 10uH  |        |
| L116     | 1-412-029-11 | INDUCTOR CHIP 10uH  |        |
| L120     | 1-412-280-31 | INDUCTOR 330uH      |        |
| L121     | 1-410-387-11 | INDUCTOR CHIP 33uH  |        |
| L164     | 1-412-960-21 | INDUCTOR 56uH       |        |
| L202     | 1-412-029-11 | INDUCTOR CHIP 10uH  |        |
| L204     | 1-410-379-31 | INDUCTOR CHIP 6.8uH |        |
| L205     | 1-410-390-11 | INDUCTOR CHIP 56uH  |        |
| L207     | 1-410-384-31 | INDUCTOR CHIP 18uH  |        |
| L211     | 1-410-381-11 | INDUCTOR CHIP 10uH  |        |
| L212     | 1-412-956-21 | INDUCTOR 27uH       |        |
| L214     | 1-410-390-11 | INDUCTOR CHIP 56uH  |        |
| L301     | 1-412-029-11 | INDUCTOR CHIP 10uH  |        |
| L302     | 1-410-393-11 | INDUCTOR CHIP 100uH |        |
| L303     | 1-410-656-11 | INDUCTOR CHIP 150uH |        |
| L304     | 1-410-393-11 | INDUCTOR CHIP 100uH |        |
| L305     | 1-410-655-31 | INDUCTOR CHIP 120uH |        |

| Ref. No.       | Part No.     | Description              | Remark |
|----------------|--------------|--------------------------|--------|
| L307           | 1-410-386-11 | INDUCTOR CHIP 27uH       |        |
| L308           | 1-410-393-11 | INDUCTOR CHIP 100uH      |        |
| L371           | 1-412-029-11 | INDUCTOR CHIP 10uH       |        |
| L403           | 1-410-655-31 | INDUCTOR CHIP 120uH      |        |
| L404           | 1-412-280-31 | INDUCTOR 330uH           |        |
| L405           | 1-410-380-31 | INDUCTOR CHIP 8.2uH      |        |
| L406           | 1-410-657-21 | INDUCTOR CHIP 180uH      |        |
| L407           | 1-410-387-11 | INDUCTOR CHIP 33uH       |        |
| L409           | 1-410-381-11 | INDUCTOR CHIP 10uH       |        |
| L502           | 1-412-029-11 | INDUCTOR CHIP 10uH       |        |
| L503           | 1-410-381-11 | INDUCTOR CHIP 10uH       |        |
| L504           | 1-410-381-11 | INDUCTOR CHIP 10uH       |        |
| L505           | 1-410-381-11 | INDUCTOR CHIP 10uH       |        |
| L990           | 1-412-026-11 | INDUCTOR CHIP 1uH        |        |
| < IC LINK >    |              |                          |        |
| △PS501         | 1-576-123-21 | LINK, IC (0.8A)          |        |
| < TRANSISTOR > |              |                          |        |
| Q001           | 8-729-140-63 | TRANSISTOR 2SA1611-M5M6  |        |
| Q002           | 8-729-140-63 | TRANSISTOR 2SA1611-M5M6  |        |
| Q003           | 8-729-216-22 | TRANSISTOR 2SA1162-G     |        |
| Q007           | 8-729-015-66 | TRANSISTOR 2SC4919       |        |
| Q008           | 8-729-015-66 | TRANSISTOR 2SC4919       |        |
| Q012           | 8-729-428-88 | TRANSISTOR UN9113        |        |
| Q013           | 8-729-428-88 | TRANSISTOR UN9113        |        |
| Q017           | 8-729-402-42 | TRANSISTOR UN5213        |        |
| Q022           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS  |        |
| Q023           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q025           | 8-729-402-42 | TRANSISTOR UN5213        |        |
| Q072           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS  |        |
| Q075           | 8-729-420-56 | TRANSISTOR UN511E        |        |
| Q076           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q078           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS  |        |
| Q079           | 8-729-402-32 | TRANSISTOR 2SD1819A-R    |        |
| Q080           | 8-729-101-07 | TRANSISTOR 2SB798-DL     |        |
| Q120           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q121           | 8-729-420-12 | TRANSISTOR XM4213        |        |
| Q124           | 8-729-102-07 | TRANSISTOR 2SC2223-F13   |        |
| Q125           | 8-729-428-88 | TRANSISTOR UN9113        |        |
| Q126           | 8-729-012-50 | TRANSISTOR 2SC4400-3/4/5 |        |
| Q127           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q128           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q129           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS  |        |
| Q132           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q138           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q143           | 8-729-230-63 | TRANSISTOR 2SC4116-YG    |        |
| Q232           | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS  |        |
| Q233           | 8-729-402-42 | TRANSISTOR UN5213        |        |

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No.     | Description             | Remark |
|----------|--------------|-------------------------|--------|
| Q234     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q236     | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS |        |
| Q237     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q239     | 8-729-420-12 | TRANSISTOR XN4213       |        |
| Q241     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q242     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q243     | 8-729-403-35 | TRANSISTOR UN5113       |        |
| Q244     | 8-729-807-86 | TRANSISTOR 2SB1295-UL5  |        |
| Q245     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q246     | 8-729-425-64 | TRANSISTOR 2SD2216-Q    |        |
| Q247     | 8-729-402-81 | TRANSISTOR XN4501       |        |
| Q248     | 8-729-420-20 | TRANSISTOR XN4312       |        |
| Q250     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q252     | 8-729-428-88 | TRANSISTOR UN9113       |        |
| Q254     | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS |        |
| Q255     | 8-729-425-64 | TRANSISTOR 2SD2216-Q    |        |
| Q256     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q257     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q258     | 8-729-425-50 | TRANSISTOR 2SB1462-Q    |        |
| Q265     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q267     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q270     | 8-729-428-88 | TRANSISTOR UN9113       |        |
| Q271     | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS |        |
| Q273     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q275     | 8-729-427-72 | TRANSISTOR XP4501       |        |
| Q276     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q280     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q281     | 8-729-421-90 | TRANSISTOR XN4113       |        |
| Q282     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q283     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q287     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q289     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q290     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q291     | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS |        |
| Q292     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q293     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q294     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q295     | 8-729-420-24 | TRANSISTOR 2SB1218A-QRS |        |
| Q296     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q297     | 8-729-403-35 | TRANSISTOR UN5113       |        |
| Q298     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q299     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q301     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q302     | 8-729-403-35 | TRANSISTOR UN5113       |        |
| Q303     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q305     | 8-729-230-63 | TRANSISTOR 2SC4116-YG   |        |
| Q307     | 8-729-402-42 | TRANSISTOR UN5213       |        |
| Q501     | 8-729-420-12 | TRANSISTOR XN4213       |        |
| Q502     | 8-729-421-90 | TRANSISTOR XN4113       |        |

| Ref. No.     | Part No.     | Description           | Remark |
|--------------|--------------|-----------------------|--------|
| Q503         | 8-729-230-63 | TRANSISTOR 2SC4116-YG |        |
| Q513         | 8-729-017-67 | TRANSISTOR 2SB1574    |        |
| Q514         | 8-729-403-35 | TRANSISTOR UN5113     |        |
| Q905         | 8-729-230-63 | TRANSISTOR 2SC4116-YG |        |
| < RESISTOR > |              |                       |        |
| R001         | 1-216-837-11 | METAL CHIP 22K 5%     | 1/16W  |
| R002         | 1-216-839-11 | METAL CHIP 33K 5%     | 1/16W  |
| R003         | 1-216-814-11 | METAL CHIP 270 5%     | 1/16W  |
| R004         | 1-216-813-11 | METAL CHIP 220 5%     | 1/16W  |
| R005         | 1-216-825-11 | METAL CHIP 2.2K 5%    | 1/16W  |
| R006         | 1-216-829-11 | METAL CHIP 4.7K 5%    | 1/16W  |
| R007         | 1-216-805-11 | METAL CHIP 47 5%      | 1/16W  |
| R008         | 1-216-804-11 | METAL CHIP 39 5%      | 1/16W  |
| R009         | 1-216-818-11 | METAL CHIP 560 5%     | 1/16W  |
| R011         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R012         | 1-216-833-11 | METAL CHIP 10K 5%     | 1/16W  |
| R013         | 1-216-833-11 | METAL CHIP 10K 5%     | 1/16W  |
| R020         | 1-216-809-11 | METAL CHIP 100 5%     | 1/16W  |
| R022         | 1-216-823-11 | METAL CHIP 1.5K 5%    | 1/16W  |
| R023         | 1-216-827-11 | METAL CHIP 3.3K 5%    | 1/16W  |
| R025         | 1-216-821-11 | METAL CHIP 1K 5%      | 1/16W  |
| R026         | 1-216-821-11 | METAL CHIP 1K 5%      | 1/16W  |
| R027         | 1-216-809-11 | METAL CHIP 100 5%     | 1/16W  |
| R028         | 1-216-837-11 | METAL CHIP 22K 5%     | 1/16W  |
| R029         | 1-216-837-11 | METAL CHIP 22K 5%     | 1/16W  |
| R030         | 1-216-837-11 | METAL CHIP 22K 5%     | 1/16W  |
| R031         | 1-216-821-11 | METAL CHIP 1K 5%      | 1/16W  |
| R032         | 1-216-821-11 | METAL CHIP 1K 5%      | 1/16W  |
| R035         | 1-216-815-11 | METAL CHIP 330 5%     | 1/16W  |
| R036         | 1-216-815-11 | METAL CHIP 330 5%     | 1/16W  |
| R037         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R039         | 1-216-836-11 | METAL CHIP 18K 5%     | 1/16W  |
| R040         | 1-216-833-11 | METAL CHIP 10K 5%     | 1/16W  |
| R041         | 1-216-836-11 | METAL CHIP 18K 5%     | 1/16W  |
| R042         | 1-216-832-11 | METAL CHIP 8.2K 5%    | 1/16W  |
| R050         | 1-216-833-11 | METAL CHIP 10K 5%     | 1/16W  |
| R051         | 1-216-833-11 | METAL CHIP 10K 5%     | 1/16W  |
| R053         | 1-216-819-11 | METAL CHIP 680 5%     | 1/16W  |
| R054         | 1-216-809-11 | METAL CHIP 100 5%     | 1/16W  |
| R055         | 1-216-837-11 | METAL CHIP 22K 5%     | 1/16W  |
| R056         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R057         | 1-216-837-11 | METAL CHIP 22K 5%     | 1/16W  |
| R062         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R063         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R066         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R067         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R068         | 1-216-864-11 | METAL CHIP 0 5%       | 1/16W  |
| R071         | 1-216-837-11 | METAL CHIP 22K 5%     | 1/16W  |

| Ref. No. | Part No.     | Description        | Remark |
|----------|--------------|--------------------|--------|
| R082     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R083     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R094     | 1-216-821-11 | METAL CHIP 1K 5%   | 1/16W  |
| R097     | 1-216-825-11 | METAL CHIP 2.2K 5% | 1/16W  |
| R098     | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W  |
| R099     | 1-216-823-11 | METAL CHIP 1.5K 5% | 1/16W  |
| R100     | 1-216-833-11 | METAL CHIP 10K 5%  | 1/16W  |
| R101     | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W  |
| R102     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R103     | 1-216-843-11 | METAL CHIP 68K 5%  | 1/16W  |
| R105     | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W  |
| R106     | 1-216-820-11 | METAL CHIP 820 5%  | 1/16W  |
| R107     | 1-216-836-11 | METAL CHIP 18K 5%  | 1/16W  |
| R108     | 1-216-830-11 | METAL CHIP 5.6K 5% | 1/16W  |
| R109     | 1-216-304-11 | METAL CHIP 3.3 5%  | 1/10W  |
| R110     | 1-216-296-00 | METAL CHIP 0 5%    | 1/8W   |
| R117     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R120     | 1-216-827-11 | METAL CHIP 3.3K 5% | 1/16W  |
| R122     | 1-216-831-11 | METAL CHIP 6.8K 5% | 1/16W  |
| R123     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R124     | 1-216-834-11 | METAL CHIP 12K 5%  | 1/16W  |
| R125     | 1-216-833-11 | METAL CHIP 10K 5%  | 1/16W  |
| R126     | 1-216-825-11 | METAL CHIP 2.2K 5% | 1/16W  |
| R127     | 1-216-815-11 | METAL CHIP 330 5%  | 1/16W  |
| R128     | 1-216-818-11 | METAL CHIP 560 5%  | 1/16W  |
| R129     | 1-216-818-11 | METAL CHIP 560 5%  | 1/16W  |
| R130     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R131     | 1-216-807-11 | METAL CHIP 68 5%   | 1/16W  |
| R132     | 1-216-830-11 | METAL CHIP 5.6K 5% | 1/16W  |
| R133     | 1-216-824-11 | METAL CHIP 1.8K 5% | 1/16W  |
| R134     | 1-216-831-11 | METAL CHIP 6.8K 5% | 1/16W  |
| R135     | 1-216-823-11 | METAL CHIP 1.5K 5% | 1/16W  |
| R137     | 1-216-837-11 | METAL CHIP 22K 5%  | 1/16W  |
| R138     | 1-216-837-11 | METAL CHIP 22K 5%  | 1/16W  |
| R139     | 1-216-821-11 | METAL CHIP 1K 5%   | 1/16W  |
| R140     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R141     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R142     | 1-216-809-11 | METAL CHIP 100 5%  | 1/16W  |
| R143     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R145     | 1-216-836-11 | METAL CHIP 18K 5%  | 1/16W  |
| R146     | 1-216-836-11 | METAL CHIP 18K 5%  | 1/16W  |
| R147     | 1-216-818-11 | METAL CHIP 560 5%  | 1/16W  |
| R148     | 1-216-821-11 | METAL CHIP 1K 5%   | 1/16W  |
| R149     | 1-216-804-11 | METAL CHIP 39 5%   | 1/16W  |
| R151     | 1-216-820-11 | METAL CHIP 820 5%  | 1/16W  |
| R152     | 1-216-819-11 | METAL CHIP 680 5%  | 1/16W  |
| R153     | 1-216-824-11 | METAL CHIP 1.8K 5% | 1/16W  |
| R156     | 1-216-825-11 | METAL CHIP 2.2K 5% | 1/16W  |

| Ref. No. | Part No.     | Description        | Remark |
|----------|--------------|--------------------|--------|
| R163     | 1-216-819-11 | METAL CHIP 680 5%  | 1/16W  |
| R164     | 1-216-837-11 | METAL CHIP 22K 5%  | 1/16W  |
| R165     | 1-216-837-11 | METAL CHIP 22K 5%  | 1/16W  |
| R170     | 1-216-813-11 | METAL CHIP 220 5%  | 1/16W  |
| R176     | 1-216-818-11 | METAL CHIP 560 5%  | 1/16W  |
| R197     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R214     | 1-216-819-11 | METAL CHIP 680 5%  | 1/16W  |
| R218     | 1-216-813-11 | METAL CHIP 220 5%  | 1/16W  |
| R220     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R225     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R230     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R231     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R234     | 1-216-828-11 | METAL CHIP 3.9K 5% | 1/16W  |
| R236     | 1-216-296-00 | METAL CHIP 0 5%    | 1/8W   |
| R237     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R241     | 1-216-804-11 | METAL CHIP 39 5%   | 1/16W  |
| R242     | 1-216-818-11 | METAL CHIP 560 5%  | 1/16W  |
| R243     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R244     | 1-216-820-11 | METAL CHIP 820 5%  | 1/16W  |
| R245     | 1-216-841-11 | METAL CHIP 47K 5%  | 1/16W  |
| R246     | 1-216-803-11 | METAL CHIP 33 5%   | 1/16W  |
| R249     | 1-216-833-11 | METAL CHIP 10K 5%  | 1/16W  |
| R250     | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W  |
| R252     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R254     | 1-216-818-11 | METAL CHIP 560 5%  | 1/16W  |
| R255     | 1-216-826-11 | METAL CHIP 2.7K 5% | 1/16W  |
| R256     | 1-216-821-11 | METAL CHIP 1K 5%   | 1/16W  |
| R257     | 1-216-827-11 | METAL CHIP 3.3K 5% | 1/16W  |
| R258     | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W  |
| R259     | 1-216-845-11 | METAL CHIP 100K 5% | 1/16W  |
| R260     | 1-216-833-11 | METAL CHIP 10K 5%  | 1/16W  |
| R261     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R262     | 1-216-821-11 | METAL CHIP 1K 5%   | 1/16W  |
| R264     | 1-216-839-11 | METAL CHIP 33K 5%  | 1/16W  |
| R265     | 1-216-820-11 | METAL CHIP 820 5%  | 1/16W  |
| R266     | 1-216-819-11 | METAL CHIP 680 5%  | 1/16W  |
| R267     | 1-216-845-11 | METAL CHIP 100K 5% | 1/16W  |
| R268     | 1-216-853-11 | METAL CHIP 470K 5% | 1/16W  |
| R269     | 1-216-817-11 | METAL CHIP 470 5%  | 1/16W  |
| R270     | 1-216-827-11 | METAL CHIP 3.3K 5% | 1/16W  |
| R271     | 1-216-864-11 | METAL CHIP 0 5%    | 1/16W  |
| R273     | 1-216-829-11 | METAL CHIP 4.7K 5% | 1/16W  |
| R274     | 1-216-821-11 | METAL CHIP 1K 5%   | 1/16W  |
| R277     | 1-216-836-11 | METAL CHIP 18K 5%  | 1/16W  |
| R278     | 1-216-842-11 | METAL CHIP 56K 5%  | 1/16W  |
| R279     | 1-216-841-11 | METAL CHIP 47K 5%  | 1/16W  |
| R280     | 1-216-833-11 | METAL CHIP 10K 5%  | 1/16W  |
| R281     | 1-216-827-11 | METAL CHIP 3.3K 5% | 1/16W  |
| R282     | 1-216-857-11 | METAL CHIP 1M 5%   | 1/16W  |



| Ref. No. | Part No.     | Description | Remark |       |       |
|----------|--------------|-------------|--------|-------|-------|
| R283     | 1-216-834-11 | METAL CHIP  | 12K    | 5%    | 1/16W |
| R284     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R288     | 1-216-810-11 | METAL CHIP  | 120    | 5%    | 1/16W |
| R289     | 1-216-844-11 | METAL CHIP  | 82K    | 5%    | 1/16W |
| R290     | 1-216-837-11 | METAL CHIP  | 22K    | 5%    | 1/16W |
| R294     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5%    | 1/16W |
| R295     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R296     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R297     | 1-216-813-11 | METAL CHIP  | 220    | 5%    | 1/16W |
| R298     | 1-216-813-11 | METAL CHIP  | 220    | 5%    | 1/16W |
| R299     | 1-216-814-11 | METAL CHIP  | 270    | 5%    | 1/16W |
| R301     | 1-216-816-11 | METAL CHIP  | 390    | 5%    | 1/16W |
| R302     | 1-216-841-11 | METAL CHIP  | 47K    | 5%    | 1/16W |
| R303     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R304     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R306     | 1-216-826-11 | METAL CHIP  | 2.7K   | 5%    | 1/16W |
| R307     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R308     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R309     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R310     | 1-216-839-11 | METAL CHIP  | 33K    | 5%    | 1/16W |
| R311     | 1-216-842-11 | METAL CHIP  | 56K    | 5%    | 1/16W |
| R312     | 1-216-822-11 | METAL CHIP  | 1.2K   | 5%    | 1/16W |
| R314     | 1-216-817-11 | METAL CHIP  | 470    | 5%    | 1/16W |
| R315     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R316     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R317     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R318     | 1-216-810-11 | METAL CHIP  | 120    | 5%    | 1/16W |
| R319     | 1-216-819-11 | METAL CHIP  | 680    | 5%    | 1/16W |
| R320     | 1-216-815-11 | METAL CHIP  | 330    | 5%    | 1/16W |
| R321     | 1-216-841-11 | METAL CHIP  | 47K    | 5%    | 1/16W |
| R323     | 1-216-835-11 | METAL CHIP  | 15K    | 5%    | 1/16W |
| R324     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5%    | 1/16W |
| R325     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5%    | 1/16W |
| R327     | 1-218-704-11 | METAL CHIP  | 3.3K   | 0.50% | 1/16W |
| R328     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R329     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R330     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5%    | 1/16W |
| R331     | 1-216-819-11 | METAL CHIP  | 680    | 5%    | 1/16W |
| R333     | 1-216-820-11 | METAL CHIP  | 820    | 5%    | 1/16W |
| R335     | 1-216-820-11 | METAL CHIP  | 820    | 5%    | 1/16W |
| R336     | 1-216-837-11 | METAL CHIP  | 22K    | 5%    | 1/16W |
| R339     | 1-216-817-11 | METAL CHIP  | 470    | 5%    | 1/16W |
| R342     | 1-216-817-11 | METAL CHIP  | 470    | 5%    | 1/16W |
| R343     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R350     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R351     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R354     | 1-216-818-11 | METAL CHIP  | 560    | 5%    | 1/16W |
| R355     | 1-216-816-11 | METAL CHIP  | 390    | 5%    | 1/16W |
| R362     | 1-216-837-11 | METAL CHIP  | 22K    | 5%    | 1/16W |

| Ref. No. | Part No.     | Description | Remark |    |       |
|----------|--------------|-------------|--------|----|-------|
| R365     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R368     | 1-216-839-11 | METAL CHIP  | 33K    | 5% | 1/16W |
| R369     | 1-216-842-11 | METAL CHIP  | 56K    | 5% | 1/16W |
| R370     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R371     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R372     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R376     | 1-216-812-11 | METAL CHIP  | 180    | 5% | 1/16W |
| R377     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R378     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R379     | 1-216-826-11 | METAL CHIP  | 2.7K   | 5% | 1/16W |
| R380     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R382     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
| R383     | 1-216-814-11 | METAL CHIP  | 270    | 5% | 1/16W |
| R384     | 1-216-813-11 | METAL CHIP  | 220    | 5% | 1/16W |
| R385     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R386     | 1-216-813-11 | METAL CHIP  | 220    | 5% | 1/16W |
| R389     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R390     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R395     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R396     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R397     | 1-216-840-11 | METAL CHIP  | 39K    | 5% | 1/16W |
| R399     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R400     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R401     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R403     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R406     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R407     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R408     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R409     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R410     | 1-216-813-11 | METAL CHIP  | 220    | 5% | 1/16W |
| R413     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R416     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R418     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R419     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R420     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R421     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R422     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R423     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R424     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R428     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R429     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R430     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R432     | 1-216-822-11 | METAL CHIP  | 1.2K   | 5% | 1/16W |
| R433     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R434     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R435     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R438     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R439     | 1-216-824-11 | METAL CHIP  | 1.8K   | 5% | 1/16W |
| R440     | 1-216-822-11 | METAL CHIP  | 1.2K   | 5% | 1/16W |

| Ref. No. | Part No.     | Description | Remark |    |       |
|----------|--------------|-------------|--------|----|-------|
| R441     | 1-216-823-11 | METAL CHIP  | 1.5K   | 5% | 1/16W |
| R442     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
| R443     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R444     | 1-216-832-11 | METAL CHIP  | 8.2K   | 5% | 1/16W |
| R445     | 1-216-823-11 | METAL CHIP  | 1.5K   | 5% | 1/16W |
| R446     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R447     | 1-216-834-11 | METAL CHIP  | 12K    | 5% | 1/16W |
| R448     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
| R449     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R450     | 1-216-818-11 | METAL CHIP  | 560    | 5% | 1/16W |
| R452     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R453     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R454     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R455     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
| R456     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R458     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R459     | 1-216-839-11 | METAL CHIP  | 33K    | 5% | 1/16W |
| R460     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R461     | 1-216-820-11 | METAL CHIP  | 820    | 5% | 1/16W |
| R462     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R463     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R464     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R465     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R466     | 1-216-840-11 | METAL CHIP  | 39K    | 5% | 1/16W |
| R467     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R468     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R469     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R470     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R473     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R475     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R476     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
| R477     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
| R478     | 1-216-828-11 | METAL CHIP  | 3.9K   | 5% | 1/16W |
| R479     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R480     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
| R481     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R489     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
| R490     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
| R512     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R513     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R514     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R515     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R516     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R517     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R518     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R519     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R520     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R521     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |

| Ref. No. | Part No.     | Description | Remark |    |       |
|----------|--------------|-------------|--------|----|-------|
| R522     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R523     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R524     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R525     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
| R526     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R528     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R529     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R530     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R531     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R532     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R533     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R534     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R535     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R536     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R537     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R538     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R539     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R540     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R541     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R542     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R546     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R547     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R548     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
| R552     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R553     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R554     | 1-216-857-11 | METAL CHIP  | 1M     | 5% | 1/16W |
| R555     | 1-216-852-11 | METAL CHIP  | 390K   | 5% | 1/16W |
| R556     | 1-216-019-00 | METAL CHIP  | 56     | 5% | 1/10W |
| R557     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R558     | 1-216-826-11 | METAL CHIP  | 2.7K   | 5% | 1/16W |
| R559     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R560     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R561     | 1-216-850-11 | METAL CHIP  | 270K   | 5% | 1/16W |
| R562     | 1-216-831-11 | METAL CHIP  | 6.8K   | 5% | 1/16W |
| R563     | 1-216-835-11 | METAL CHIP  | 15K    | 5% | 1/16W |
| R564     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
| R566     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
| R567     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
| R568     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
| R569     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
| R570     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R571     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R573     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R574     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R577     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R578     | 1-216-837-11 | METAL CHIP  | 22K    | 5% | 1/16W |
| R580     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R581     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R583     | 1-216-837-11 | METAL CHIP  | 22K    | 5% | 1/16W |



| Ref. No. | Part No.     | Description | Remark |       |       |
|----------|--------------|-------------|--------|-------|-------|
| R283     | 1-216-834-11 | METAL CHIP  | 12K    | 5%    | 1/16W |
| R284     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R288     | 1-216-810-11 | METAL CHIP  | 120    | 5%    | 1/16W |
| R289     | 1-216-844-11 | METAL CHIP  | 82K    | 5%    | 1/16W |
| R290     | 1-216-837-11 | METAL CHIP  | 22K    | 5%    | 1/16W |
|          |              |             |        |       |       |
| R294     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5%    | 1/16W |
| R295     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R296     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R297     | 1-216-813-11 | METAL CHIP  | 220    | 5%    | 1/16W |
| R298     | 1-216-813-11 | METAL CHIP  | 220    | 5%    | 1/16W |
|          |              |             |        |       |       |
| R299     | 1-216-814-11 | METAL CHIP  | 270    | 5%    | 1/16W |
| R301     | 1-216-816-11 | METAL CHIP  | 390    | 5%    | 1/16W |
| R302     | 1-216-841-11 | METAL CHIP  | 47K    | 5%    | 1/16W |
| R303     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R304     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
|          |              |             |        |       |       |
| R306     | 1-216-826-11 | METAL CHIP  | 2.7K   | 5%    | 1/16W |
| R307     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R308     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R309     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R310     | 1-216-839-11 | METAL CHIP  | 33K    | 5%    | 1/16W |
|          |              |             |        |       |       |
| R311     | 1-216-842-11 | METAL CHIP  | 56K    | 5%    | 1/16W |
| R312     | 1-216-822-11 | METAL CHIP  | 1.2K   | 5%    | 1/16W |
| R314     | 1-216-817-11 | METAL CHIP  | 470    | 5%    | 1/16W |
| R315     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R316     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
|          |              |             |        |       |       |
| R317     | 1-216-833-11 | METAL CHIP  | 10K    | 5%    | 1/16W |
| R318     | 1-216-810-11 | METAL CHIP  | 120    | 5%    | 1/16W |
| R319     | 1-216-819-11 | METAL CHIP  | 680    | 5%    | 1/16W |
| R320     | 1-216-815-11 | METAL CHIP  | 330    | 5%    | 1/16W |
| R321     | 1-216-841-11 | METAL CHIP  | 47K    | 5%    | 1/16W |
|          |              |             |        |       |       |
| R323     | 1-216-835-11 | METAL CHIP  | 15K    | 5%    | 1/16W |
| R324     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5%    | 1/16W |
| R325     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5%    | 1/16W |
| R327     | 1-216-704-11 | METAL CHIP  | 3.3K   | 0.50% | 1/16W |
| R328     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
|          |              |             |        |       |       |
| R329     | 1-216-821-11 | METAL CHIP  | 1K     | 5%    | 1/16W |
| R330     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5%    | 1/16W |
| R331     | 1-216-819-11 | METAL CHIP  | 680    | 5%    | 1/16W |
| R333     | 1-216-820-11 | METAL CHIP  | 820    | 5%    | 1/16W |
| R335     | 1-216-820-11 | METAL CHIP  | 820    | 5%    | 1/16W |
|          |              |             |        |       |       |
| R336     | 1-216-837-11 | METAL CHIP  | 22K    | 5%    | 1/16W |
| R339     | 1-216-817-11 | METAL CHIP  | 470    | 5%    | 1/16W |
| R342     | 1-216-817-11 | METAL CHIP  | 470    | 5%    | 1/16W |
| R343     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R350     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
|          |              |             |        |       |       |
| R351     | 1-216-864-11 | METAL CHIP  | 0      | 5%    | 1/16W |
| R354     | 1-216-818-11 | METAL CHIP  | 560    | 5%    | 1/16W |
| R355     | 1-216-816-11 | METAL CHIP  | 390    | 5%    | 1/16W |
| R362     | 1-216-837-11 | METAL CHIP  | 22K    | 5%    | 1/16W |

| Ref. No. | Part No.     | Description | Remark |    |       |
|----------|--------------|-------------|--------|----|-------|
| R365     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R368     | 1-216-839-11 | METAL CHIP  | 33K    | 5% | 1/16W |
| R369     | 1-216-842-11 | METAL CHIP  | 56K    | 5% | 1/16W |
| R370     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R371     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R372     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
|          |              |             |        |    |       |
| R376     | 1-216-812-11 | METAL CHIP  | 180    | 5% | 1/16W |
| R377     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R378     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R379     | 1-216-826-11 | METAL CHIP  | 2.7K   | 5% | 1/16W |
| R380     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R382     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
| R383     | 1-216-814-11 | METAL CHIP  | 270    | 5% | 1/16W |
| R384     | 1-216-813-11 | METAL CHIP  | 220    | 5% | 1/16W |
| R385     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R386     | 1-216-813-11 | METAL CHIP  | 220    | 5% | 1/16W |
|          |              |             |        |    |       |
| R389     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R390     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R395     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R396     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R397     | 1-216-840-11 | METAL CHIP  | 39K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R399     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R400     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R401     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R403     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R406     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
|          |              |             |        |    |       |
| R407     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R408     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R409     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R410     | 1-216-813-11 | METAL CHIP  | 220    | 5% | 1/16W |
| R413     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R416     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R418     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R419     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R420     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R421     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R422     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R423     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R424     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R428     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R429     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R430     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R432     | 1-216-822-11 | METAL CHIP  | 1.2K   | 5% | 1/16W |
| R433     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R434     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R435     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R438     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R439     | 1-216-824-11 | METAL CHIP  | 1.8K   | 5% | 1/16W |
| R440     | 1-216-822-11 | METAL CHIP  | 1.2K   | 5% | 1/16W |

| Ref. No. | Part No.     | Description | Remark |    |       |
|----------|--------------|-------------|--------|----|-------|
| R441     | 1-216-823-11 | METAL CHIP  | 1.5K   | 5% | 1/16W |
| R442     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R443     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R444     | 1-216-832-11 | METAL CHIP  | 8.2K   | 5% | 1/16W |
| R445     | 1-216-823-11 | METAL CHIP  | 1.5K   | 5% | 1/16W |
| R446     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R447     | 1-216-834-11 | METAL CHIP  | 12K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R448     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
| R449     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R450     | 1-216-818-11 | METAL CHIP  | 560    | 5% | 1/16W |
| R452     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R453     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R454     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R455     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
| R456     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R458     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R459     | 1-216-839-11 | METAL CHIP  | 33K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R460     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R461     | 1-216-820-11 | METAL CHIP  | 820    | 5% | 1/16W |
| R462     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R463     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R464     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R465     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R466     | 1-216-840-11 | METAL CHIP  | 39K    | 5% | 1/16W |
| R467     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R468     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R469     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R470     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R473     | 1-216-825-11 | METAL CHIP  | 2.2K   | 5% | 1/16W |
| R475     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R476     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
| R477     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R478     | 1-216-828-11 | METAL CHIP  | 3.9K   | 5% | 1/16W |
| R479     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R480     | 1-216-830-11 | METAL CHIP  | 5.6K   | 5% | 1/16W |
| R481     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R489     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
|          |              |             |        |    |       |
| R490     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
| R512     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R513     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R514     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R515     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R516     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R517     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R518     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R519     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R520     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
|          |              |             |        |    |       |
| R521     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |

| Ref. No. | Part No.     | Description | Remark |    |       |
|----------|--------------|-------------|--------|----|-------|
| R522     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R523     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R524     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R525     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
|          |              |             |        |    |       |
| R526     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R528     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R529     | 1-216-864-11 | METAL CHIP  | 0      | 5% | 1/16W |
| R530     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R531     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R532     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R533     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R534     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R535     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R536     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
|          |              |             |        |    |       |
| R537     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R538     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R539     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R540     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R541     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
|          |              |             |        |    |       |
| R542     | 1-216-841-11 | METAL CHIP  | 47K    | 5% | 1/16W |
| R546     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R547     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R548     | 1-216-827-11 | METAL CHIP  | 3.3K   | 5% | 1/16W |
| R552     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
|          |              |             |        |    |       |
| R553     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R554     | 1-216-857-11 | METAL CHIP  | 1M     | 5% | 1/16W |
| R555     | 1-216-852-11 | METAL CHIP  | 390K   | 5% | 1/16W |
| R556     | 1-216-019-00 | METAL CHIP  | 56     | 5% | 1/10W |
| R557     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
|          |              |             |        |    |       |
| R558     | 1-216-826-11 | METAL CHIP  | 2.7K   | 5% | 1/16W |
| R559     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R560     | 1-216-829-11 | METAL CHIP  | 4.7K   | 5% | 1/16W |
| R561     | 1-216-850-11 | METAL CHIP  | 270K   | 5% | 1/16W |
| R562     | 1-216-831-11 | METAL CHIP  | 6.8K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R563     | 1-216-835-11 | METAL CHIP  | 15K    | 5% | 1/16W |
| R564     | 1-216-809-11 | METAL CHIP  | 100    | 5% | 1/16W |
| R566     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
| R567     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
| R568     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
|          |              |             |        |    |       |
| R569     | 1-217-671-11 | METAL CHIP  | 1      | 5% | 1/10W |
| R570     | 1-216-833-11 | METAL CHIP  | 10K    | 5% | 1/16W |
| R571     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R573     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
| R574     | 1-216-845-11 | METAL CHIP  | 100K   | 5% | 1/16W |
|          |              |             |        |    |       |
| R577     | 1-216-817-11 | METAL CHIP  | 470    | 5% | 1/16W |
| R578     | 1-216-837-11 | METAL CHIP  | 22K    | 5% | 1/16W |
| R580     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R581     | 1-216-821-11 | METAL CHIP  | 1K     | 5% | 1/16W |
| R583     | 1-216-837-11 | METAL CHIP  | 22K    | 5% | 1/16W |

| Ref. No.              | Part No.     | Description                     | Remark        |
|-----------------------|--------------|---------------------------------|---------------|
| R585                  | 1-216-851-11 | METAL CHIP                      | 330K 5% 1/16W |
| R586                  | 1-216-833-11 | METAL CHIP                      | 10K 5% 1/16W  |
| R587                  | 1-216-837-11 | METAL CHIP                      | 22K 5% 1/16W  |
| R589                  | 1-216-827-11 | METAL CHIP                      | 3.3K 5% 1/16W |
| R590                  | 1-216-841-11 | METAL CHIP                      | 47K 5% 1/16W  |
| R595                  | 1-216-845-11 | METAL CHIP                      | 100K 5% 1/16W |
| R596                  | 1-216-845-11 | METAL CHIP                      | 100K 5% 1/16W |
| R598                  | 1-216-845-11 | METAL CHIP                      | 100K 5% 1/16W |
| R599                  | 1-216-831-11 | METAL CHIP                      | 6.8K 5% 1/16W |
| R796                  | 1-216-833-11 | METAL CHIP                      | 10K 5% 1/16W  |
| R797                  | 1-216-837-11 | METAL CHIP                      | 22K 5% 1/16W  |
| R799                  | 1-216-833-11 | METAL CHIP                      | 10K 5% 1/16W  |
| R971                  | 1-216-821-11 | METAL CHIP                      | 1K 5% 1/16W   |
| R973                  | 1-216-817-11 | METAL CHIP                      | 470 5% 1/16W  |
| R974                  | 1-216-817-11 | METAL CHIP                      | 470 5% 1/16W  |
| R975                  | 1-216-849-11 | METAL CHIP                      | 220K 5% 1/16W |
| R976                  | 1-216-845-11 | METAL CHIP                      | 100K 5% 1/16W |
| R977                  | 1-216-849-11 | METAL CHIP                      | 220K 5% 1/16W |
| R978                  | 1-216-864-11 | METAL CHIP                      | 0 5% 1/16W    |
| R979                  | 1-216-833-11 | METAL CHIP                      | 10K 5% 1/16W  |
| R980                  | 1-216-821-11 | METAL CHIP                      | 1K 5% 1/16W   |
| R981                  | 1-216-809-11 | METAL CHIP                      | 100 5% 1/16W  |
| R982                  | 1-216-841-11 | METAL CHIP                      | 47K 5% 1/16W  |
| R983                  | 1-216-833-11 | METAL CHIP                      | 10K 5% 1/16W  |
| R984                  | 1-216-833-11 | METAL CHIP                      | 10K 5% 1/16W  |
| R989                  | 1-216-809-11 | METAL CHIP                      | 100 5% 1/16W  |
| R991                  | 1-216-295-00 | METAL CHIP                      | 0 5% 1/10W    |
| R994                  | 1-216-836-11 | METAL CHIP                      | 18K 5% 1/16W  |
| R995                  | 1-216-840-11 | METAL CHIP                      | 39K 5% 1/16W  |
| R996                  | 1-216-835-11 | METAL CHIP                      | 15K 5% 1/16W  |
| < NETWORK RESISTOR >  |              |                                 |               |
| RB501                 | 1-236-412-11 | NETWORK, RES 1.0KX2             |               |
| RB502                 | 1-236-412-11 | NETWORK, RES 1.0KX2             |               |
| RB503                 | 1-236-412-11 | NETWORK, RES 1.0KX2             |               |
| RB504                 | 1-236-400-11 | NETWORK, RES 100X2              |               |
| RB507                 | 1-236-400-11 | NETWORK, RES 100X2              |               |
| RB508                 | 1-236-412-11 | NETWORK, RES 1.0KX2             |               |
| RB509                 | 1-236-412-11 | NETWORK, RES 1.0KX2             |               |
| RB510                 | 1-236-412-11 | NETWORK, RES 1.0KX2             |               |
| RB511                 | 1-236-412-11 | NETWORK, RES 1.0KX2             |               |
| RB512                 | 1-236-424-11 | NETWORK, RES 10KX2              |               |
| RB513                 | 1-236-424-11 | NETWORK, RES 10KX2              |               |
| RB514                 | 1-236-424-11 | NETWORK, RES 10KX2              |               |
| RB517                 | 1-236-400-11 | NETWORK, RES 100X2              |               |
| < VARIABLE RESISTOR > |              |                                 |               |
| RV161                 | 1-238-852-11 | RES, ADJ, CERMET 470 (Y/C SEP.) |               |

| Ref. No.                           | Part No.     | Description                       | Remark   |
|------------------------------------|--------------|-----------------------------------|----------|
| < THERMISTOR >                     |              |                                   |          |
| TH121                              | 1-809-358-11 | THERMISTOR, NTC (2125) 15K        |          |
| TH202                              | 1-809-354-11 | THERMISTOR, NTC (2125) 3.3K       |          |
| < FLAT CABLE >                     |              |                                   |          |
| W001                               | 1-537-592-11 | FP-12 FLEXIBLE BOARD              |          |
| W503                               | 1-537-591-11 | FP-11 FLEXIBLE BOARD              |          |
| < VIBRATOR >                       |              |                                   |          |
| X301                               | 1-577-117-21 | OSCILLATOR, CRYSTAL (4.433619MHz) |          |
| X501                               | 1-579-368-31 | VIBRATOR, CRYSTAL (11.7MHz)       |          |
| *****                              |              |                                   |          |
| A-7063-691-A YP-12 BOARD, COMPLETE |              |                                   |          |
| *****                              |              |                                   |          |
| (Ref. No. 2, 000 Series)           |              |                                   |          |
| < CAPACITOR >                      |              |                                   |          |
| C201                               | 1-135-259-11 | TANTAL. CHIP 10uF                 | 20% 6.3V |
| C202                               | 1-164-360-11 | CERAMIC CHIP 0.1uF                | 16V      |
| C203                               | 1-135-161-21 | TANTALUM CHIP 22uF                | 10% 10V  |
| C204                               | 1-164-633-11 | CERAMIC CHIP 0.1uF                | 10% 25V  |
| C205                               | 1-164-299-11 | CERAMIC CHIP 0.22uF               | 10% 25V  |
| C206                               | 1-164-245-11 | CERAMIC CHIP 0.015uF              | 10% 25V  |
| C207                               | 1-128-257-21 | ELECT CHIP 33uF                   | 20% 10V  |
| C208                               | 1-162-953-11 | CERAMIC CHIP 100PF                | 5% 50V   |
| C209                               | 1-164-336-11 | CERAMIC CHIP 0.33uF               | 25V      |
| C210                               | 1-128-257-21 | ELECT CHIP 33uF                   | 20% 10V  |
| C211                               | 1-162-953-11 | CERAMIC CHIP 100PF                | 5% 50V   |
| C212                               | 1-164-336-11 | CERAMIC CHIP 0.33uF               | 25V      |
| C213                               | 1-164-360-11 | CERAMIC CHIP 0.1uF                | 16V      |
| C216                               | 1-135-163-21 | TANTAL. CHIP 47uF                 | 20% 4V   |
| C217                               | 1-164-360-11 | CERAMIC CHIP 0.1uF                | 16V      |
| C220                               | 1-164-633-11 | CERAMIC CHIP 0.1uF                | 10% 25V  |
| C221                               | 1-164-245-11 | CERAMIC CHIP 0.015uF              | 10% 25V  |
| C222                               | 1-164-299-11 | CERAMIC CHIP 0.22uF               | 10% 25V  |
| C251                               | 1-135-161-21 | TANTALUM CHIP 22uF                | 10% 10V  |
| C255                               | 1-135-163-21 | TANTAL. CHIP 47uF                 | 20% 4V   |
| C256                               | 1-164-360-11 | CERAMIC CHIP 0.1uF                | 16V      |
| < IC >                             |              |                                   |          |
| IC201                              | 8-759-080-34 | IC TA75W01FU                      |          |
| IC202                              | 8-759-234-77 | IC TC4S66F                        |          |
| IC203                              | 8-759-058-45 | IC NJM3403AV                      |          |
| IC204                              | 8-759-234-77 | IC TC4S66F                        |          |
| < RESISTOR >                       |              |                                   |          |
| R201                               | 1-216-803-11 | METAL CHIP 33 5%                  | 1/16W    |
| R202                               | 1-216-837-11 | METAL CHIP 22K 5%                 | 1/16W    |

| Ref. No.       | Part No.     | Description                          | Remark           |
|----------------|--------------|--------------------------------------|------------------|
| R203           | 1-216-837-11 | METAL CHIP                           | 22K 5% 1/16W     |
| R204           | 1-216-837-11 | METAL CHIP                           | 22K 5% 1/16W     |
| R205           | 1-216-833-11 | METAL CHIP                           | 10K 5% 1/16W     |
| R206           | 1-218-768-11 | METAL CHIP                           | 470K 0.50% 1/10W |
| R207           | 1-218-768-11 | METAL CHIP                           | 470K 0.50% 1/10W |
| R208           | 1-216-833-11 | METAL CHIP                           | 10K 5% 1/16W     |
| R209           | 1-216-835-11 | METAL CHIP                           | 15K 5% 1/16W     |
| R210           | 1-216-850-11 | METAL CHIP                           | 270K 5% 1/16W    |
| R211           | 1-216-833-11 | METAL CHIP                           | 10K 5% 1/16W     |
| R212           | 1-218-768-11 | METAL CHIP                           | 470K 0.50% 1/10W |
| R213           | 1-218-768-11 | METAL CHIP                           | 470K 0.50% 1/10W |
| R214           | 1-216-833-11 | METAL CHIP                           | 10K 5% 1/16W     |
| R215           | 1-216-835-11 | METAL CHIP                           | 15K 5% 1/16W     |
| R216           | 1-216-850-11 | METAL CHIP                           | 270K 5% 1/16W    |
| R220           | 1-216-837-11 | METAL CHIP                           | 22K 5% 1/16W     |
| R221           | 1-216-837-11 | METAL CHIP                           | 22K 5% 1/16W     |
| R222           | 1-216-837-11 | METAL CHIP                           | 22K 5% 1/16W     |
| R251           | 1-216-803-11 | METAL CHIP                           | 33 5% 1/16W      |
| < SENSOR >     |              |                                      |                  |
| SE001          | 1-810-024-11 | SENSOR, ANGULAR VELOCITY (PS SENSOR) |                  |
| SE002          | 1-810-024-21 | SENSOR, ANGULAR VELOCITY (YS SENSOR) |                  |
| < FLAT CABLE > |              |                                      |                  |
| W212           | 1-537-588-11 | FP-8 FLEXIBLE BOARD                  |                  |
| *****          |              |                                      |                  |
| MISCELLANEOUS  |              |                                      |                  |
| *****          |              |                                      |                  |
| 14             | 1-542-162-11 | MICROHONE UNIT                       |                  |
| 27             | 1-692-680-11 | SWITCH ASSY, BLOCK                   |                  |
| 51             | 1-467-296-11 | SWITCH BLOCK, CONTROL                |                  |
| 67             | 1-692-257-41 | SWITCH, PUSH (ZOOM)                  |                  |
| 108            | 1-691-471-11 | CONNECTOR, TRANSLATION 11P           |                  |
| 112            | 1-751-487-11 | CORD, FFC-104 FLEXIBLE FLAT          |                  |
| 115            | 1-547-635-11 | LENS, ZOOM (VCL-6110WF)              |                  |
| 120            | 1-547-558-21 | FILTER BLOCK, OPTICAL                |                  |
| 264            | 1-568-323-11 | CONNECTOR, BOARD TO BOARD 4P         |                  |
| 324            | 1-691-254-13 | CONNECTOR, TRANSLATION 10P           |                  |
| IC784          | A-7030-369-A | CCD BLOCK ASSY (055 SERVICE)         |                  |
| M901           | A-7048-585-A | DRUM ASSY (DGH-90A-R)                |                  |
| M902           | 8-835-477-01 | MOTOR, DC SCE-0101A (CAPSTAN)        |                  |
| M903           | A-7040-304-A | MOTOR BLOCK ASSY, LM (LOADING)       |                  |
| M904           | 3-708-792-01 | METER, IG (IRIS)                     |                  |
| M905           | 3-708-793-01 | MOTOR, STEPPING (FOCUS)              |                  |
| M906           | 3-708-794-01 | MOTOR, PZ (ZOOM)                     |                  |
| S001           | 1-572-986-11 | SWITCH, ROTARY (ENCODER)             |                  |
| S005           | 1-570-771-21 | SWITCH (C DOWN)                      |                  |
| AV901          | 1-452-565-11 | CRT ASSY (M01KKD70WB)                |                  |

| Ref. No.                                                | Part No.     | Description           | Remark |
|---------------------------------------------------------|--------------|-----------------------|--------|
| ACCESSORIES & PACKING MATERIALS                         |              |                       |        |
| *****                                                   |              |                       |        |
| 1-467-339-11 REMOTE COMMANDER (RMT-706)                 |              |                       |        |
| 1-571-164-11 SWITCH, ANTENNA CHANGE (CABLE) (UK, E)     |              |                       |        |
| 1-573-291-11 CONNECTOR, CONVERSION (AEP)                |              |                       |        |
| 1-575-334-11 CORD, CONNECTION                           |              |                       |        |
| (A/V connecting cable 1.5m)                             |              |                       |        |
| 3-712-673-01 SCREWDRIVER (UK, E)                        |              |                       |        |
| 3-738-517-01 BELT (S), SHOULDER                         |              |                       |        |
| 3-757-360-11 MANUAL, INSTRUCTION (ENGLISH) (AEP, UK)    |              |                       |        |
| 3-757-360-41 MANUAL, INSTRUCTION (FRENCH, DUTCH) (AEP)  |              |                       |        |
| 3-757-360-51 MANUAL, INSTRUCTION (GERMAN, ITALIAN)      |              |                       |        |
| (AEP)                                                   |              |                       |        |
| 3-757-360-61 MANUAL, INSTRUCTION (SPANISH, SWEDISH)     |              |                       |        |
| (AEP)                                                   |              |                       |        |
| 3-757-361-11 MANUAL, INSTRUCTION (ENGLISH, SPANISH) (E) |              |                       |        |
| 3-757-361-41 MANUAL, INSTRUCTION (FRENCH, GERMAN) (E)   |              |                       |        |
| 3-757-361-51 MANUAL, INSTRUCTION (ARABIC) (E)           |              |                       |        |
| 3-757-361-61 MANUAL, INSTRUCTION (CHINESE) (E)          |              |                       |        |
| 3-757-361-71 MANUAL INSTRUCTION (ENGLISH) (Australian)  |              |                       |        |
| *                                                       | 3-954-313-01 | CUSHION, ACC          |        |
| *                                                       | 3-954-314-01 | CUSHION (LOWER)       |        |
| *                                                       | 3-954-315-01 | INDIVIDUAL CARTON     |        |
| A-6768-254-A RFU ADAPTOR (RFU-90E) (AEP)                |              |                       |        |
| A-6767-706-A RFU ADAPTOR (RFU-89AE) (E)                 |              |                       |        |
| A-6767-707-A RFU ADAPTOR (RFU-89AE) (UK)                |              |                       |        |
| A-6768-255-A RFU ADAPTOR (RFU-90AS) (Australian)        |              |                       |        |
| *****                                                   |              |                       |        |
| ** AC-V35/V35A AC POWER ADAPTER                         |              |                       |        |
| *** NP-55H BATTERY PACK                                 |              |                       |        |
| Note.                                                   |              |                       |        |
| -----                                                   |              |                       |        |
| ** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.          |              |                       |        |
| *** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.   |              |                       |        |
| *****                                                   |              |                       |        |
| *****                                                   |              |                       |        |
| HARDWARE LIST                                           |              |                       |        |
| *****                                                   |              |                       |        |
| #1                                                      | 7-627-853-57 | PRECISION SCREW +P2X5 |        |
| *****                                                   |              |                       |        |

Be sure to read "Precautions for Replacement of CCD Imager" on page 42 when changing the CCD imager.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

# SECTION 7

## CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 196.

### 7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

#### 7-1-1. List of service tools

- Oscilloscope
- Regulated power supply
- Vectorscope
- Adjusting driver
- Color monitor
- Digital voltmeter

| Ref. No. | Name                                                                  | Parts Code   | Usage                                                                                                         |
|----------|-----------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------|
| J-1      | Filter for color temperature correction (C14)                         | J-6080-058-A | Auto White balance adjustment/check<br>White balance adjustment/check                                         |
| J-2      | ND filter 1.0                                                         | J-6080-808-A | White balance check                                                                                           |
|          | ND filter 0.3                                                         | J-6080-818-A | White balance check                                                                                           |
| J-3      | Pattern box PTB-450                                                   | J-6082-200-A |                                                                                                               |
| J-4      | Color chart for pattern box                                           | J-6020-250-A |                                                                                                               |
| J-5      | Adjusting remote commander (RM-95-remodeled partly) <sup>Note 1</sup> | J-6082-053-B |                                                                                                               |
| J-6      | Siemens star                                                          | J-6080-875-A | For checking the flange back                                                                                  |
| J-7      | Extension cable (40P, 0.8 mm)                                         | J-6082-168-A | For extension between the VS-99 board (CN501) and DD-55 board (CN451)                                         |
| J-8      | Extension cable (38P, 0.8 mm)                                         | J-6082-274-A | For extension between the AU-149 board (CN802) and VS-99 board (CN505)                                        |
| J-9      | Extension cable (16P, 0.8 mm)                                         | J-6082-191-A | For extension between the CD-105 board (W784) and VC-132 board (CN601)                                        |
| J-10     | Relay board (21P, 0.5 mm) <sup>Note 2</sup>                           | J-6082-176-A | For extension between the VC-132 board (CN711) and lens block (FPC) (During the repair of the camera section) |
| J-11     | Extension cable (21P, 0.5 mm) <sup>Note 2</sup>                       | J-6082-138-A | For extension between the VC-132 board (CN711) and lens block (FPC) (During the repair of the camera section) |
| J-12     | Extension cable (6P, 1.5mm)                                           | J-6082-152-A | For extension between the EVF and VS-99 board (CN903).                                                        |

**Note 1:** If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched.  
In this case, replace with the new micro processor (8-759-148-35).

**Note 2:** The extension cable (J-6082-138-A) is also attached with a 21P, 0.5 mm cable. Connect this code to the relay board (J-6082-176-A) for extensions between the lens block (FPC) and VC-132 board (CN711).

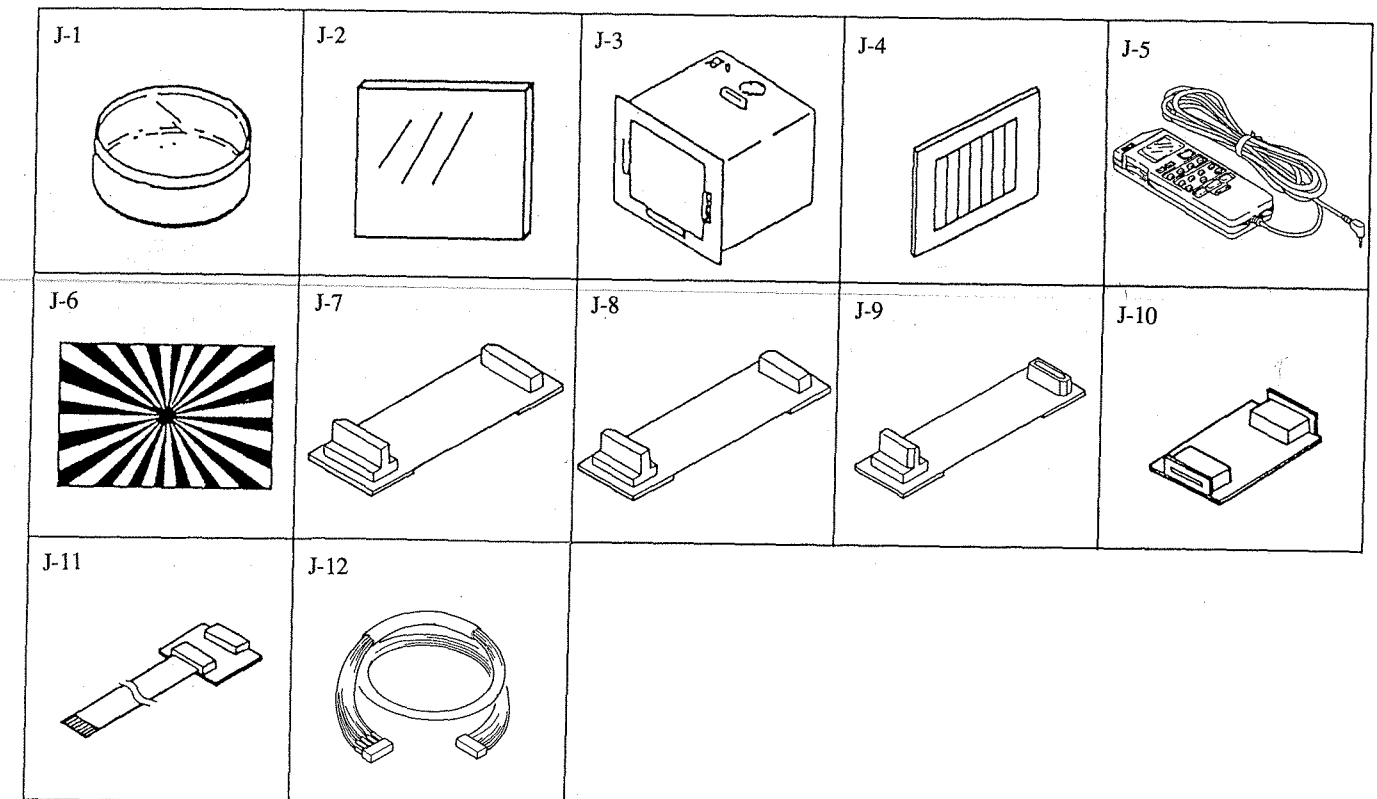


Fig. 7-1.

## 7-1-2. Preparations

**Note 1:** For further details of how to remove the cabinet and each board, refer to "2. Disassembly".

**Note 2:** When adjusting only, the lens block and VC-132 board need not be taken apart.

- 1) Connect the equipments for adjusting as shown in Fig. 7-3
- 2) The EVF (Electronic viewfinder) is required for checking the PROGRAM AE mode and DDS display. However, by turning on the "data Screen", the same contents can be viewed on the TV monitor. If the EVF is not required, remove CN502 of the VS-99 board.

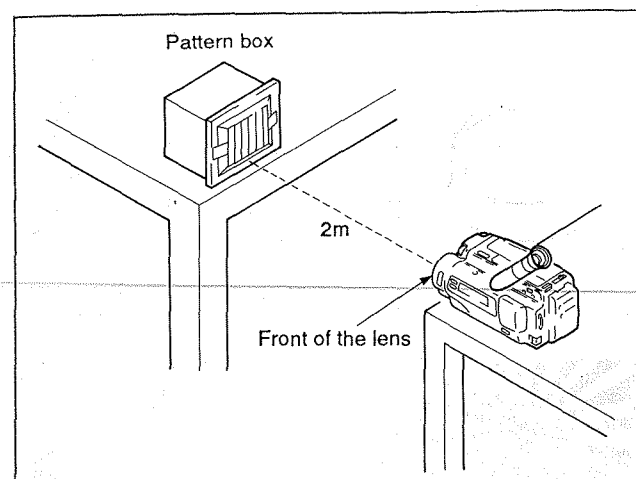


Fig. 7-2.

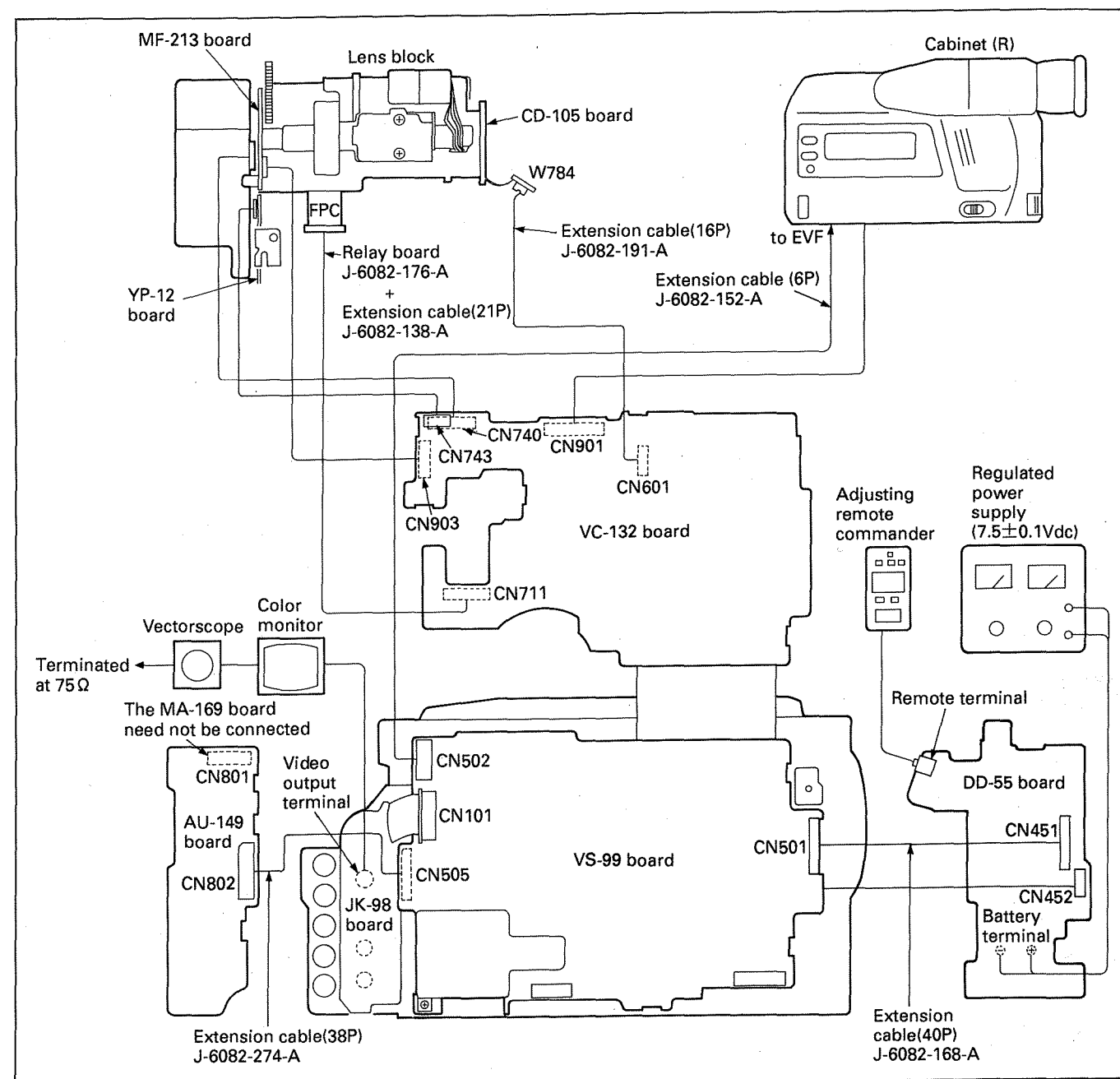


Fig. 7-3.

## 7-1-3. Precautions

### 1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

1. Camera/player power switch (Power switch unit S900) ..... Camera
2. Standby switch (SW-222 board S903) ..... Standby
3. Auto lock cover (CF block S927) ..... Open
4. Focus button (CF block S915) ..... Manual
5. Program AE button (CF block S913) ..... Off
6. Steady shot switch (CF block S922) ..... Off

### 2. Adjusting Procedure

Adjust in the given order.

### 2. Adjusting Procedure

Adjust in the given order.

### 3. Subject

- 1) Color bar chart (Standard picture frame)  
Adjust the picture frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart.
- 2) White pattern (Standard picture frame)  
Remove the color bar chart from the pattern box, and so that

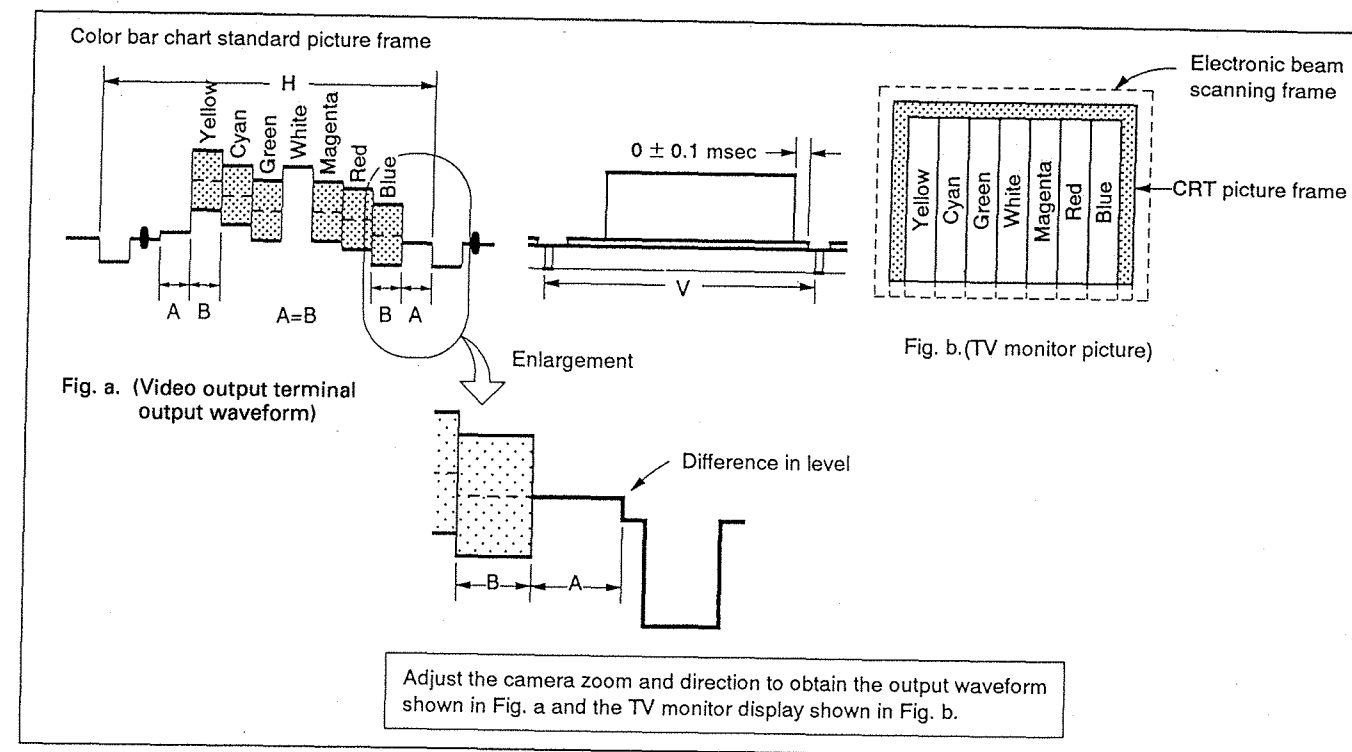


Fig. 7-4.

### 3) Chart for flange back adjustment

Combine a white A0 size (1189 mm × 841 mm) paper to a black one, and make the chart shown in Fig. 7-5.

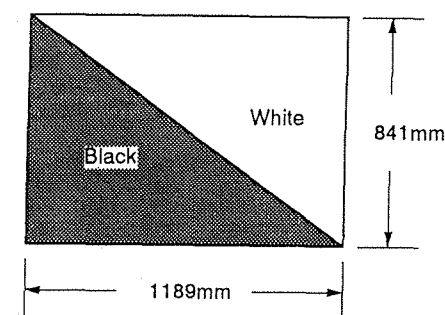


Fig. 7-5.

**Note:** Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.



7-1-4. Adjusting Remote Commander

The camera section is adjusted by changing the constant or coefficient of the digital signal processing calculation, or modifying the output voltage of the EVR IC (VC-132 board IC654). This is controlled by the camera micro processor (VC-132 board IC653), which reads the data written in the nonvolatile memory (VC-132 board IC641: EEPROM), and transmits it to the digital signal processing circuit and EVR. To perform adjustments, adjustment data written in the nonvolatile memory must be rewritten, using the adjusting remote commander.

The adjusting remote commander uses the remote commander signal line (LANC) to communicate mutually with the camera microprocessor. The page, address and the up/down commands of the data are transmitted from the adjusting remote commander to the camera micro processor. And, the page, address, and data are transmitted for the vice versa.

1. Using the adjusting remote commander

- 1) Connect the adjusting remote commander to the remote control terminal (DD-55 board J452).
- 2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 7-6.

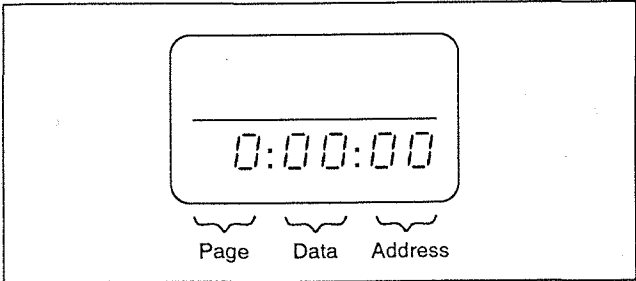


Fig. 7-6.

- 3) Operate the adjusting remote commander as follows.
  - Changing the page
The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH- button is pressed. There are altogether 16 pages, from 0 to F.

|                                   |                                       |
|-----------------------------------|---------------------------------------|
| Hexadecimal notation              | 0 1 2 3 4 5 6 7 8 9 A B C D E F       |
| LCD Display                       | 0 1 2 3 4 5 6 7 8 9 A b c d e f       |
| Decimal notation conversion value | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 |

Table 7-1.

- Changing the address
The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
  - Changing the data (Data setting)
The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
  - Writing the adjustment data
The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
- 4) Select page: 6, address: 00, and adjust the data to 01. This releases the write protect of page F, and enables the camera section (Addresses 01 to DF of page F) to be adjusted.
- 5) After completing all adjustments, turn off the main power supply (7.5V) once. This release the adjustment mode (other than page F).

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

7-1-5. Page F Address List

Note 1: The data already listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are values just after executing "Page F Data Initialization" and "Page F Data Modification". They are different from the values after executing all adjustments.

| Address | Name             | Function<br>[ ] contains the adjustment voltage output terminal            | Adjustment data |             |
|---------|------------------|----------------------------------------------------------------------------|-----------------|-------------|
|         |                  |                                                                            | Initial value   | Memo column |
| 00      | SET ID           | Set ID                                                                     | 50              | 50          |
| 01      | NT PAL           | Micro processor mode setting                                               | 51              | 51          |
| 02      | FT SW            | DDS display mode switching                                                 | 00              | 00          |
|         |                  | Data      Mode                                                             |                 |             |
|         |                  | 00      Normal                                                             |                 |             |
|         |                  | B8      Focus position adjustment                                          |                 |             |
| 03      | FADER LEVEL      | AE REF level change in fader                                               | E0              | E0          |
| 04      | FADER ENDTIME    | AE REF modulation time setting in fader                                    | 10              | 10          |
| 05      | CORE Y GAIN      | Camera core Y gain                                                         | 3F              | 3F          |
| 06      | VSUB             | CCD imager V SUB voltage adjustment [IC654 ③]                              | 80              |             |
| 07      | VP GH            | CCD imager V RG voltage adjustment [IC654 ④]                               | 80              |             |
| 08      | VREF Y           | Camera core Y D/A reference voltage, SYNC level adjustment [IC654 ⑤]       | 6A              | 6A          |
| 09      | VREF C           | Camera core camera D/A reference voltage, burst level adjustment [IC654 ⑥] | 58              | 58          |
| 0A      | HALL GAIN        | Hall amplifier gain adjustment [IC654 ⑦]                                   | 80              |             |
| 0B      | HALL OFFSET      | Hall amplifier off set adjustment [IC654 ⑧]                                |                 |             |
| 0C      | LOWLIGHT START   | Low illuminance level modulation start setting                             | 6A              | 6A          |
| 0D      | REF 2V           | 2V reference voltage for hall element [IC654 ⑩]                            | 68              | 68          |
| 0E      | AD REF           | Black level during A/D conversion [IC654 ⑪]                                | A0              | A0          |
| 0F      | CORE DEFTH       | CCD correction horizontal correlated control                               | 04              | 04          |
| 10      | CORE OTHER       | Various camera core mode settings                                          | 52              | 52          |
| 11      | CORE APCNH       | Horizontal aperture setting                                                | A5              | A5          |
| 12      | CORE APCNV       | Vertical aperture setting                                                  | 3F              | 3F          |
| 13      | CORE EFFECT      | Camera core special effects control                                        | A0              | A0          |
| 14      | CORE MAT R       | RED matrix constant                                                        | 6D              |             |
| 15      | CORE MAT B       | BLUE matrix constant                                                       |                 |             |
| 16      | CORE BURST LEVEL | Burst level setting, color modulation ON/OFF                               | 38              | 38          |
|         |                  | Data      Mode                                                             |                 |             |
|         |                  | 38      Normal                                                             |                 |             |
|         |                  | 2E      Color modulation stopped                                           |                 |             |
| 17      | CORE CHROMA DLY  | Y/C delay adjustment                                                       | 27              | 27          |
| 18      | CORE Y SETUP     | Set up level setting                                                       | 01              | 01          |
| 19      | CORE APCN        | Aperture setting                                                           | 17              | 17          |

Table 7-2 (1).



| Address | Name              | Function<br>[ ] contains the adjustment voltage output terminal | Adjustment data |             |
|---------|-------------------|-----------------------------------------------------------------|-----------------|-------------|
|         |                   |                                                                 | Initial value   | Memo column |
| 1A      | CORE B Y3200 HUE  | B-Y HUE                                                         | F8              |             |
| 1B      | CORE R Y3200 HUE  | R-Y HUE                                                         | F0              |             |
| 1C      | CORE R Y3200 GAIN | R-Y GAIN                                                        | 5A              | 5A          |
| 1D      | CORE B Y3200 GAIN | B-Y GAIN                                                        | 31              | 31          |
| 1E      | CS/APCN CUT       | Low illuminance aperture and chroma suppress level              | 23              | 23          |
| 1F      | NEXT DEF BIT      | CCD imager correction pattern                                   | 00              |             |
| 20      | CCD DEFECT0       | CCD imager correction data                                      | 00              |             |
| 21      | CCD DEFECT1       | CCD imager correction data                                      | 00              |             |
| 22      | CCD DEFECT2       | CCD imager correction data                                      | 00              |             |
| 23      | CCD DEFECT3       | CCD imager correction data                                      | 00              |             |
| 24      | CCD DEFECT4       | CCD imager correction data                                      | 00              |             |
| 25      | CCD DEFECT5       | CCD imager correction data                                      | 00              |             |
| 26      | CCD DEFECT6       | CCD imager correction data                                      | 00              |             |
| 27      | CCD DEFECT7       | CCD imager correction data                                      | 00              |             |
| 28      | CCD DEFECT8       | CCD imager correction data                                      | 00              |             |
| 29      | CCD DEFECT9       | CCD imager correction data                                      | 00              |             |
| 2A      | CCD DEFECT10      | CCD imager correction data                                      | 00              |             |
| 2B      | CCD DEFECT11      | CCD imager correction data                                      | 00              |             |
| 2C      | CCD DEFECT12      | CCD imager correction data                                      | 00              |             |
| 2D      | CCD DEFECT13      | CCD imager correction data                                      | 00              |             |
| 2E      | CCD DEFECT14      | CCD imager correction data                                      | 00              |             |
| 2F      | CLPFLG            | Digital clamp mode setting                                      | 03              | 03          |
| 30      | ADMIN             | Offset minimum value setting                                    | 50              | 50          |
| 31      | C SHIFT           | C shift amount setting                                          | 02              | 02          |
| 32      | Y SHIFT           | Y shift amount setting                                          | 02              | 02          |
| 33      | LOWLIGHT START2   | Low illuminance REF level modulation start setting 2            | 44              | 44          |
| 34      | LOWLIGHT CS       | Low illuminance color erasure setting                           | 00              | 00          |
| 35      | LOWLIGHT LEVEL    | Low illuminance S/N correction point setting                    | 61              | 61          |
| 36      | DEFECT DELAY      | CCD imager correction pulse delay setting                       | 00              | 00          |
| 37      | APCN E ZOOM       | Not used                                                        | 00              | 00          |
| 38      | RG3200H           | 3200k Red/Green reference data H                                | 30              |             |
| 39      | RG3200L           | 3200k Red/Green reference data L                                | 00              |             |
| 3A      | BG3200H           | 3200k Blue/Green reference data H                               | 58              |             |
| 3B      | BG3200L           | 3200k Blue/Green reference data L                               | 00              |             |
| 3C      | SPEED S           | Indoor/Outdoor determination (short)                            | 20              | 20          |
| 3D      | SPEED L           | Indoor/Outdoor determination (long)                             | 20              | 20          |
| 3E      | 3200 OFFSET       | Pre white offset                                                | 12              | 12          |
| 3F      | TRAN SPEED        | Speed of pursur high speed for changing a source of light       | 02              | 02          |
| 40      | NORM R            | R regular correction coefficient, reference 80h                 | 88              |             |
| 41      | NORM B            | B regular correction coefficient, reference 80h                 | 60              |             |
| 42      | INDOOR S          | Indoor determination shutter data                               | 00              | 00          |
| 43      | OUTDOOR S         | Outdoor determination shutter data                              | 00              | 00          |
| 44      | IRIS IN           | Indoor determination hall data                                  | 36              |             |
| 45      | IRIS OUT          | Outdoor determination hall data                                 | 3C              |             |

Table 7-2 (2).

| Address | Name                | Function<br>[ ] contains the adjustment voltage output terminal                                                                                                                                                     | Adjustment data |             |    |        |    |                     |    |                  |    |    |
|---------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|----|--------|----|---------------------|----|------------------|----|----|
|         |                     |                                                                                                                                                                                                                     | Initial value   | Memo column |    |        |    |                     |    |                  |    |    |
| 46      | G LEVEL             | High luminance Green integral level                                                                                                                                                                                 | 02              | 02          |    |        |    |                     |    |                  |    |    |
| 47      | G WIDTH             | High luminance Green integral level range                                                                                                                                                                           | 03              | 03          |    |        |    |                     |    |                  |    |    |
| 48      | MAT HUE             | Variable linear matrix HUE coefficient                                                                                                                                                                              | 00              | 00          |    |        |    |                     |    |                  |    |    |
| 49      | MAT GAIN            | Variable linear matrix GAIN coefficient                                                                                                                                                                             | 00              | 00          |    |        |    |                     |    |                  |    |    |
| 4A      | ADJ RCONT           | Direct output value (RED)                                                                                                                                                                                           | 35              | 35          |    |        |    |                     |    |                  |    |    |
| 4B      | B DIFFERENCE        | Reference difference from outdoor fixed value                                                                                                                                                                       | 0A              | 0A          |    |        |    |                     |    |                  |    |    |
| 4C      | BOTTOM SLP R        | Slant R coefficient of drawing frame bottom                                                                                                                                                                         | 48              | 48          |    |        |    |                     |    |                  |    |    |
| 4D      | BOTTOM SLP B        | Slant B coefficient of drawing frame bottom                                                                                                                                                                         | 78              | 78          |    |        |    |                     |    |                  |    |    |
| 4E      | MIDDLE SLP R        | Slant R coefficient of drawing frame middle                                                                                                                                                                         | 60              | 60          |    |        |    |                     |    |                  |    |    |
| 4F      | MIDDLE SLP B        | Slant B coefficient of drawing frame middle                                                                                                                                                                         | 40              | 40          |    |        |    |                     |    |                  |    |    |
| 50      | TOP SLP R           | Slant R coefficient of drawing frame top                                                                                                                                                                            | 66              | 66          |    |        |    |                     |    |                  |    |    |
| 51      | TOP SLP B           | Slant B coefficient of drawing frame top                                                                                                                                                                            | 18              | 18          |    |        |    |                     |    |                  |    |    |
| 52      | KEIKO R             | Slant R coefficient of drawing frame fluorescent lamp                                                                                                                                                               | 66              | 66          |    |        |    |                     |    |                  |    |    |
| 53      | KEIKO B             | Slant B coefficient of drawing frame fluorescent lamp                                                                                                                                                               | 18              | 18          |    |        |    |                     |    |                  |    |    |
| 54      | BOTTOM UP           | Upper value of drawing frame bottom                                                                                                                                                                                 | C2              | C2          |    |        |    |                     |    |                  |    |    |
| 55      | BOTTOM DWN          | Lower value of drawing frame bottom                                                                                                                                                                                 | 8C              | 8C          |    |        |    |                     |    |                  |    |    |
| 56      | MIDDLE UP           | Upper value of drawing frame middle                                                                                                                                                                                 | AD              | AD          |    |        |    |                     |    |                  |    |    |
| 57      | MIDDLE DWN          | Lower value of drawing frame middle                                                                                                                                                                                 | 96              | 96          |    |        |    |                     |    |                  |    |    |
| 58      | TOP UP              | Upper value of drawing frame top                                                                                                                                                                                    | 78              | 78          |    |        |    |                     |    |                  |    |    |
| 59      | TOP DWN             | Lower value of drawing frame top                                                                                                                                                                                    | 60              | 60          |    |        |    |                     |    |                  |    |    |
| 5A      | KEIKO               | Lower value of output frame fluorescent lamp output                                                                                                                                                                 | 66              | 66          |    |        |    |                     |    |                  |    |    |
| 5B      | KEIKO DWN           | Lower value of drawing frame fluorescent lamp                                                                                                                                                                       | 59              | 59          |    |        |    |                     |    |                  |    |    |
| 5C      | R TOP LMT           | Upper value of drawing frame R                                                                                                                                                                                      | 6E              | 6E          |    |        |    |                     |    |                  |    |    |
| 5D      | R DWN LMT           | Lower value of drawing frame R                                                                                                                                                                                      | 20              | 20          |    |        |    |                     |    |                  |    |    |
| 5E      | B TOP LMT           | Upper value of drawing frame B                                                                                                                                                                                      | 83              | 83          |    |        |    |                     |    |                  |    |    |
| 5F      | B IN TOP            | Upper value of INDOOR drawing frame B                                                                                                                                                                               | 67              | 67          |    |        |    |                     |    |                  |    |    |
| 60      | B IN MAX            | Upper value of INDOOR output frame B                                                                                                                                                                                | 5C              | 5C          |    |        |    |                     |    |                  |    |    |
| 61      | B OUT MIN           | Lower value of OUTDOOR output frame B                                                                                                                                                                               | 5C              | 5C          |    |        |    |                     |    |                  |    |    |
| 62      | B OUT DWN           | Lower value of OUTDOOR drawing frame B                                                                                                                                                                              | 4A              | 4A          |    |        |    |                     |    |                  |    |    |
| 63      | B DWN LMT           | Lower value of drawing frame B                                                                                                                                                                                      | 1B              | 1B          |    |        |    |                     |    |                  |    |    |
| 64      | ADJ BCONT           | Direct output value (BLUE)                                                                                                                                                                                          | 50              | 50          |    |        |    |                     |    |                  |    |    |
| 65      | T M DIVID           | Border between top and middle of drawing frame                                                                                                                                                                      | 5E              | 5E          |    |        |    |                     |    |                  |    |    |
| 66      | B M DIVID           | Border between middle and bottom of drawing frame                                                                                                                                                                   | 39              | 39          |    |        |    |                     |    |                  |    |    |
| 67      | DELAY TIME          | Auto white balance tracking speed<br><table><tr><td>Data</td><td>Mode.</td></tr><tr><td>0A</td><td>Normal</td></tr><tr><td>01</td><td>High speed tracking</td></tr></table>                                         | Data            | Mode.       | 0A | Normal | 01 | High speed tracking | 0A | 0A               |    |    |
| Data    | Mode.               |                                                                                                                                                                                                                     |                 |             |    |        |    |                     |    |                  |    |    |
| 0A      | Normal              |                                                                                                                                                                                                                     |                 |             |    |        |    |                     |    |                  |    |    |
| 01      | High speed tracking |                                                                                                                                                                                                                     |                 |             |    |        |    |                     |    |                  |    |    |
| 68      | B IN MIN            | INDOOR output frame B bottom                                                                                                                                                                                        | 33              | 33          |    |        |    |                     |    |                  |    |    |
| 69      | OUT HYS OFF         | OUTDOOR hysteresis off difference                                                                                                                                                                                   | 0C              | 0C          |    |        |    |                     |    |                  |    |    |
| 6A      | OUT B HYS           | OUTDOOR hysteresis amount                                                                                                                                                                                           | 06              | 06          |    |        |    |                     |    |                  |    |    |
| 6B      | AWB MODE            | Auto white balance adjustment mode<br><table><tr><td>Data</td><td>Mode</td></tr><tr><td>00</td><td>Normal</td></tr><tr><td>D0</td><td>AWB adjustment</td></tr><tr><td>F1</td><td>AWB all tracking</td></tr></table> | Data            | Mode        | 00 | Normal | D0 | AWB adjustment      | F1 | AWB all tracking | 00 | 00 |
| Data    | Mode                |                                                                                                                                                                                                                     |                 |             |    |        |    |                     |    |                  |    |    |
| 00      | Normal              |                                                                                                                                                                                                                     |                 |             |    |        |    |                     |    |                  |    |    |
| D0      | AWB adjustment      |                                                                                                                                                                                                                     |                 |             |    |        |    |                     |    |                  |    |    |
| F1      | AWB all tracking    |                                                                                                                                                                                                                     |                 |             |    |        |    |                     |    |                  |    |    |

Table 7-2 (3).

| Address | Name          | Function<br>[ ] contains the adjustment voltage output terminal | Adjustment data |             |
|---------|---------------|-----------------------------------------------------------------|-----------------|-------------|
|         |               |                                                                 | Initial value   | Memo column |
| 6C      | IN B HYS      | Indoor hysteresis amount (Blue)                                 | 04              | 04          |
| 6D      | IN R HYS      | Indoor hysteresis amount (Red)                                  | 02              | 02          |
| 6E      | KAKE NORM R   | ADD : 40 NORM R $\times$ 1000H                                  | 20              | 20          |
| 6F      | KAKE NORM B   | ADD : 41 NORM B $\times$ 1000H                                  | 40              | 40          |
| 70      | AE FUNCTION 1 | Switch for turning each AE function ON and OFF (1)              | 02              | 02          |
| 71      | AE FUNCTION 2 | Switch for turning each AE function ON and OFF (2)              | 10              | 10          |
| 72      | AE REF H      | Reference value for AE (Upper)                                  | 1B              | 1B          |
| 73      | HIGHLIT LEVEL | High luminance modulation level setting                         | 50              | 50          |
| 74      | AE MIN L      | MAX GAIN adjustment                                             | 2F              |             |
| 75      | AGC MIN       | AGC MIN value (AGC reference value)                             | D4              | D4          |
| 76      | IRIS MIN H    | Iris limit value (Upper)                                        | 40              | 40          |
| 77      | AE MAX        | AE level max limiter                                            | A0              | A0          |
| 78      | YAKEI LEVEL   | YAKEI mode AGC max limiter                                      | 40              | 40          |
| 79      | JITEISU DOWN  | Constant during loop response DOWN side                         | 28              | 28          |
| 7A      | JITEISU UP    | Constant during loop response UP side                           | 0D              | 0D          |
| 7B      | ORETEN SET    | Variable point due to time constant error amount                | 13              | 13          |
| 7C      | OMOMIWAKU 0   | Weighting by changing to three frames (Upper frame)             | 40              | 40          |
| 7D      | OMOMIWAKU 1   | Weighting by changing to three frames (Surrounding frame)       | FF              | FF          |
| 7E      | AFC WIDE      | Coefficient required for the ANF integral loop                  | 03              | 03          |
| 7F      | AFC GAIN      | Loop gain of the flicker less loop                              | 01              | 01          |
| 80      | AFC LIMIL     | Limiter corresponding to the error rate (Lower)                 | 60              | 60          |
| 81      | DELTA GAIN    | Gain smoothing value                                            | 08              | 08          |
| 82      | ZOOM DROP 1   | F-No. dropping (1) by Zoom lens                                 | AE              | AE          |
| 83      | ZOOM DROP 2   | F-No. dropping (2) by Zoom lens                                 | 41              | 41          |
| 84      | HIST P KEISU  | Histocomp level setting P for counter light determination       | 40              | 40          |
| 85      | HIST H KEISU  | Histocomp level setting H for counter light determination       | E0              | E0          |
| 86      | HIST L KEISU  | Histocomp level setting L for counter light determination       | 90              | 90          |
| 87      | FUZZY JITEISU | Constant during auto back light response                        | 08              | 08          |
| 88      | BAIRITSU P    | Magnification setting of required for HIST P                    | 80              | 80          |
| 89      | FUZZY DATA 1  | Exposure correction data 1                                      | 90              | 90          |
| 8A      | FUZZY DATA 2  | Exposure correction data 2                                      | C0              | C0          |
| 8B      | FUZZY DATA 3  | Exposure correction data 3                                      | B0              | B0          |
| 8C      | FUZZY DATA 4  | Exposure correction data 4                                      | A0              | A0          |
| 8D      | FUZZY DATA 5  | Exposure correction data 5                                      | 80              | 80          |
| 8E      | FUZZY DATA 6  | Exposure correction data 6                                      | A0              | A0          |
| 8F      | FUZZY DATA 7  | Exposure correction data 7                                      | 98              | 98          |
| 90      | FUZZY DATA 8  | Exposure correction data 8                                      | 90              | 90          |
| 91      | FUZZY DATA 9  | Exposure correction data 9                                      | 60              | 60          |
| 92      | FUZZY DATA 10 | Exposure correction data 10                                     | 40              | 40          |
| 93      | HIGHLIT START | Setting of high luminance modulation start                      | 58              | 58          |
| 94      | HIGHLIT END   | Setting of high luminance modulation stop                       | 88              | 88          |
| 95      | IRIS OFFSET   | Iris ROM table open side offset                                 | 28              | 28          |
| 96      | IRIS PWM BIAS | Adjusting for IRIS PWM BIAS                                     | F8              | F8          |
| 97      | AGC AMP BIAS  | Adjusting for AGC AMP BIAS                                      | FE              | FE          |

Table 7-2 (4).

| Address | Name                | Function<br><br>[ ] contains the adjustment voltage output terminal                                                                                                    | Adjustment data |             |    |        |    |                     |    |    |
|---------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|----|--------|----|---------------------|----|----|
|         |                     |                                                                                                                                                                        | Initial value   | Memo column |    |        |    |                     |    |    |
| 98      | WIDE H              | Zoom wide end upper                                                                                                                                                    | 03              |             |    |        |    |                     |    |    |
| 99      | WIDE L              | Zoom wide end lower                                                                                                                                                    | 26              |             |    |        |    |                     |    |    |
| 9A      | TELE H              | Zoom tele end upper                                                                                                                                                    | 1C              |             |    |        |    |                     |    |    |
| 9B      | TELE L              | Zoom tele end lower                                                                                                                                                    | B5              |             |    |        |    |                     |    |    |
| 9C      | FOCUS H             | Focus offset upper                                                                                                                                                     | 11              |             |    |        |    |                     |    |    |
| 9D      | FOCUS L             | Focus offset lower                                                                                                                                                     | 03              |             |    |        |    |                     |    |    |
| 9E      | ZM HYS              | Zoom speed hysteresis                                                                                                                                                  | 00              | 00          |    |        |    |                     |    |    |
| 9F      | ADJ LENZ            |                                                                                                                                                                        | 00              | 00          |    |        |    |                     |    |    |
| A0      | REST WIDE           | Zoom limiter WIDE side                                                                                                                                                 | 20              | 20          |    |        |    |                     |    |    |
| A1      | REST TELE           | Zoom limiter TELE side                                                                                                                                                 | 10              | 10          |    |        |    |                     |    |    |
| A2      | NEAR LIM            | Focus near limit                                                                                                                                                       | 80              | 80          |    |        |    |                     |    |    |
| A3      | LANC ZM SPD         | Lanc zoom speed                                                                                                                                                        | F0              | F0          |    |        |    |                     |    |    |
| A4      | VAR ZM SPD H        | Variable zoom speed                                                                                                                                                    | EA              | EA          |    |        |    |                     |    |    |
| A5      | VAR ZM SPD L        | Variable zoom speed                                                                                                                                                    | A8              | A8          |    |        |    |                     |    |    |
| A6      | STOP DEAD ZONE      | Dead zone amount for the absolute value control                                                                                                                        | 04              | 04          |    |        |    |                     |    |    |
| A7      | ZM SPD LMT          | Zoom speed (Limit)                                                                                                                                                     | 0B              | 0B          |    |        |    |                     |    |    |
| A8      | ZM SPD MAX          | Zoom speed (Maximum)                                                                                                                                                   | 38              | 38          |    |        |    |                     |    |    |
| A9      | ZM MOTOR STOP       | Zoom motor stop                                                                                                                                                        | 15              | 15          |    |        |    |                     |    |    |
| AA      | PULSE SPD MAX       | Maximum zoom pulse value                                                                                                                                               | 09              | 09          |    |        |    |                     |    |    |
| AB      | ADJ0                | For adjusting (ZOOM OFF MODE)<br><table><tr><td>Data</td><td>Mode</td></tr><tr><td>FB</td><td>Normal</td></tr><tr><td>01</td><td>Zoom position fixed</td></tr></table> | Data            | Mode        | FB | Normal | 01 | Zoom position fixed | FB | FB |
| Data    | Mode                |                                                                                                                                                                        |                 |             |    |        |    |                     |    |    |
| FB      | Normal              |                                                                                                                                                                        |                 |             |    |        |    |                     |    |    |
| 01      | Zoom position fixed |                                                                                                                                                                        |                 |             |    |        |    |                     |    |    |
| AC      | ADJ1                | For adjusting (WND A)                                                                                                                                                  | 1E              | 1E          |    |        |    |                     |    |    |
| AD      | ADJ2                | For adjusting (WND B)                                                                                                                                                  | 5A              | 5A          |    |        |    |                     |    |    |
| AE      | ADJ3                | For adjusting                                                                                                                                                          | 00              | 00          |    |        |    |                     |    |    |
| AF      | AF0                 | Noise threshold                                                                                                                                                        | 55              | 55          |    |        |    |                     |    |    |
| B0      | AF ID               | AF ID for testing                                                                                                                                                      | 00              | 00          |    |        |    |                     |    |    |
| B1      | AF WIND             | AF frame for testing                                                                                                                                                   | 00              | 00          |    |        |    |                     |    |    |
| B2      | HBG REF             | High luminance gate level                                                                                                                                              | FA              | FA          |    |        |    |                     |    |    |
| B3      | AGC REF 1           | AGC gain 1                                                                                                                                                             | 04              | 04          |    |        |    |                     |    |    |
| B4      | AGC REF 2           | AGC gain 2                                                                                                                                                             | 05              | 05          |    |        |    |                     |    |    |
| B5      | AGC REF 3           | AGC gain 3                                                                                                                                                             | 12              | 12          |    |        |    |                     |    |    |
| B6      | HOLE REF 1          | Hole data close                                                                                                                                                        | A5              | A5          |    |        |    |                     |    |    |
| B7      | HOLE REF 2          | Hole data middle                                                                                                                                                       | 96              | 96          |    |        |    |                     |    |    |
| B8      | HOLE REF 3          | Hole data open                                                                                                                                                         | 76              | 76          |    |        |    |                     |    |    |
| B9      | IIR K               | IIR filter coefficient                                                                                                                                                 | 03              | 03          |    |        |    |                     |    |    |
| BA      | B NOISE             | Base noise level                                                                                                                                                       | 30              | 30          |    |        |    |                     |    |    |
| BB      | GATE THR            | Noise threshold                                                                                                                                                        | 55              | 55          |    |        |    |                     |    |    |
| BC      | HB THR              | High luminance threshold (HB)                                                                                                                                          | 80              | 80          |    |        |    |                     |    |    |
| BD      | HBFH THR            | High luminance threshold (fh)                                                                                                                                          | 40              | 40          |    |        |    |                     |    |    |
| BE      | TEST WOB            | Wobbling amplitude for testing                                                                                                                                         | FF              | FF          |    |        |    |                     |    |    |
| BF      | WOB LIMIT           | Wobbling amplitude limit                                                                                                                                               | 06              | 06          |    |        |    |                     |    |    |

Table 7-2 (5).

| Address | Name            | Function<br>[ ] contains the adjustment voltage output terminal | Adjustment data |             |
|---------|-----------------|-----------------------------------------------------------------|-----------------|-------------|
|         |                 |                                                                 | Initial value   | Memo column |
| C0      | SHIND THR       | Depth of focus THR                                              | 0C              | 0C          |
| C1      | SPD UP 0        | Speed up value (No. -1)                                         | 01              | 01          |
| C2      | SPD UP 1        | Speed up value (No. -2)                                         | 01              | 01          |
| C3      | WOB DET SW      | Wobbling detect filter switch                                   | 00              | 00          |
| C4      | STEP LIM        | Speed limit value                                               | 0A              | 0A          |
| C5      | YAMA SW         | Climbing switch                                                 | 00              | 00          |
| C6      | SPD THR         | Speed THR                                                       | 06              | 06          |
| C7      | YAMA THR        | Climbing THR                                                    | 50              | 50          |
| C8      | AF SPD          | Speed offset                                                    | 01              | 01          |
| C9      | TEST SPD        | Speed for testing                                               | FF              | FF          |
| CA      | WOB AMP         | Wobbling amplitude offset                                       | 02              | 02          |
| CB      | MODE SW         | Test mode switching                                             | FF              | FF          |
| CC      | SPD OFFSET 1    | Speed offset up value 1                                         | 01              | 01          |
| CD      | SPD OFFSET 2    | Speed offset up value 2                                         | 01              | 01          |
| CE      | AF FADE SW      | Fader AF mode                                                   | 01              | 01          |
| CF      | IRIS THR        |                                                                 | 00              | 00          |
| D0      | V SENSOR GAIN   | PITCH adjustment gain                                           | 88              | 88          |
| D1      | H SENSOR GAIN   | YAW adjustment gain                                             | 64              | 64          |
| D2      |                 | Not used                                                        | 00              | 00          |
| D3      | V LIMIT 1       | PITCH initial limiter                                           | FF              | FF          |
| D4      | V LIMIT 2       | Loop limiter in PITCH integral                                  | 7F              | 7F          |
| D5      | V CORE VALUE    | PITCH core ring                                                 | 10              | 10          |
| D6      | VK HPF          | PITCH HPF feedback coefficient                                  | FF              | FF          |
| D7      | H LIMIT 1       | YAW initial limiter                                             | FF              | FF          |
| D8      | H LIMIT 2       | Loop limiter in YAW integral                                    | 7F              | 7F          |
| D9      | H CORE VALUE    | YAW core ring                                                   | 10              | 10          |
| DA      | H K HPF         | YAW HPF feedback coefficient                                    | FF              | FF          |
| DB      | K TABLE         | PITCH and YAW integral feedback coefficient table               | 04              | 04          |
| DC      | V REF CENTER L  | PITCH PWM center value (lower 8 bit)                            | 00              | 00          |
| DD      | V REF CENTER H  | PITCH PWM center value (upper 8 bit)                            | 08              | 08          |
| DE      | H REF CENTER L  | YAW PWM center value (lower 8 bit)                              | 00              | 00          |
| DF      | H REF CENTER H  | YAW PWM center value (upper 8 bit)                              | 08              | 08          |
| E0      | STILL THR       | Discrimination poin due to still and deflation                  | 80              | 80          |
| E1      | V CORE STILL    | Still core ring value (Vertical)                                | 40              | 40          |
| E2      | H CORE STILL    | Still core ring balue (Horizontal)                              | 40              | 40          |
| E3      |                 | Not used                                                        | 00              | 00          |
| E4      |                 |                                                                 | 00              | 00          |
| E5      |                 |                                                                 | 00              | 00          |
| E6      |                 |                                                                 | 00              | 00          |
| E7      |                 |                                                                 | 00              | 00          |
| E8      | PRE YL R-Y DATA | Hue a difference data of yellow (Red-Yellow)                    | 00              |             |
| E9      | PRE YL B-Y DATA | Hue a difference data of yellow (Blue-Yellow)                   | 00              |             |
| EA      | PRE R R-Y DATA  | Hue a difference data of Red (Red-Yellow)                       | 00              |             |
| EB      | PRE R B-Y DATA  | Hue a difference data of Red (Blue-Yellow)                      | 00              |             |
| EC      | BL R-Y DATA     | Hue a difference data of Blue (Red-Yellow)                      | 00              |             |

Table 7-2 (6).

| Address | Name        | Function<br>[ ] contains the adjustment voltage output terminal           | Adjustment data |             |
|---------|-------------|---------------------------------------------------------------------------|-----------------|-------------|
|         |             |                                                                           | Initial value   | Memo column |
| ED      | BL B-Y DATA | Hue a difference data of Blue (Blue-Yellow)                               | 00              |             |
| EE      | CY R-Y DATA | Hue a difference data of Cyan (Red-Yellow)                                | 00              |             |
| EF      | CY B-Y DATA | Hue a difference data of Cyan (Blue-Yellow)                               | 00              |             |
| F0      |             | Column for inputting unit's ID No, etc. Not related to unit's operations. | FF              |             |
| F1      |             |                                                                           | FF              |             |
| F2      |             |                                                                           | FF              |             |
| F3      |             |                                                                           | FF              |             |
| F4      |             |                                                                           | FF              |             |
| F5      |             |                                                                           | FF              |             |
| F6      |             |                                                                           | FF              |             |
| F7      |             |                                                                           | FF              |             |
| F8      |             |                                                                           | FF              |             |
| F9      |             |                                                                           | FF              |             |
| FA      |             |                                                                           | FF              |             |
| FB      |             |                                                                           | FF              |             |
| FC      |             |                                                                           | FF              |             |
| FD      |             |                                                                           | FF              |             |
| FE      |             |                                                                           | FF              |             |
| FF      |             |                                                                           | FF              |             |

Table 7-2 (7).

7-1-6. Page 6, Page 2 Address List

The camera adjustment mode can be set by setting the data in the following table to page 6 or 2. (The data of these pages can be set temporarily. When the main power supply (7.5V) is turned off, the original values (normal value) are returned. Therefore, these adjustment modes can be released easily by turning off the main power supply.)

(Example) By setting data: 01 to page:6, address: 00, the write protect of page F, addresses 01 to EF can be released.

1. Page 6

| Address | Adjustment Mode                                                                                                                                                                       | Data | Function                                                               |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------|
| 00      | Page F protect                                                                                                                                                                        | 00   | Normal (Protect released)                                              |
|         |                                                                                                                                                                                       | 01   | Protect release of address 01 to EF of Page F                          |
| 01      | Camera adjustment switch<br><b>Note:</b> To execute this address adjustment mode, it is necessary to press the PAUSE button of the adjusting remote commander after setting the data. | 00   | Normal                                                                 |
|         |                                                                                                                                                                                       | 01   | IRIS OPEN, AGC HOLD                                                    |
|         |                                                                                                                                                                                       | 03   | IRIS CLOSE1, AGC HOLD                                                  |
|         |                                                                                                                                                                                       | 09   | ND0.5 SHUTTER (PAL=1/160, NTSC=1/190)                                  |
|         |                                                                                                                                                                                       | 0B   | ND0.8 SHUTTER (PAL=1/320, NTSC=1/380)                                  |
|         |                                                                                                                                                                                       | 0D   | AWB PRESET1: 3200K PRESET DATA input                                   |
|         |                                                                                                                                                                                       | 0F   | WB 3200K PRESET: Indoor white balance mode                             |
|         |                                                                                                                                                                                       | 11   | AWB PRESET2: 3200K PRESET DATA input preparations                      |
|         |                                                                                                                                                                                       | 13   | Flange back adjustment preparations                                    |
|         |                                                                                                                                                                                       | 15   | Flange back adjustment execution                                       |
|         |                                                                                                                                                                                       | 17   | 1/2000 shutter mode                                                    |
|         |                                                                                                                                                                                       | 19   | MAX GAIN adjustment mode                                               |
| 02      | DDS display switching                                                                                                                                                                 | 2D   | EEPROM PRE WRITE: Page F, page E initial data writing                  |
|         |                                                                                                                                                                                       | 00   | Normal                                                                 |
|         |                                                                                                                                                                                       | 02   | Color difference data display                                          |
|         |                                                                                                                                                                                       | 03   | HALL DATA display                                                      |
|         |                                                                                                                                                                                       | 04   | R ratio display                                                        |
|         |                                                                                                                                                                                       | 05   | B ratio display                                                        |
| 03      | Weighting on/off                                                                                                                                                                      | 0C   | Auto focusing display (01: Focusing, 00: Not focusing)                 |
|         |                                                                                                                                                                                       | 0E   | Light level display                                                    |
|         |                                                                                                                                                                                       | 00   | Weighting off                                                          |
| 10      | Camera control microprocessor version                                                                                                                                                 | 10   | Normal (Weighting on)                                                  |
|         |                                                                                                                                                                                       | 20   | Version 1 (SC424602FU : VC-132 board IC653)<br>Version 2 (SC424605FU5) |
| 11      | Page F data initialization completed display                                                                                                                                          | 00   | Version 1 (SC424602FU : VC-132 board IC653)                            |
|         |                                                                                                                                                                                       | 01   | Version 2 (SC424605FU5)                                                |
| 12      | Shutter mode                                                                                                                                                                          | 00   | Normal (Data can be initialized)                                       |
|         |                                                                                                                                                                                       | 01   | Data initialized                                                       |
| 21      | Flange back adjustment completed display                                                                                                                                              | 00   | Normal                                                                 |
|         |                                                                                                                                                                                       | 19   | Normal (Flange back adjustable)<br>Flange back adjusted                |
| 30      | VAP control microprocessor version                                                                                                                                                    | 10   | 1/4000 shutter mode                                                    |
|         |                                                                                                                                                                                       |      | Normal (Flange back adjustable)<br>Flange back adjusted                |
|         |                                                                                                                                                                                       | 10   | Version 1 (CXP80620A-020R : VC-132 board IC745)                        |

Table 7-3.

2. Page 2

| Category | Address | Adjustment Mode                      | Data   | Function                                         |
|----------|---------|--------------------------------------|--------|--------------------------------------------------|
| 01       | 37      | VH address L                         |        | Title horizontal/vertical position (L)           |
| 01       | 38      | VH address H                         |        | Title horizontal/vertical position (H)           |
| 01       | 39      | Data transmission to SG              | 00     | Normal                                           |
|          |         |                                      | 01     | Data transmission to SG begins                   |
| 01       | 3D      | Character generator oscillation mode | 01     | Continuous oscillation mode                      |
|          |         |                                      | others | Normal                                           |
| EF       | E3      | Mode control microprocessor version  | 01     | Version 1 (MB89092PFV-G-128: VC-132 board IC902) |

**Note:** The category is specified by the data of page 2, address 00.  
(Example) To specify category 01, adjust to 01 the data of page 2, address 00.

Table 7-4.

7-1-7. Data Processing

For some adjustments, the DDS display and the display data of the adjusting remote commander (hexadecimal numeral) must be calculated in order to obtain the adjustment data. In this case, after converting the hexadecimal numeral to a decimals numeral

once, calculate and convert the result to a hexadecimal numeral, and use it as the adjustment data. Table 7-5 is the hexadecimal-decimal calculation table.

Hexadecimal-Decimal Conversion Table

| The lower digits of the hexadecimal<br>The upper digits of the hexadecimal | The upper digits of the hexadecimal |     |     |     |     |     |     |     |     |     |       |       |       |       |       |       |
|----------------------------------------------------------------------------|-------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|-------|
|                                                                            | 0                                   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | A (A) | B (B) | C (C) | D (D) | E (E) | F (F) |
| 0                                                                          | 0                                   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10    | 11    | 12    | 13    | 14    | 15    |
| 1                                                                          | 16                                  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26    | 27    | 28    | 29    | 30    | 31    |
| 2                                                                          | 32                                  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42    | 43    | 44    | 45    | 46    | 47    |
| 3                                                                          | 48                                  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58    | 59    | 60    | 61    | 62    | 63    |
| 4                                                                          | 64                                  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74    | 75    | 76    | 77    | 78    | 79    |
| 5                                                                          | 80                                  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90    | 91    | 92    | 93    | 94    | 95    |
| 6                                                                          | 96                                  | 97  | 98  | 99  | 100 | 101 | 102 | 103 | 104 | 105 | 106   | 107   | 108   | 109   | 110   | 111   |
| 7                                                                          | 112                                 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122   | 123   | 124   | 125   | 126   | 127   |
| 8                                                                          | 128                                 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138   | 139   | 140   | 141   | 142   | 143   |
| 9                                                                          | 144                                 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154   | 155   | 156   | 157   | 158   | 159   |
| A (A)                                                                      | 160                                 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170   | 171   | 172   | 173   | 174   | 175   |
| B (B)                                                                      | 176                                 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186   | 187   | 188   | 189   | 190   | 191   |
| C (C)                                                                      | 192                                 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202   | 203   | 204   | 205   | 206   | 207   |
| D (D)                                                                      | 208                                 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218   | 219   | 220   | 221   | 222   | 223   |
| E (E)                                                                      | 224                                 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234   | 235   | 236   | 237   | 238   | 239   |
| F (F)                                                                      | 240                                 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250   | 251   | 252   | 253   | 254   | 255   |

**Note:** ( ) contains the display of the adjusting remote commander.

(Example) When the DDS display or the display of adjusting remote commander is BD (B D).  
As the upper digit of the hexadecimal numeral is B (B), and the lower digit is D (D), the meeting point "189" of ① and ② in the above table is the decimal numeral to be calculated.

Table 7-5.



7-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjusting points when replacing main parts

When replacing the CCD imager or lens block, adjust the items indicated by ○ in the following table.

|                                                       | When CCD imager<br>is replaced | When lens block<br>is replaced |
|-------------------------------------------------------|--------------------------------|--------------------------------|
| V SUB adjustment                                      | ○                              |                                |
| V RG adjustment                                       | ○                              |                                |
| HALL adjustment                                       |                                | ○                              |
| CCD imager correction<br>data writing                 | ○                              |                                |
| Flange back adjustment                                | ○                              | ○                              |
| IRIS IN/OUT adjustment                                | ○                              | ○                              |
| MAX GAIN adjustment                                   | ○                              |                                |
| Auto white balance<br>balance reference data<br>input | ○                              |                                |
| Auto white balance<br>adjustment                      | ○                              |                                |
| Color reproductivity<br>adjustment                    | ○                              |                                |
| Linear matrix<br>adjustment                           | ○                              |                                |

2. Power supply voltage check (DD-55 board)

|                      |                       |
|----------------------|-----------------------|
| Subject              | Arbitrary             |
| Measuring instrument | Digital voltmeter     |
| D5V check            |                       |
| Measurement point    | Pins ⑤ and ⑥ of CN451 |
| Specified value      | 4.89 ± 0.15 Vdc       |
| D4V check            |                       |
| Measurement point    | Pin ③ of CN451        |
| Specified value      | 3.80 ± 0.15 Vdc       |
| CAM 5V check         |                       |
| Measurement point    | Pin ① of CN451        |
| Specified value      | 4.90 ± 0.15 Vdc       |
| 15V check            |                       |
| Measurement point    | Pin ④ of CN451        |
| Specified value      | 15.0 ± 0.4 Vdc        |
| -8.5V check          |                       |
| Measurement point    | Pin ② of CN451        |
| Specified value      | -8.5 ± 0.5 Vdc        |

Checking Method:

- 1) Check that each power supply voltage satisfies the specified value.  
If not, refer to "Video circuit, Power supply block adjustment".

3. Page F data initialization

**Note:** If the page F data has been initialized, all adjustments of the camera section must be carried out again.

Initializing method:

| Order | Page | Address | Data | Procedure                                                                                                                       | Conditions |
|-------|------|---------|------|---------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     |      |         |      | Turn off/on the main power supply (7.5V)                                                                                        |            |
| 2     | 6    | 00      | 01   | <b>Releasing of protect.</b>                                                                                                    |            |
| 3     | 6    | 01      | 2D   | Press the PAUSE button.<br>( Initializing the page F data.<br>The data of addresses 01 to EF of page F will<br>be initalized. ) |            |
| 4     | 6    | 11      |      | Check that the data is 01.<br>(Display of data initialized.)                                                                    |            |

**Note:** Initialize page F only when the nonvolatile memory (VC-132 board IC641 EEPROM) has been replaced.

Processing after initializing

| Order | Page | Address | Data | Procedure                                                                                | Conditions |
|-------|------|---------|------|------------------------------------------------------------------------------------------|------------|
| 1     | 6    | 01      | 00   | Press the PAUSE button.<br>(Releasing of initialization mode)                            |            |
| 2     |      |         |      | After " Page F Data Modifications ", carry out all<br>adjustments of the camera section. |            |

Related Adjustments:

All camera adjustments of the camera section excluding " 28 MHz origin oscillation adjustment ".



4. Page F data modification

Some parts of the data (initial data) automatically written on page F by the initialization of the page F data will differ according to the version of the camera micro processor. Change the data manually, and arrange it.

Modification method:

| Order | Page | Address                | Data | Procedure                                                  | Conditions |
|-------|------|------------------------|------|------------------------------------------------------------|------------|
| 1     | 6    | 00                     | 01   | Releasing of page F protect.                               |            |
| 2     | F    | 00 (SET ID)            | 50   | Set each data to each address, and press the PAUSE button. |            |
|       |      | 08 (V REF Y)           | 6A   |                                                            |            |
|       |      | 09 (V REF C)           | 58   |                                                            |            |
|       |      | 18 (CORE Y SETUP)      | 01   |                                                            |            |
|       |      | 1C (CORE R Y3200 GAIN) | 5A   |                                                            |            |
|       |      | 1D (CORE B Y3200 GAIN) | 31   |                                                            |            |
|       |      | 1E (CS/APCN CUT)       | 23   |                                                            |            |
|       |      | 33 (LOWLIGHT START 2)  | 44   |                                                            |            |
|       |      | 34 (LOW LIGHT CS)      | 00   |                                                            |            |
|       |      | 35 (LOW LIGHT LEVEL)   | 61   |                                                            |            |
|       |      | C0 (SHIND THR)         | 60   |                                                            |            |
|       |      | C1 (SPD UP0)           | 01   |                                                            |            |
|       |      | C7 (YAMA THR)          | 50   |                                                            |            |
|       |      | CC (SPD OFF SET 1)     | 01   |                                                            |            |
|       |      | CD (SPD OFF SET 2)     | 01   |                                                            |            |

Remarks: The versions of the camera micro processor (VC-132 board IC653) and the VAP micro processor (VC-132 board IC745) can be distinguished using the following table.

• Camera control microprocessor

| Page | Address | Data |           |
|------|---------|------|-----------|
| 6    | 10      | 10   | Version 1 |
|      |         | 20   | Version 2 |

• VAP control microprocessor

| Page | Address | Data |           |
|------|---------|------|-----------|
| 6    | 30      | 10   | Version 1 |

5. 28 MHz origin oscillation adjustment (VC-132 board)

|                      |                     |
|----------------------|---------------------|
| Subject              | Not required        |
| Measurement Point    | Pin ② of IC602 (CL) |
| Measuring Instrument | Frequency counter   |
| Adjusting Element    | CT601               |
| Specified Value      | 14187500 ± 71 Hz    |

Adjusting method:

| Order | Adjusting element | Procedure                                                | Conditions |
|-------|-------------------|----------------------------------------------------------|------------|
| 1     | CT601             | Adjust the oscillation frequency to the specified value. |            |

6. V SUB adjustment (VC-132 board)

|                    |              |
|--------------------|--------------|
| Subject            | Not required |
| Adjustment Page    | F            |
| Adjustment Address | 06 (V SUB)   |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                       | Conditions |
|-------|------|---------|------|-------------------------------------------------------------------------------------------------|------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                                                           |            |
| 2     | F    | 06      |      | Reading a voltage code of V SUB indicated by CCD imager then input data of a table (Fig. 7-7.). |            |
| 3     | F    | 06      |      | Press the PAUSE button.                                                                         |            |

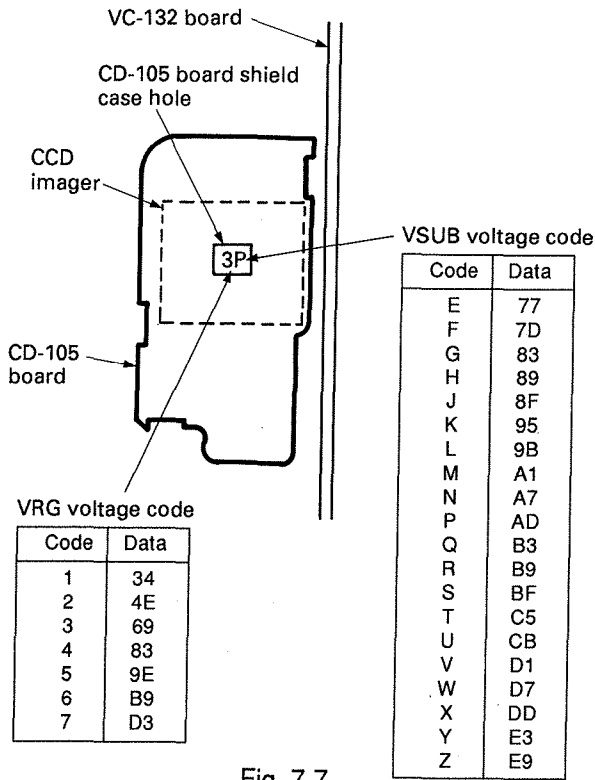


Fig. 7-7.

Related Adjustments:  
"MAX gain adjustment", "Auto white balance reference data input",  
"Auto white balance adjustment", "Color reproductivity adjustment".

7. VRG adjustment (VC-132 board)

|                    |              |
|--------------------|--------------|
| Subject            | Not required |
| Adjustment Page    | F            |
| Adjustment Address | 07 (V PGH)   |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                     | Conditions |
|-------|------|---------|------|-----------------------------------------------------------------------------------------------|------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                                                         |            |
| 2     | F    | 07      |      | Reading a voltage code of VRG indicated by CCD imager then input data of a table (Fig. 7-7.). |            |
| 3     | F    | 07      |      | Press the PAUSE button.                                                                       |            |

8. CCD imager correction data writing

|                    |                       |
|--------------------|-----------------------|
| Subject            | Not required          |
| Adjustment Page    | F                     |
| Adjustment Address | 1F to 2E (CCD-DEFECT) |

Write the CCD imager correction data in the following cases.

1. When the CCD imager has been replaced
2. When the camera EEPROM (VC-132 board IC641) has been replaced
3. When the page F data has been initialized

In the case of 1, as the CCD imager for repair does not require the correction data, adjust the data of addresses 1D to 2C of page F and those of addresses E0 to EF of page D to "00".

Writing method:

| Order | Page | Address | Data | Procedure                                                                          | Conditions |
|-------|------|---------|------|------------------------------------------------------------------------------------|------------|
| 1     | 6    | 00      | 01   | Releasing of page F protect.                                                       |            |
| 2     | F    | 1F~2E   |      | Set data 00 to each address, and press the PAUSE button.                           |            |
| 3     | 1    | 00      | 01   | Releasing of page D protect.                                                       |            |
| 4     | D    | E0~EF   |      | Set data 00 to each address, and press the PAUSE button. (Writing the backup data) |            |

In the case of 2 and 3, read the CCD imager correction data written on addresses E0 to EF in page D and write them in addresses 1F to 2E.

Writing method:

| Order | Page | Address                   | Data | Procedure                                                                                                                                                                                                                                                                             | Conditions |
|-------|------|---------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     | 6    | 00                        | 01   | Releasing of page F protect.                                                                                                                                                                                                                                                          |            |
| 2     | D    | E0~EF                     |      | Read the CCD imager correction data.                                                                                                                                                                                                                                                  |            |
| 3     | F    | 1F<br>20<br>21<br>⋮<br>2E |      | Set the data of address E0 of page D, and press the PAUSE button.<br>Set the data of address E1 of page D, and press the PAUSE button.<br>Set the data of address E2 of page D, and press the PAUSE button.<br>⋮<br>Set the data of address EF of page D, and press the PAUSE button. |            |

9. HALL adjustment

|                      |                                                         |
|----------------------|---------------------------------------------------------|
| Subject              | Not required                                            |
| Measurement Point    | DDS display of EVF or TV monitor                        |
| Measuring Instrument |                                                         |
| Adjustment Page      | F                                                       |
| Adjustment Address   | 0A (HALL GAIN)<br>0B (HALL OFFSET)                      |
| Specified Value      | 33 to 37 during IRIS OPEN<br>B7 to BB during IRIS CLOSE |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                                                                                                                                                 | Conditions      |
|-------|------|---------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                                                                                                                                                                                                     |                 |
| 2     | 6    | 02      | 03   | Set the HALL DATA display mode.                                                                                                                                                                                                           |                 |
| 3     | 6    | 01      | 03   | Press the PAUSE button.<br>(Setting the IRIS CLOSE mode)                                                                                                                                                                                  |                 |
| 4     | F    | 0B      | 80   | Press the PAUSE button.<br>(HALL OFFSET data initial setting)                                                                                                                                                                             |                 |
| 5     | F    | 0A      | 40   | Read the DDS display data (Note 1) and take it as W2.                                                                                                                                                                                     | IRIS CLOSE mode |
| 6     | F    | 0A      | 30   | Read the DDS display data and take it as W1.                                                                                                                                                                                              | IRIS CLOSE mode |
| 7     | 6    | 01      | 01   | Press the PAUSE button.<br>(Setting the IRIS OPEN mode)                                                                                                                                                                                   |                 |
| 8     | F    | 0A      | 30   | Read the DDS display data and take it as K1.                                                                                                                                                                                              | IRIS OPEN mode  |
| 9     | F    | 0A      | 40   | Read the DDS display data and take it as K2.                                                                                                                                                                                              | IRIS OPEN mode  |
| 10    |      |         |      | Convert W1, W2, K1, K2 to decimal numerals, and obtain W1', W2', K1', K2'. (Refer to Table 7-5. "Hexadecimal-Decimal Conversion Table")                                                                                                   |                 |
| 11    |      |         |      | Calculate X1' using the following equations<br>(Decimal calculation).<br>$A' = W2' + K1' - W1' - K2'$ ..... Equation 1<br>$B' = W1' - K1'$ ..... Equation 2<br>$X1' = \frac{2128 + (48 \times A') - (16 \times B')}{A'}$ ..... Equation 3 |                 |
| 12    |      |         |      | Convert X1' to a hexadecimal numeral, and obtain X1.<br>(Round off to a whole number)                                                                                                                                                     |                 |
| 13    | F    | 0A      |      | Set the data to X1 (obtained at step 12).                                                                                                                                                                                                 |                 |
| 14    | F    | 0A      |      | Press the PAUSE button.                                                                                                                                                                                                                   |                 |
| 15    | F    | 0B      |      | Change the data with the PLAY and STOP buttons, and adjust the DDS display data to 35.                                                                                                                                                    | IRIS OPEN mode  |
| 16    | F    | 0B      |      | Press the PAUSE button.                                                                                                                                                                                                                   |                 |
| 17    | 6    | 01      | 03   | Press the PAUSE button.<br>(Setting the IRIS CLOSE mode)                                                                                                                                                                                  |                 |
| 18    |      |         |      | If the DDS display data is B7 to BB, it indicates the end of adjustments. Perform "Processing after Adjustments". If not, carry out step 19 onwards with the DDS display data as W0.                                                      | IRIS CLOSE mode |

Note 1: Lower 2 digits of the data displayed at the bottom right of the EVF or TV monitor.

| Order | Page | Address | Data | Procedure                                                                                                                                                                                                                                                                       | Conditions      |
|-------|------|---------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 19    |      |         |      | Convert W0 to a decimal numeral, and obtain W0'.                                                                                                                                                                                                                                |                 |
| 20    |      |         |      | Calculate X2' using the following equations<br>(decimal numeral calculation).<br>$C' = W0' - B' - 53$ ..... Equation 4<br>$X2' = \frac{(133 - B') \times (X1' - 48) + 48 \times C'}{C'}$ ..... Equation 5<br>(X1' and B' are values obtained from equations 2 and 3 at step 11) |                 |
| 21    |      |         |      | Convert X2' to a hexadecimal numeral, and obtain X2.<br>(Round off to a whole number)                                                                                                                                                                                           |                 |
| 22    | F    | 0A      |      | Set the data to X2 (obtained at step 21).                                                                                                                                                                                                                                       |                 |
| 23    | F    | 0A      |      | Press the PAUSE button.                                                                                                                                                                                                                                                         |                 |
| 24    | F    | 0B      |      | Change the data with the PLAY and STOP buttons, and adjust the DDS display data to BA.                                                                                                                                                                                          | IRIS CLOSE mode |
| 25    | F    | 0B      |      | Press the PAUSE button.                                                                                                                                                                                                                                                         |                 |
| 26    | 6    | 01      | 01   | Press the PAUSE button.<br>(Setting the IRIS OPEN mode)                                                                                                                                                                                                                         |                 |
| 27    |      |         |      | Check that the DDS display data is 33 to 37.                                                                                                                                                                                                                                    | IRIS OPEN mode  |

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                       | Conditions |
|-------|------|---------|------|-----------------------------------------------------------------|------------|
| 1     | 6    | 02      | 00   | Releasing of HALL DATA display mode.                            |            |
| 2     | 6    | 01      | 00   | Press the PAUSE button.<br>(Releasing the IRIS CLOSE/OPEN mode) |            |

Related Adjustments:  
"IRIS IN/OUT adjustment".

# 10. Flange back adjustment

|                      |                                                                                                                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------|
| Subject              | Chart for flange back adjustment<br>Placed $2000 \pm 5$ mm in front of the lens<br>Illuminance: $300 \pm 50$ lux) |
| Measurement Point    | Check the operations on the TV monitor                                                                            |
| Measuring Instrument |                                                                                                                   |
| Adjustment Page      | F                                                                                                                 |
| Adjustment Address   | 98 (WIDE H),<br>99 (WIDE L),<br>9A (TELE H),<br>9B (TELE L),<br>9C (FOCUS H),<br>9D (FOCUS L)                     |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                                                                                                                                                               | Conditions |
|-------|------|---------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                                                                                                                                                                                                                   |            |
| 2     | F    | 98      | 03   | Set the initial data, and press the PAUSE button.                                                                                                                                                                                                       |            |
|       |      | 99      | 26   |                                                                                                                                                                                                                                                         |            |
|       |      | 9A      | 1C   |                                                                                                                                                                                                                                                         |            |
|       |      | 9B      | B5   |                                                                                                                                                                                                                                                         |            |
|       |      | 9C      | 11   |                                                                                                                                                                                                                                                         |            |
|       |      | 9D      | 03   |                                                                                                                                                                                                                                                         |            |
| 3     |      |         |      | Check that the center of the flange back adjustment chart coincides with that of the exposure display at both the zoom lens TELE end and the WIDE end.                                                                                                  |            |
| 4     | 6    | 21      |      | Check that the data is 00.<br>(Flange back adjustable display)                                                                                                                                                                                          |            |
| 5     | 6    | 01      | 13   | Press the PAUSE button.                                                                                                                                                                                                                                 |            |
| 6     | 6    | 01      | 15   | Press the PAUSE button.<br>( This enables adjustments to be carried out automatically. Adjustments are performed at the zoom lens TELE end first, and then at the WIDE end. The adjustment data is automatically input to page: F, addresses: 98 to 9D. |            |
| 7     | 6    | 21      |      | Check that the data is 01.<br>(Display indicating that flange back adjustment has completed.)                                                                                                                                                           |            |

Processing after Adjustments:

| Order | Procedure                                                                          |
|-------|------------------------------------------------------------------------------------|
| 1     | Turn on the main power supply (7.5V)<br>(Out of focus if this is not carried out.) |

# 11. Flange back check

|                      |                                                  |
|----------------------|--------------------------------------------------|
| Subject              | Siemens star<br>(Placed 2m in front of the lens) |
| Measurement Point    | DDS display of the EVF or TV                     |
| Measuring Instrument | monitor                                          |
| Specified Value      | $D_2 = D_1 \pm 3$                                |

Checking method:

| Order | Page | Address | Data | Procedure                                                                                                                                                 | Conditions                                           |
|-------|------|---------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 1     |      |         |      | Place the Siemens star 2m in front of the lens.                                                                                                           |                                                      |
| 2     |      |         |      | To open the IRIS, decrease the luminous intensity to the siemens star up to a point before noise appears on the image displayed on the monitor TV screen. |                                                      |
| 3     |      |         |      | Expose the Siemens star at the TELE end.                                                                                                                  |                                                      |
| 4     |      |         |      | Press the "Focus" button, and turn on the auto focus.                                                                                                     |                                                      |
| 5     | 6    | 02      | 0C   | Check that the DDS display is 00 0001.<br>(Focusing check)                                                                                                | Auto focus on                                        |
| 6     |      |         |      | Press the "Focus" button and turn off the auto focus.                                                                                                     |                                                      |
| 7     |      |         |      | Expose the simens star at the WIDE end.                                                                                                                   |                                                      |
| 8     | 6    | 00      | 01   | Releasing of protect.                                                                                                                                     |                                                      |
| 9     | 6    | 02      | 00   |                                                                                                                                                           |                                                      |
| 10    | F    | 02      | B8   | Press the PAUSE button.<br>(Setting the focus position display mode)                                                                                      |                                                      |
| 11    |      |         |      | Read the DDS display data (4 digits) and take it as D1.                                                                                                   | Zoom WIDE end<br>Auto focus off                      |
| 12    |      |         |      | Press the "Focus" button, and turn on the auto focus.                                                                                                     |                                                      |
| 13    | 6    | 02      | 0C   | Check that the DDS display is 00 0001.<br>(Focusing check)                                                                                                | Auto focus on                                        |
| 14    | 6    | 02      | 00   | Read the DDS display (focus position display) data and take it as D2.                                                                                     | Zoom WIDE end<br>Auto focus on<br>Focusing condition |
| 15    |      |         |      | Check that $D_2 = D_1 \pm 3$ .                                                                                                                            |                                                      |

Checking method:

| Order | Page | Address | Data | Procedure                                                              |
|-------|------|---------|------|------------------------------------------------------------------------|
| 1     | F    | 02      | 00   | Press the PAUSE button.<br>(Releasing the focus position display mode) |

12. SYNC level check (VC-132 board)

|                      |                        |
|----------------------|------------------------|
| Subject              | Not required           |
| Measurement Point    | Pin ⑧ of CN641 (Y OUT) |
| Measuring Instrument | Oscilloscope           |
| Specified Value      | A=150 ± 10 mV          |

Checking method:

| Order | Page | Address | Data | Procedure                                                | Conditions      |
|-------|------|---------|------|----------------------------------------------------------|-----------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                    |                 |
| 2     | 6    | 01      | 03   | Press the PAUSE button.<br>(Setting the IRIS CLOSE mode) |                 |
| 3     |      |         |      | Check that the SYNC level to the specified value.        | IRIS CLOSE mode |

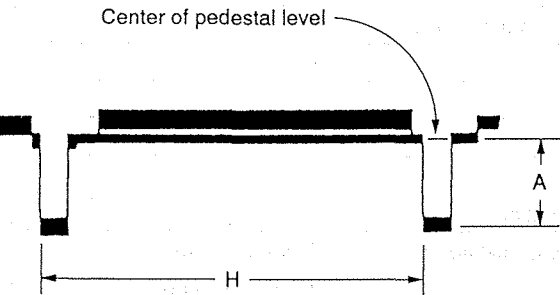


Fig. 7-8.

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                  | Conditions |
|-------|------|---------|------|------------------------------------------------------------|------------|
| 1     | 6    | 01      | 00   | Press the PAUSE button.<br>(Releasing the IRIS CLOSE mode) |            |

13. Burst level check (VC-132 board)

|                      |                        |
|----------------------|------------------------|
| Subject              | Not required           |
| Measurement Point    | Pin ⑥ of CN641 (C OUT) |
| Measuring Instrument | Oscilloscope           |
| Specified Value      | A=150 ± 15 mVp-p       |

Checking method:

| Order | Page | Address | Data | Procedure                                                | Conditions      |
|-------|------|---------|------|----------------------------------------------------------|-----------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                    |                 |
| 2     | 6    | 01      | 03   | Press the PAUSE button.<br>(Setting the IRIS CLOSE mode) |                 |
| 3     |      |         |      | Check that the SYNC level to the specified value.        | IRIS CLOSE mode |

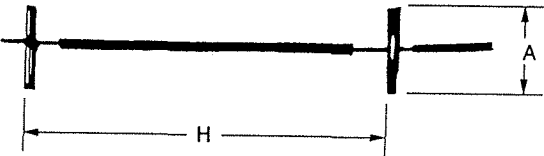


Fig. 7-9.

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                  | Conditions |
|-------|------|---------|------|------------------------------------------------------------|------------|
| 1     | 6    | 01      | 00   | Press the PAUSE button.<br>(Releasing the IRIS CLOSE mode) |            |

Related Adjustments:  
"Color reproductivity adjustment".



14. Picture frame setting

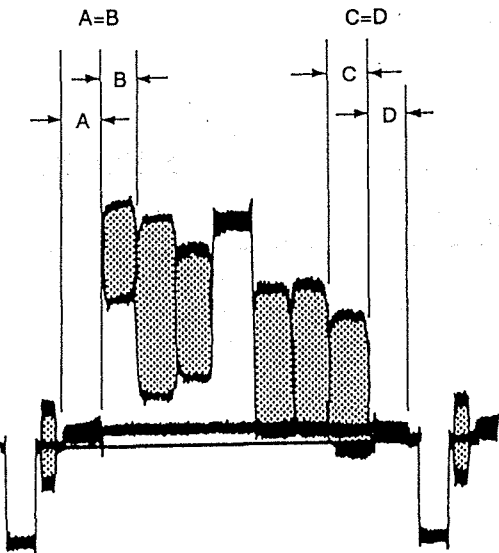
|                      |                                        |
|----------------------|----------------------------------------|
| Subject              | Color bar chart standard picture frame |
| Measurement Point    | Video output terminal                  |
| Measuring Instrument | Oscilloscope and TV monitor.           |
| Specified Value      | A=B, C=D, $t=0 \pm 0.1$ msec.          |

Setting method:

| Order | Procedure                                                                                                                                                                                                                     |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Turn off the auto focus.                                                                                                                                                                                                      |
| 2     | Adjust the focus using the focus knob.                                                                                                                                                                                        |
| 3     | Adjust the direction of the zoom and camera, and set at the specified position.                                                                                                                                               |
| 4     | Mark the position of the picture frame on the monitor display, and adjust it to this position if the "color bar chart standard picture frame" or "white pattern standard picture frame" is used in the following adjustments. |

Checking with the oscilloscope

1. H cycle



2. V cycle

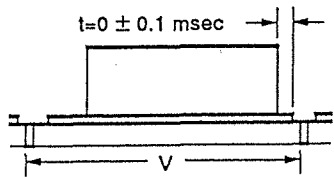


Fig. 7-10.

Checking on the TV monitor (Under scan mode)

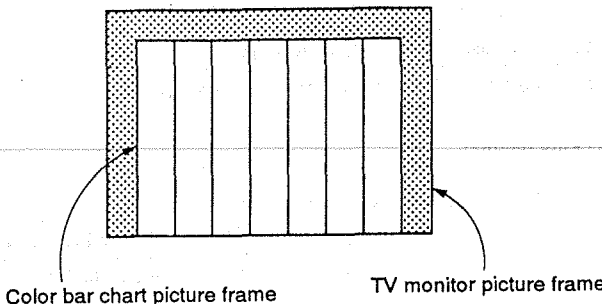


Fig. 7-11.

15. IRIS IN/OUT adjustment

|                      |                                      |
|----------------------|--------------------------------------|
| Subject              | White pattern standard picture frame |
| Measurement Point    | DDS display for the EVF or TV        |
| Measuring Instrument | monitor                              |
| Adjustment Page      | F                                    |
| Adjustment Address   | 44 (IRIS IN)<br>45 (IRIS OUT)        |

Checking method:

| Order | Page | Address | Data | Procedure                                                                                                                                                   | Conditions          |
|-------|------|---------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                                                                                                                       |                     |
| 2     | 6    | 02      | 0E   | Setting of light level display mode.                                                                                                                        |                     |
| 3     | 6    | 01      | 0B   | Press the PAUSE button.<br>(Setting the ND 0.8 shutter mode)                                                                                                |                     |
| 4     |      |         |      | Read the data of the DDS display data, and take it as D <sub>1</sub> .                                                                                      | ND 0.8 shutter mode |
| 5     |      |         |      | Convert D <sub>1</sub> to decimal numerals to obtain D <sub>2</sub> '.<br>(Refer to table 7-5 "Hexadecimal-Decimal Conversion Table")                       |                     |
| 6     |      |         |      | Calculate D <sub>2</sub> ' from the following equations<br>(Decimal numeral calculation). D <sub>2</sub> '=D <sub>1</sub> -5584                             |                     |
| 7     |      |         |      | Convert D <sub>2</sub> ' to hexadecimal numerals to obtain D <sub>2</sub> .<br>Read the upper 2 digits of D <sub>2</sub> , and take it as D <sub>44</sub> . |                     |
| 8     | F    | 44      |      | Adjust the data to D <sub>44</sub> (obtained at step 7) with the<br>PLAY and STOP buttons.                                                                  |                     |
| 9     | F    | 44      |      | Press the PAUSE button.                                                                                                                                     |                     |
| 10    | 6    | 01      | 09   | Press the PAUSE button.<br>(Setting the ND 0.5 shutter mode)                                                                                                |                     |
| 11    |      |         |      | Read the data of the DDS display data, and take it as D <sub>3</sub> .                                                                                      | ND 0.5 shutter mode |
| 12    |      |         |      | Convert D <sub>3</sub> to decimal numerals to obtain D <sub>3</sub> '.                                                                                      |                     |
| 13    |      |         |      | Calculate D <sub>4</sub> ' from the following equations<br>(Decimal numeral calculation). D <sub>4</sub> '=D <sub>3</sub> -3568                             |                     |
| 14    |      |         |      | Convert D <sub>4</sub> ' to hexadecimal numerals to obtain D <sub>4</sub> .<br>Read the upper 2 digits of D <sub>4</sub> , and take it as D <sub>45</sub> . |                     |
| 15    | F    | 45      |      | Adjust the data to D <sub>45</sub> (obtained at step 14) with the<br>PLAY and STOP buttons.                                                                 |                     |
| 16    | F    | 45      |      | Press the PAUSE button.                                                                                                                                     |                     |

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                      | Conditions |
|-------|------|---------|------|----------------------------------------------------------------|------------|
| 1     | 6    | 02      | 00   | Releasing of light level display mode.                         |            |
| 2     | 6    | 01      | 00   | Press the PAUSE button.<br>(Releasing the ND 0.5 shutter mode. |            |

# 16. Max gain adjustment (VC-132 board)

|                      |                                      |
|----------------------|--------------------------------------|
| Subject              | White pattern standard picture frame |
| Measurement Point    | Pin ⑧ of CN641 (Y OUT)               |
| Measuring Instrument | Oscilloscope                         |
| Adjustment Page      | F                                    |
| Adjustment Address   | 74 (AE MIN L)                        |
| Specified Value      | A=270 ± 10 mV                        |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                     | Conditions               |
|-------|------|---------|------|---------------------------------------------------------------------------------------------------------------|--------------------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                                                                         |                          |
| 2     | 6    | 01      | 19   | Press the PAUSE button. (Max gain adjustment mode)                                                            |                          |
| 3     | F    | 74      |      | Change the data with the PLAY and STOP buttons, and adjust the CAM Y signal level (A) to the specified value. | MAX GAIN adjustment mode |
| 4     | F    | 74      |      | Press the PAUSE button.                                                                                       |                          |

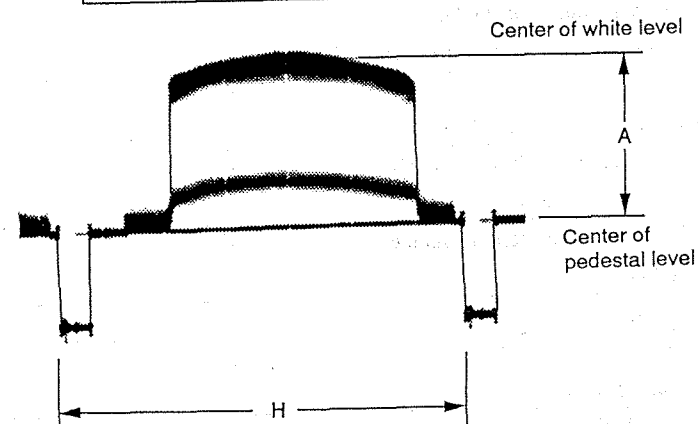


Fig. 7-12.

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                        | Conditions |
|-------|------|---------|------|------------------------------------------------------------------|------------|
| 1     | 6    | 01      | 00   | Press the PAUSE button. (Releasing the max gain adjustment mode) |            |

# 17. Auto white balance reference data input

|                    |                                                        |
|--------------------|--------------------------------------------------------|
| Subject            | White pattern standard picture frame                   |
| Adjustment Page    | F                                                      |
| Adjustment Address | 38 (RG3200H), 39 (RG3200L), 3A (BG3200H), 3B (BG3200L) |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                                                                | Conditions |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     |      |         |      | Turn off/on the main power supply (7.5V).                                                                                                                |            |
| 2     | 6    | 00      | 01   | Releasing of protect.                                                                                                                                    |            |
| 3     | 6    | 11      |      | Check that the data is 00. (Display indicating that auto white balance reference data can be input)                                                      |            |
| 4     | 6    | 01      | 11   | Press the PAUSE button. (Auto white balance reference data input preparation mode)                                                                       |            |
| 5     | 6    | 01      | 0D   | Press the PAUSE button. (The auto white balance reference data input will be executed and the data input automatically to addresses 38 to 3B of page F.) |            |
| 6     | 6    | 11      |      | Check that the data is 01. (Display indicating that the auto white balance reference data input completed)                                               |            |

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                                            | Conditions |
|-------|------|---------|------|--------------------------------------------------------------------------------------|------------|
| 1     | 6    | 01      | 00   | Press the PAUSE button. (Releasing the auto white balance reference data input mode) |            |
| 2     |      |         |      | Perform "Auto White Balance Adjustment".                                             |            |

Related Adjustments:

"Auto White Balance Adjustment".

18. Auto white balance adjustment

|                      |                                                     |
|----------------------|-----------------------------------------------------|
| Subject              | White pattern standard picture frame                |
| Filter               | Filter C14 for color temperature correction         |
| Measurement Point    | Check with the DDS display on the EVF or TV monitor |
| Measuring Instrument |                                                     |
| Adjustment Page      | F                                                   |
| Adjustment Address   | 40 (NORM R), 41 (NORM B)                            |
| Specified Value      | R ratio $2A80 \pm 40$<br>B ratio $5E80 \pm 40$      |

**Note:** Perform this adjustment after "Auto White Balance Reference Data Input".

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                              | Conditions           |
|-------|------|---------|------|------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1     | 6    | 00      | 01   | Releasing of protect.                                                                                                  |                      |
| 2     | F    | 6B      | D0   | Press the PAUSE button.<br>(Setting the auto white balance adjustment mode)                                            |                      |
| 3     | 6    | 02      | 04   | Setting of R ratio display mode.                                                                                       |                      |
| 4     | F    | 40      |      | Change the data with the PLAY and STOP buttons, and adjust the R ratio data of the DDS display to the specified value. | R ratio display mode |
| 5     | 6    | 02      | 05   | Setting of B ratio display mode.                                                                                       |                      |
| 6     | F    | 41      |      | Change the data with the PLAY and STOP buttons, and adjust the B ratio data of the DDS display to the specified value. | B ratio display mode |
| 7     | F    | 41      |      | Press the PAUSE button.                                                                                                |                      |

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                                     | Conditions |
|-------|------|---------|------|-------------------------------------------------------------------------------|------------|
| 1     | F    | 6B      | 00   | Press the PAUSE button.<br>(Releasing the auto white balance adjustment mode) |            |
| 2     | 6    | 02      | 00   | Releasing of B ratio display mode.                                            |            |

19. White balance check

|                      |                                                                       |
|----------------------|-----------------------------------------------------------------------|
| Subject              | White pattern standard picture frame                                  |
| Filter               | Filter C14 for color temperature correction<br>ND filters 1.0 and 0.3 |
| Measurement Point    | Video output terminal                                                 |
| Measuring Instrument | Vectorscope                                                           |
| Specified Value      | Fig. 7-13 A to C                                                      |

Checking method:

| Order | Page | Address | Data | Procedure                                                                                                                          | Conditions                                                 |
|-------|------|---------|------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 1     |      |         |      | Check that the lens is not covered with either filter.                                                                             |                                                            |
| 2     | 6    | 00      | 01   | Releasing of protect.                                                                                                              |                                                            |
| 3     | 6    | 01      | 0F   | Press the PAUSE button.<br>(Setting the WB 3200K preset mode)                                                                      |                                                            |
| 4     |      |         |      | Check that the white luminance point is within the circle shown in Fig. 7-13. A.<br>(Setting the indoor white balance mode)        | WB 3200K preset mode, no filter                            |
| 5     | 6    | 01      | 00   | Press the PAUSE button.<br>(Releasing WB 3200K preset mode)                                                                        |                                                            |
| 6     | F    | 67      | 01   | Press the PAUSE button.<br>(Setting the auto white balance high speed tracking mode)                                               |                                                            |
| 7     |      |         |      | Check that the white luminance point is within the circle shown in Fig. 7-13. A.                                                   | Auto white balance high speed tracking mode, no filter     |
| 8     |      |         |      | Place the C14 filter on the lens.                                                                                                  |                                                            |
| 9     |      |         |      | Check that the white luminance point is within the circle shown in Fig. 7-13. B.<br>(Checking the auto white balance outdoor mode) | Auto white balance high speed tracking mode, C14 filter    |
| 10    |      |         |      | Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) over the lens.                                                        |                                                            |
| 11    |      |         |      | Check that the white luminance point is within the circle shown in Fig. 7-13. C.<br>(Checking the auto white balance outdoor mode) | Auto white balance high speed tracking mode, ND filter 1.3 |

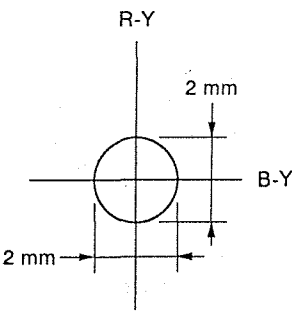


Fig. 7-13. A

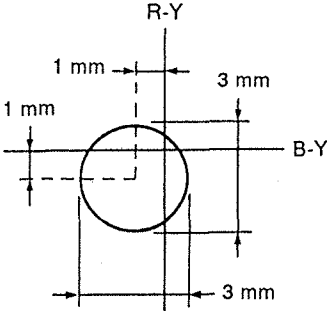


Fig. 7-13. B

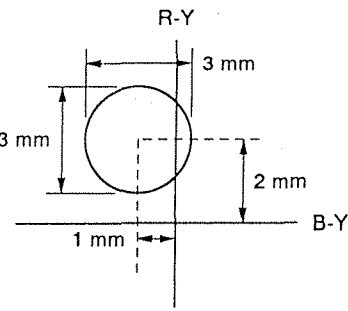


Fig. 7-13. C

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                                              | Conditions |
|-------|------|---------|------|----------------------------------------------------------------------------------------|------------|
| 1     | F    | 67      | 0A   | Press the PAUSE button.<br>(Releasing the auto white balance high speed tracking mode) |            |

20. Color reproductivity adjustment

|                      |                                                                            |
|----------------------|----------------------------------------------------------------------------|
| Subject              | Color bar chart standard picture frame                                     |
| Measurement Point    | Video output terminal                                                      |
| Measuring Instrument | Vectorscope                                                                |
| Adjustment Page      | F                                                                          |
| Adjustment Address   | 14 (CORE MAT R)                                                            |
|                      | 15 (CORE MAT B)                                                            |
|                      | 1A (CORE B-Y HUE)                                                          |
|                      | 1B (CORE R-Y)                                                              |
| Specified Value      | Each color luminance point should be within each color reproduction frame. |

Adjusting method:

| Order | Page | Address              | Data | Procedure                                                                                                                                                 | Conditions |
|-------|------|----------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     | 6    | 00                   | 01   | Releasing of protect.                                                                                                                                     |            |
| 2     | 6    | 03                   | 00   | Setting of weighting off mode.                                                                                                                            |            |
| 3     | F    | 3E                   | 00   | Press the PAUSE button.<br>(Setting the WB 3200K preset mode)                                                                                             |            |
| 4     | F    | 6B                   | F1   | Press the PAUSE button.<br>(Setting the AWB all tracking mode.)                                                                                           |            |
| 5     | F    | 14<br>15<br>1A<br>1B |      | Change the data, and settle red and yellow color luminance point in each color reproduction adjustment frame.<br>Press the PAUSE button for each address. |            |

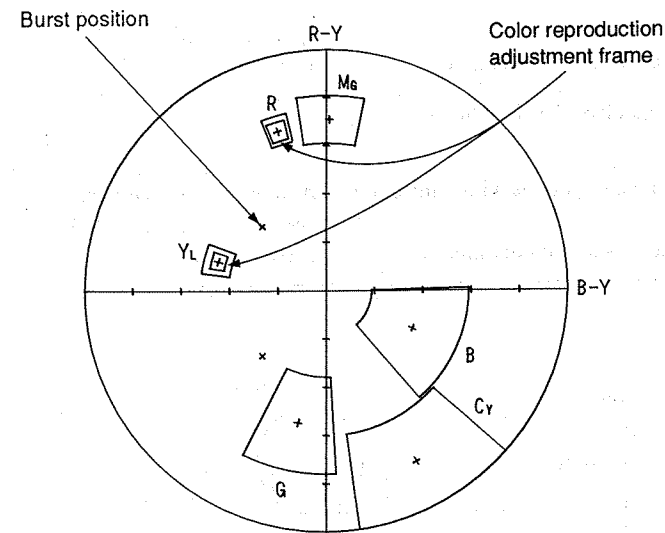


Fig. 7-14.

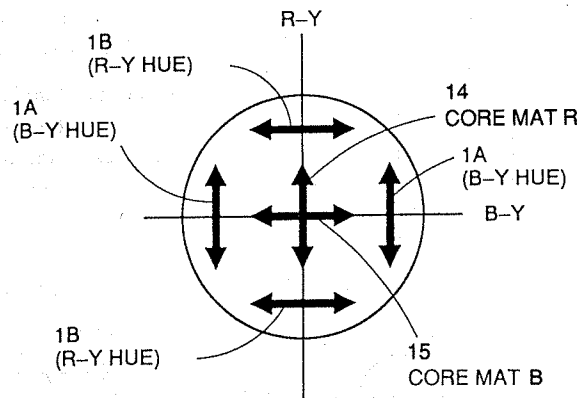


Fig. 7-15. Direction of the Movements of Adjustment Addresses and Luminance Points

Processing after Adjustments:

| Order | Page | Address | Data | Procedure                                                        | Conditions |
|-------|------|---------|------|------------------------------------------------------------------|------------|
| 1     | F    | 6B      | 00   | Press the PAUSE button.<br>(Releasing the AWB all tracking mode) |            |
| 3     | F    | 3E      | 12   | Press the PAUSE button.<br>(Releasing the WB 3200K preset mode)  |            |
| 2     | 6    | 03      | 10   | Set the normal mode (weighting on mode).                         |            |

7-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

7-3-1. Horizontal Slant Adjustment

|                 |                                                                               |
|-----------------|-------------------------------------------------------------------------------|
| Mode            | Playback                                                                      |
| Signal          | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Monoscope section |
| Specified Value | $\pm 1.5^\circ$                                                               |

Adjusting method:

| Order | Procedure                                                             |
|-------|-----------------------------------------------------------------------|
| 1     | Adjust RV504 (BRIGHT) so that the CRT can be seen easily and clearly. |
| 2     | Loosen the DY (deflection yoke) tightening nut.                       |
| 3     | Rotate DY, and adjust the image so that it is horizontal.             |
| 4     | Tighten the DY tightening nut.<br>(Do not tighten it too tightly.)    |

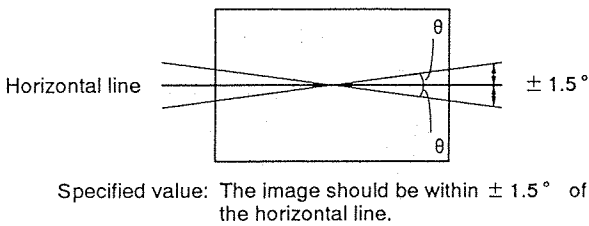


Fig. 7-16.

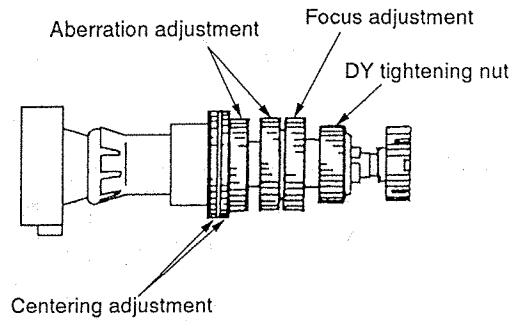


Fig. 7-17.

7-3-2. Centering Adjustment

|                 |                                                                               |
|-----------------|-------------------------------------------------------------------------------|
| Mode            | Playback                                                                      |
| Signal          | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Monoscope section |
| Specified Value | $\pm 4\%$                                                                     |

Adjusting method:

| Order | Procedure                                                                                                               |
|-------|-------------------------------------------------------------------------------------------------------------------------|
| 1     | Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. |

Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.

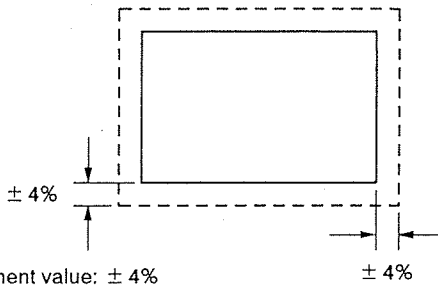


Fig. 7-18.

7-3-3. Focus Adjustment

|        |                                                                               |
|--------|-------------------------------------------------------------------------------|
| Mode   | Playback                                                                      |
| Signal | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Monoscope section |

Adjusting method:

| Order | Procedure                                          |
|-------|----------------------------------------------------|
| 1     | Adjust the focus ring to obtain the optimum focus. |

7-3-4. Aberration Adjustment

|                 |                            |
|-----------------|----------------------------|
| Mode            | E-E                        |
| Signal          | Dot pattern                |
| Specified Value | $T < 2 \cdot D$<br>$F < D$ |

**Note:** Refer to "9-1-3 How to set the REC mode in the model without REC switch" in VIDEO SECTION ADJUSTMENTS.

Adjusting method:

| Order | Procedure                                                                                                                                                                              |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Adjust the aberration adjustment ring so that the tracing of the dot becomes less than twice the diameter of the dot, or the fan aberration becomes less than the diameter of the dot. |
| 2     | If the centering becomes displaced here, perform the centering adjustment from the beginning again.                                                                                    |



Fig. 7-19.

7-3-5. Horizontal Oscillation Frequency Adjustment (VF-42 board)

|                      |                                                          |
|----------------------|----------------------------------------------------------|
| Mode                 | Playback                                                 |
| Signal               | Alignment tape:<br>For checking operations<br>(WR5-5CSP) |
| Measurement Point    | Positive pole terminal of C516                           |
| Measuring Instrument | Digital voltmeter or oscilloscope (DC range)             |
| Adjustment Element   | RV501                                                    |
| Specified Value      | $2.30 \pm 0.05$ Vdc                                      |

Adjusting method:

| Order | Procedure                                  |
|-------|--------------------------------------------|
| 1     | Adjust to $2.30 \pm 0.05$ Vdc using RV501. |

7-3-6. Horizontal Amplitude Adjustment (VF-42 board)

|                   |                                                                               |
|-------------------|-------------------------------------------------------------------------------|
| Mode              | Playback                                                                      |
| Signal            | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Monoscope section |
| Adjusting Element | C504                                                                          |
| Specified Value   | $6 \pm 2\%$                                                                   |

Adjusting method:

| Order | Procedure                                                                                                                                                                      |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Rotate RV502 on the VF-42 board, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.                                        |
| 2     | Rotate RV504 on the VF-42 board so that the brightness is the normal level.                                                                                                    |
| 3     | Adjust the pattern (A) of the H size adjustment capacitor (C504) to "short" or "open", so that the horizontal direction over scan becomes $6 \pm 2\%$ (Left and right totals). |

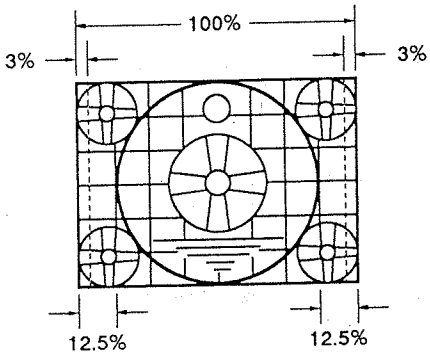
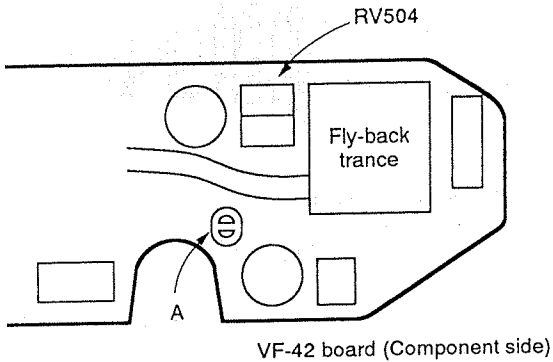


Fig. 7-20.



| Section A | Size H |
|-----------|--------|
| Open      | Small  |
| Short     | Big    |

Fig. 7-21.

7-3-7. Vertical Amplitude Adjustment (VF-42 board)

|                   |                                                                               |
|-------------------|-------------------------------------------------------------------------------|
| Mode              | Playback                                                                      |
| Signal            | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Monoscope section |
| Adjusting Element | RV502                                                                         |
| Specified Value   | $5 \pm 2\%$                                                                   |

Adjusting method:

| Order | Procedure                                                                                          |
|-------|----------------------------------------------------------------------------------------------------|
| 1     | Adjust RV502 so that the vertical direction over scan becomes $5 \pm 2\%$ (Top and bottom totals). |

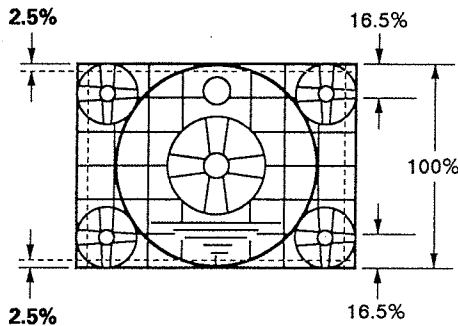


Fig. 7-22.

7-3-8. Brightness, Contrast Adjustments (VF-42 board)

|                   |                                                                               |
|-------------------|-------------------------------------------------------------------------------|
| Mode              | Playback                                                                      |
| Signal            | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Monoscope section |
| Adjusting Element | Brightness: RV504<br>Contrast: RV503                                          |

Adjusting method:

| Order | Procedure                                                                                                                                                                                                                                                                                                                                                                      |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Rotate RV504 and RV503 alternately, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should not be so bright that the cross hatch in the monoscope circle appears vague. The dark section should not be so dark that the darkest section and the second darkest section of the gray scale cannot be differentiated.) |

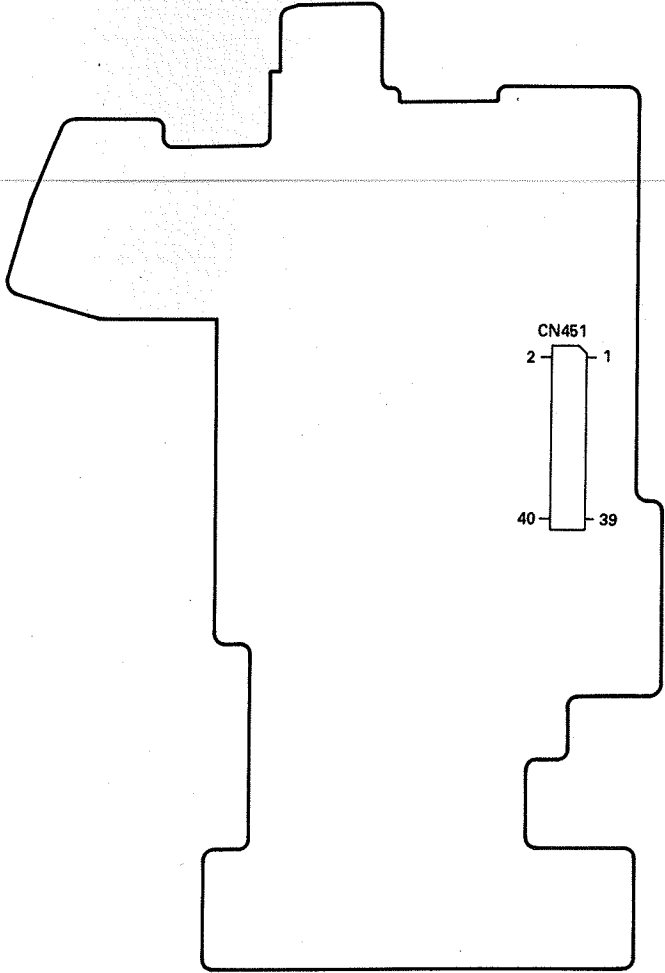
7-3-9. Horizontal Amplitude, Vertical Amplitude, Focus Check

"7-3-6. Horizontal Amplitude Adjustment" and "7-3-7. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform "7-3-8. Brightness, Contrast Adjustments" again. Moreover, check the focus, and if it found to be vague, perform "7-3-3. Focus Adjustment" and "7-3-4. Aberration Adjustment".

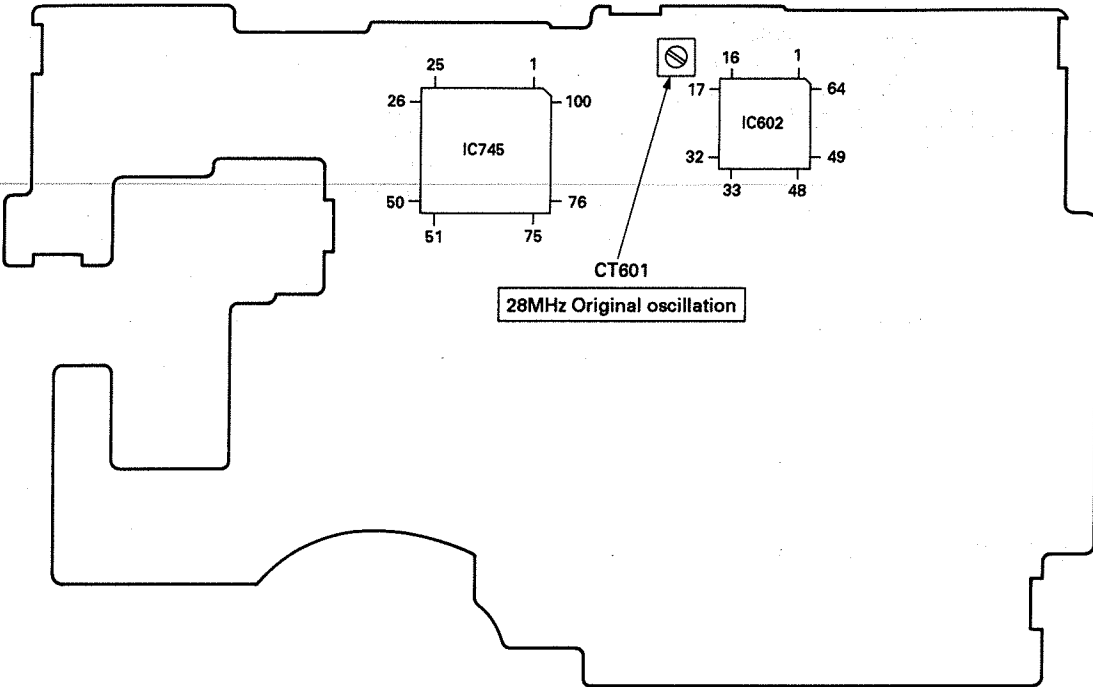


7-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

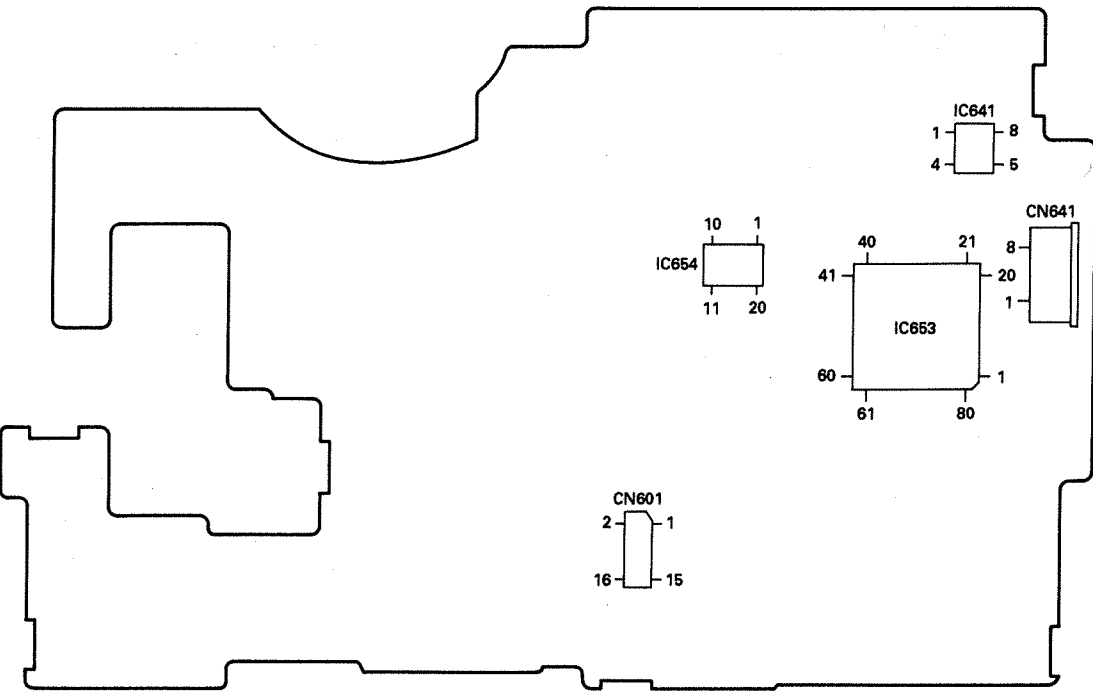
DD-55 BOARD (COMPONENT SIDE)



VC-132 BOARD (COMPONENT SIDE)

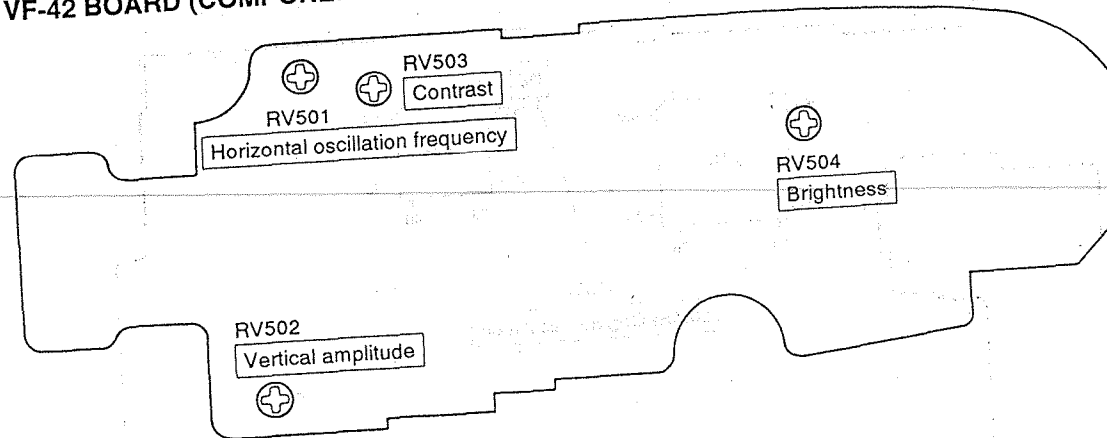


VC-132 BOARD (CONDUCTOR SIDE)

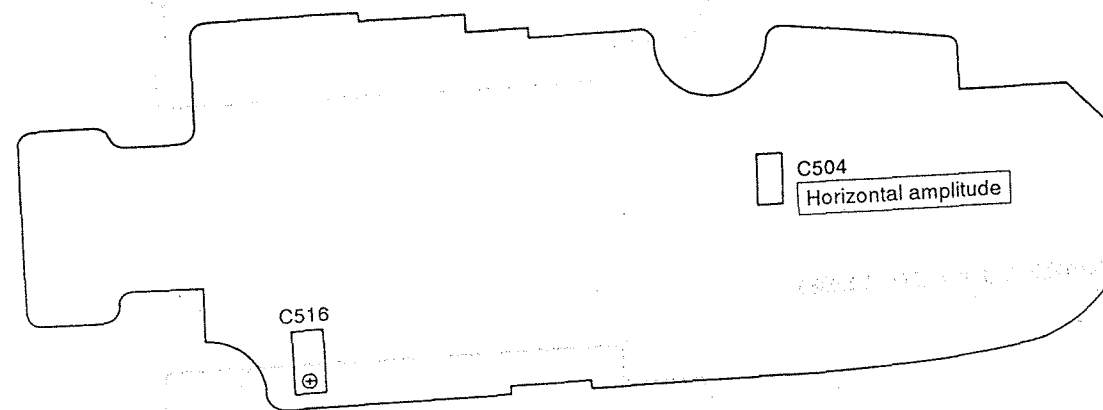


# SECTION 8 MECHANICAL SECTION ADJUSTMENTS

## VF-42 BOARD (COMPONENT SIDE)



## VF-42 BOARD (CONDUCTOR SIDE)



### For Mechanical Adjustments

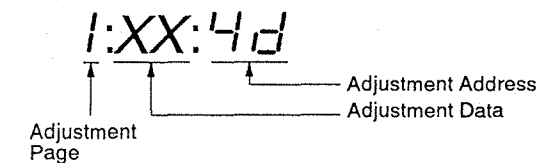
Refer to the separate volume of mechanical adjustment "8 mm Video MECHANICAL ADJUSTMENT MANUAL IV (A Mechanism)" for the adjustments and checks of mechanism section and the mechanical parts replacement. (9-973-199-11)  
For setting of the track shift mode, however, refer to the following.

### 8-1. SETTING THE TRACK SHIFT MODE

**Note:** Camera part and video part should have been installed.

#### [Setting Method]

- 1) Set the adjustment commander to the HOLD ON side.
- 2) Set page: 1, address: 01 and data: 01, and then release the protector.
- 3) Set page: D and address: 01.
- 4) Set adjustment data to 03 (test mode 3) by PLAY or STOP button.  
(When HOLD OFF once after the setting and HOLD ON again, the display of the address data will be changed. To set the another mode with shifting, repeat the procedures from 3).
- 5) Set to the HOLD OFF side in order to set the normal mode.



### 8-2. PREPARATION FOR ADJUSTMENT

- 1) Clean the tape running surfaces (tape guides, drum, capstan shaft, pinch roller.)
- 2) Connect to the oscilloscope.  
CH1: VS-99 board CN002 pin ③ (PB RF)  
CH2: VS-99 board CN002 pin ④ (RF SWP)
- 3) Play back the tracking alignment tape (WR5-1CP: 8-967-995-07).
- 4) Check that the RF waveform of the oscilloscope is flat at both inlet and outlet side. (Refer to Fig. 8-1 and 8-2)  
If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment IV (A Mechanism).

#### VS-99 board (Component Side)

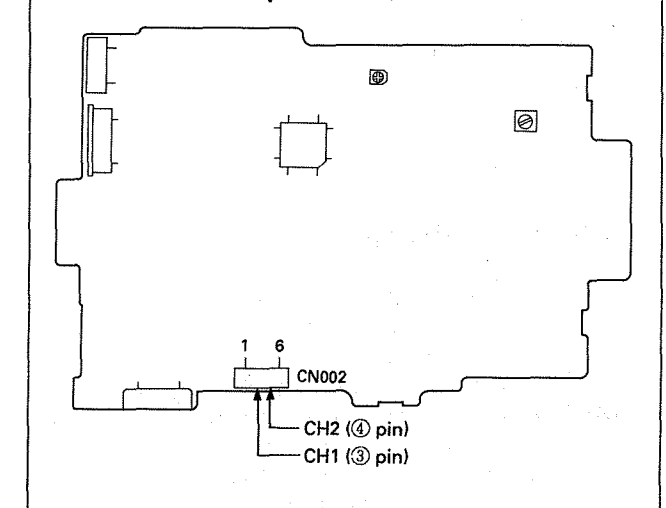


Fig.8-1.

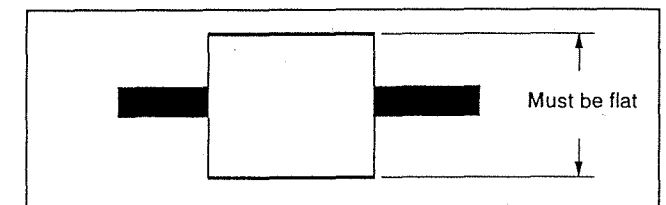


Fig.8-2.

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 252.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipments are used for adjusting the video section.

9-1-1. Equipments Used

- 1) TV monitor
- 2) Oscilloscope 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
- 3) Frequency counter
- 4) Pattern generator with video output terminal
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Regulated power supply
- 11) Alignment tape

For tracking adjustment (WR5-1CP)

Part Code: 8-967-995-07

For video frequency characteristics adjustment (WR5-6C)

Part Code: 8-967-995-17

For checking operations

(WR5-4CL)<sup>Note 1</sup>

Part Code: 8-967-995-56

(WR5-5CSP)<sup>Note 2</sup>

Part Code: 8-967-995-47

**Note:** The following alignment tapes can also be used.

1) WR5-3CL (8-967-995-36)

2) WR5-4CSP (8-967-995-46)

For checking AFM stereo operations (WR5-9CS)

Part Code: 8-967-995-28

12) Remote control unit for adjustment (J-6082-053-B)

13) DD-55 board extension cord (40P, 0.8 mm)

Part Code: J-6082-168-A

14) AU-149 board, extension cord (38P, 0.8 mm)

Part Code: J-6082-274-A

9-1-2. Precautions upon Adjustment

The EVF (electronic view-finder) section is not required for adjusting the video section.

Remove the following connector when removing the EVF section

- 1. CN502 of VS-99 board (Pin 6)

The MA-169 board is not required for adjusting the video section.

Remove the following connector when removing the MA-169 board.

- 1. CN801 of AU-149 board (Pin 13)

The audio board (AU-149 board) is not required other than in the "REC AFM Level Check" of "Audio System Adjustments" and "Video System Adjustments". Remove the following connectors.

- 1. CN505 of VS-99 board (Pin 38)

The lens block (including CD-105 board, MF-213 board and YP-12 board) is not required other than in "Power supply System Adjustments". Remove the following connectors and three mounting screws, and remove it from the VC-132 board.

- 1. CN601 of VC-132 board (Pin 16)
- 2. CN711 of VC-132 board (Pin 21)
- 3. CN740 of VC-132 board (Pin 12)
- 4. CN743 of VC-132 board (Pin 6)

9-1-3. How to Set the REC Mode in the Model without REC Switch

- 1. REC key forbidden accept mode cancel
  - 1. Connect the adjusting remote commander to the REMOTE terminal.
  - 2. Turn on the power.
  - 3. Turn on the HOLD switch of the adjusting remote commander.
  - 4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
  - 5. Select the page: D address: 02, and set the data to 8B [AB]. (REC key forbidden accept mode cancel)
  - 6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

2. Signal input mode setting

- 1. Select the page: 2 address: 00, and set the data to 01. (Specification category 1)
- 2. Set data: 01 to page 2, address: 3A. (Input mode set\*)

**Note:** Setting of output mode.

Set data: 02 to page 2, address: 3A (category: 1)

The REC key is accepted through the above procedure. The adjusting remote commander may be removed, hereafter.

**Note:** After completing adjustment be sure to perform "4. Procedure after completed adjustment".

3. REC mode setting

- 1. Set the HOLD switch of the adjusting remote commander to the OFF (Normal) position.
- 2. Press the REC buttons set up REC mode.

4. Procedure after completed the adjustment

Be sure to return the mode to REC key forbidden accept mode after adjustment.

- 1. Connect the adjusting remote commander to the REMOTE terminal.
- 2. Turn on the power.
- 3. Turn on the HOLD switch of the adjusting remote commander.
- 4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
- 5. Select the page: D address: 02, and set the data to 8A [AA]. (Setting of the REC key forbidden accept mode)
- 6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

**Note:** No mark: AEP, UK model

[ ]: E, Australian model

9-1-4. Connector for Adjustments (CN002 of VS-99 Board)

Some video section adjustment points are concentrated at CN002 of the VS-99 board.

| Pin No. | Signal Name |
|---------|-------------|
| 1       | PB CH1      |
| 2       | PCM OUT     |
| 3       | PB RF       |
| 4       | RF SWP      |
| 5       | RF GND      |
| 6       | REC 2CH     |

Table 9-1.

### 9-1-5. Connection of Equipments

Unless specified otherwise, connect the measuring instruments as shown in Fig. 9-1. and perform the adjustments.

- Camera/player power switch (S900 of power switch unit) ..... Position of the player
- Connect the adjusting remote commander to the remote terminal (DD-55 board J452).

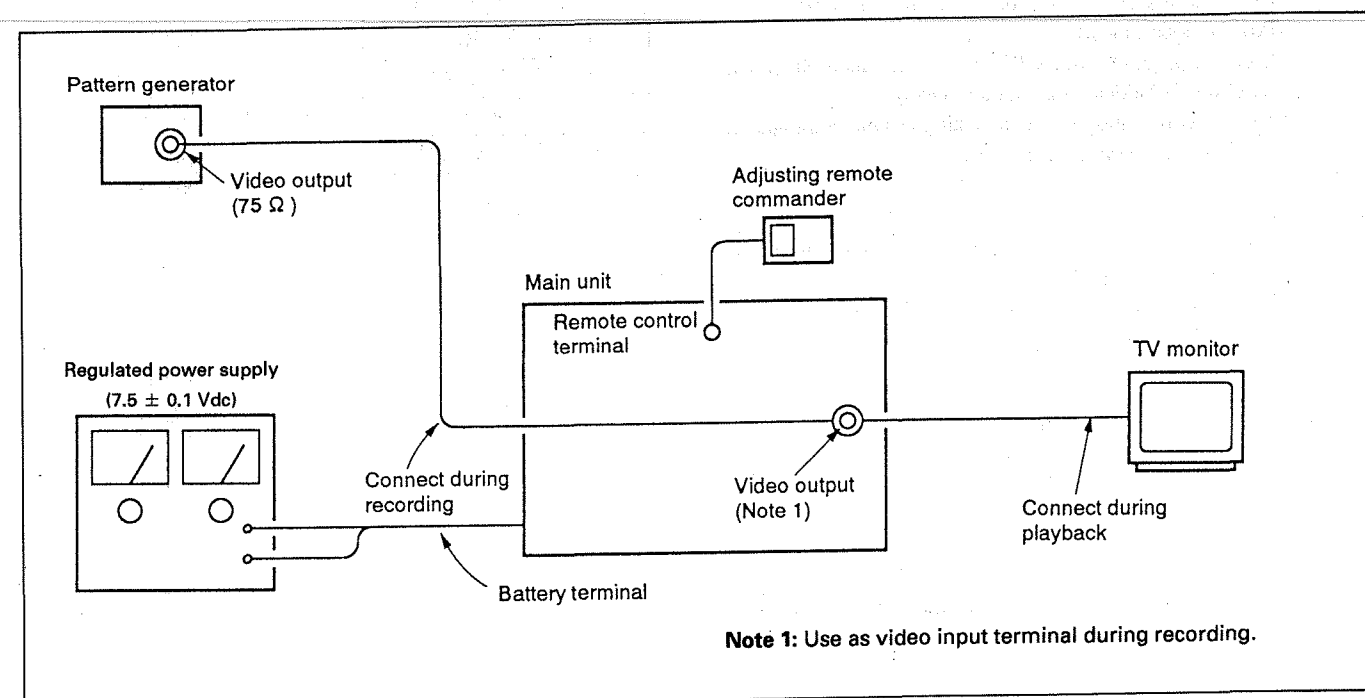


Fig. 9-1.

### 9-1-6. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

#### 1. VIDEO input

Connect the oscilloscope to the video output terminal, and check that the sync signal amplitude of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal to the "red" signal is 0.3:0.66.

The video signal (color bar) used for adjusting the VTR section is shown in Fig. 9-2.

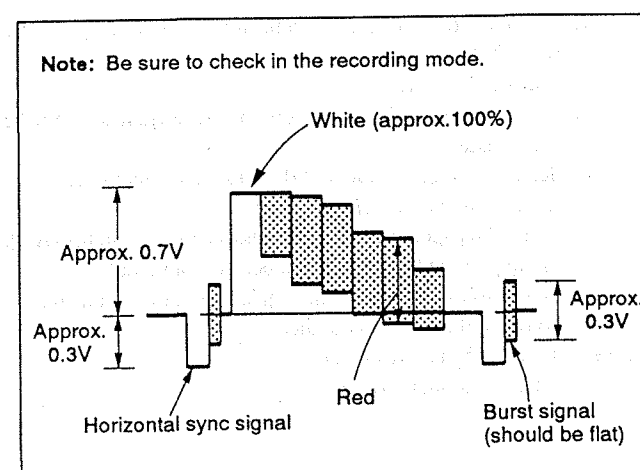


Fig. 9-2. Color Bar Signal of Pattern Generator

### 9-1-7. Alignment Tape

The following table lists available alignment tapes.

Use the tape specified in the signal column for each adjustment.

If the tape type is not specified for adjustments using tapes to check operations, use any tape for checking operations.

| Name                                   | Recording mode | Tape type | Tape speed | Recording Contents                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                  | Usage                                |
|----------------------------------------|----------------|-----------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
|                                        |                |           |            | Video area                                                                                                                                                                                                                                                                                                                                           | PCM area                                                                                                                                                         |                                      |
| Tracking WR5-1CP                       | L              | MP        | SP         | CH2: Signal for adjusting 1 MHz tape path                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                  | Switching position adjustment        |
| Video frequency characteristics WR5-6C | L              | MP        | LP         | Rf sweep 0 to 10 MHz<br>Marker 1, 3.58, 5.5, 7 MHz                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                  | Frequency characteristics adjustment |
| Checking operations (SP mode) WR5-5CSP | L              | MP        | SP         | <ul style="list-style-type: none"> <li>• Video signal Color bar 4 mins. Monoscope 4 mins.</li> <li>• Audio signal (AFM) 400 Hz 60% modulation</li> </ul>                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• Audio signal (PCM) Monoscope section 20 Hz 20sec. 400 Hz 20sec. 14kHz 20sec. Color bar section 1 kHz 4 mins.</li> </ul> | Checking operations                  |
| Checking operations (LP mode) WR5-4CL  | L              | MP        | LP         | <ul style="list-style-type: none"> <li>• Video signal Color bar 4 mins. Monoscope 4 mins.</li> <li>• Audio signal (AFM) 400 Hz 60% modulation</li> </ul>                                                                                                                                                                                             |                                                                                                                                                                  |                                      |
| AFM stereo checking operations WR5-9CS | L              | MP        | SP         | <ul style="list-style-type: none"> <li>• Video signal Color bar 4 mins. Monoscope 4 mins.</li> <li>• Audio signal (AFM) stereo section (color bar) Lch: 400 Hz, Rch: 1kHz (L+R: 1.5 MHz ± 60kHz DEV) (L-R: 1.7 MHz ± 30kHz DEV)</li> <li>Bilingual section (Monoscope) MAIN: 400Hz (1.5 MHz ± 60kHz DEV) SUB: 1 kHz (1.7 MHz ± 30kHz DEV)</li> </ul> | <ul style="list-style-type: none"> <li>• Audio signal (PCM) 400Hz 8 mins.</li> </ul>                                                                             | AFM stereo Checking operations       |

**Note:** Recording mode

L ..... Normal (conventional) mode  
E ..... Hi8 (Hi-band) mode

Tape type

MP ..... Metal particle tape  
ME ..... Metal evaporated tape

Table 9-2.

Fig. 9-3. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal  
(Terminated at 75  $\Omega$ )

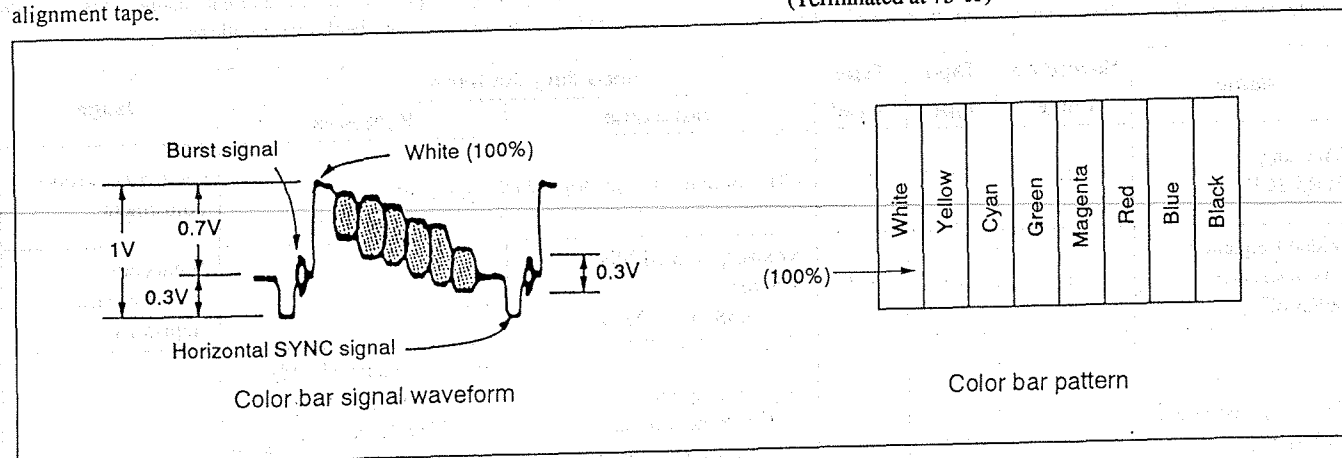


Fig. 9-3. Color Bar Signals of the Alignment Tape

#### 9-1-8. Output Level and Impedance

Video output Pin jack

Output signal: 1 Vp-p, 75 unbalanced, sync negative

Audio output Pin jack

Specified output: -7.5 dBs  
Output impedance: Below 2.2 k $\Omega$

#### 9-1-9. Service Mode

##### 1. Setting the service mode

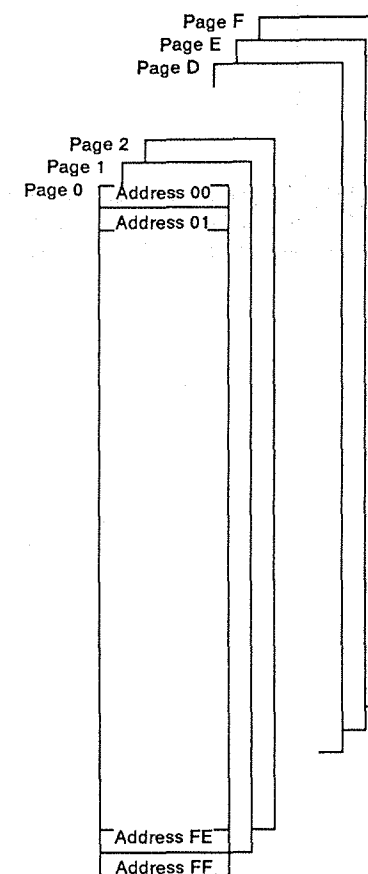
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.

The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

LCD Display of the Adjusting Remote Controller

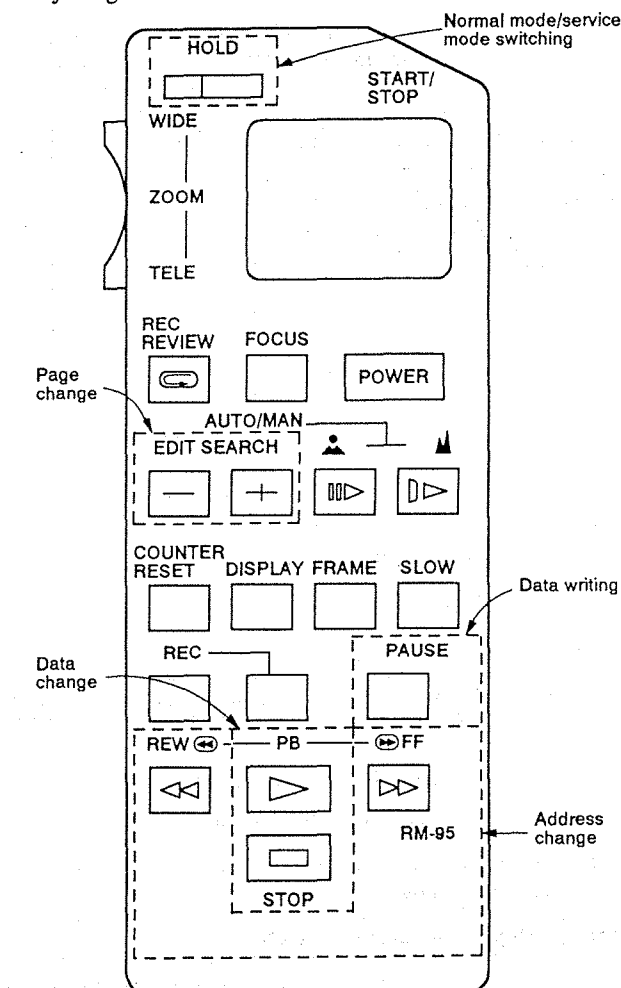
0:00:00  
Page Data Address

##### (1) Service LANC memory map



| Page | Page Layout                            |
|------|----------------------------------------|
| 0    |                                        |
| 1    | D page write protect setting/release   |
| 2    | Mode controller RAM, I/O (Note 1)      |
| 3    | Mechanism controller RAM, I/O (Note 1) |
| 4    |                                        |
| 5    |                                        |
| 6    | Shared by camera section (Note 1)      |
| 7    | Camera controller RAM, I/O (Note 1)    |
| 8    | AF controller RAM, I/O (Note 1)        |
| 9    |                                        |
| A    | 2 bytes data display                   |
| B    |                                        |
| C    | VTR EEPROM (Note 2)                    |
| D    | VTR EEPROM (Note 2)                    |
| E    | Camera EEPROM (Note 3)                 |
| F    | Camera EEPROM (Note 3)                 |

Adjusting remote commander RM-95 (J-6082-053-B)



**Note 1:** If the data of this page is rewritten using the adjusting remote commander to set the adjustment mode or test mode, the data will not be written in the EEPROM (nonvolatile memory). Therefore, the original condition (normal condition) can be returned by removing the main power supply (7.5V) and lithium battery.

**Note 2:** The data of this page is written in the EEPROM (IC901 of VC-132 board).

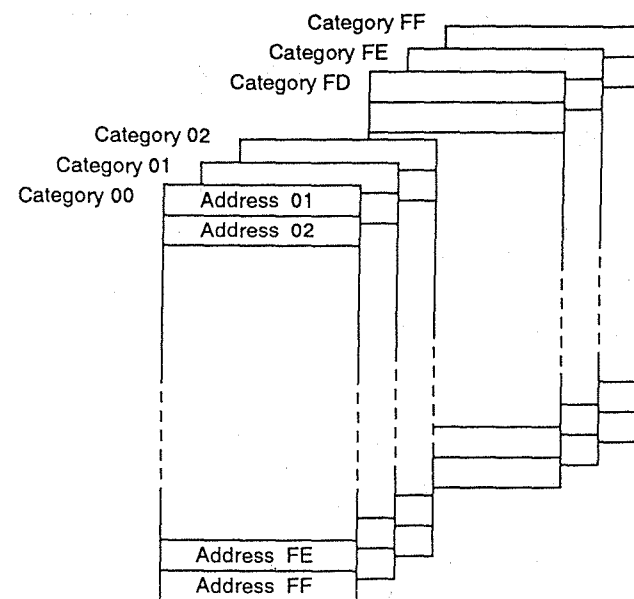
**Note 3:** The data of this page is written in the EEPROM (IC601 of VC-132 board).



## (2) Category codes

This unit uses category codes for pages 2 and 3. The 256 addresses from 00 to FF are insufficient for the mode controller and mechanism controller to access the RAM. Therefore, new category codes have been used to seemingly increase addresses (Addresses 0000 to FFFF).

However, the data of address 00 are actually used as page numbers to form the 256 pages from 00 to FF, as shown in the following figure. This address 00 data are called category codes to discriminate them from the real page numbers. The new pages are called categories.



(Example)

|                  |        |             |            |
|------------------|--------|-------------|------------|
| Specification of | Page 2 | Category 01 | Address 15 |
|------------------|--------|-------------|------------|

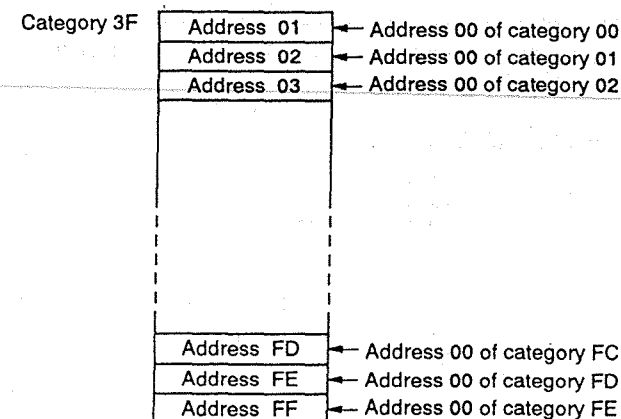
Page 2 is the mode controller

Page 3 is the mechanism controller

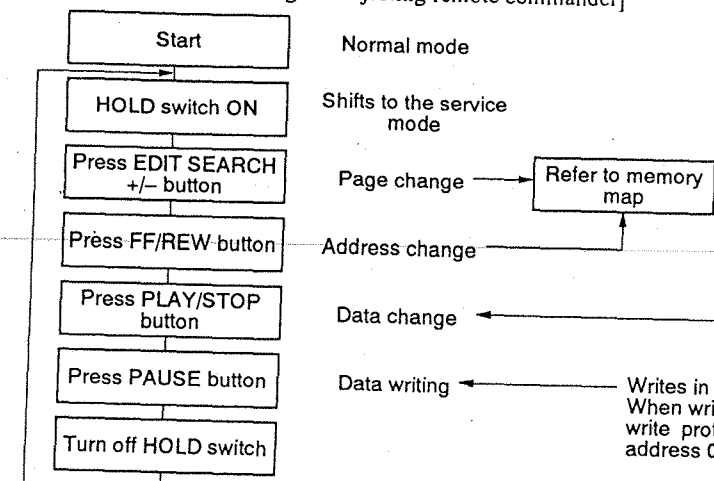
The actual category and address are specified by the adjusting remote commander as follows.

| Order | Page | Address | Data | Procedure                                                                                                                                                                                                          |
|-------|------|---------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 01   | Select category 01 using the data of page 2, address 00. From here onwards, category 01 will be selected at page 2 until the data of page 2, address 01 is rewritten.                                              |
| 2     | 2    | 15      |      | As the data of page 2, address 00 is 01, select page 2, address 15 to select page 2, category 01, address 15. (The data of this address is the battery voltage A/D conversion value of the mode controller input.) |

(Supplement) As each category no longer has address 00 as it is, this address cannot be accessed using the adjusting remote commander. Therefore, category 3F is used for accessing address 00.



[Shifting to the service mode using the adjusting remote commander]



<During adjusting data change>  
EVR value (RAM) changes to the data which was changed. (Writing can not be performed in the EE PROM.)

Writes in the EE PROM.  
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release, set the data of page 0, address 00 to 01.

| Command Name    | Command Function               | Normal LANC Command |
|-----------------|--------------------------------|---------------------|
| Page Up         | Page+1                         | Edit Search+        |
| Page Down       | Page-1                         | Edit Search -       |
| Direct Page Set | Sets to the specified page     | Event Clear         |
| Address Up      | Address+1                      | Fast Forward        |
| Address Down    | Address-1                      | Rewind              |
| Data Up         | Data+1                         | Play Back           |
| Data Down       | Data-1                         | Stop                |
| Store           | Writes data in the EEPROM, RAM | Pause               |

## 2. Page D write protect

Release/set the page D write protect.

| Page 1 | Address 00                       |
|--------|----------------------------------|
| Data   | Function                         |
| 00     | Normal (Write protect condition) |
| 01     | Release the write protect        |

## 3. Test mode setting

Set/release each test mode. Release the protect (Page: 1, Address: 00, Data: 01) before setting the data.

| Page D | Address 01                                                                                                                                                                                                                                                                |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data   | Function                                                                                                                                                                                                                                                                  |
| 00     | Normal                                                                                                                                                                                                                                                                    |
| 01     | Test mode 1<br>Various emergency prohibitions and releases<br>Drum, capstan, loading motor, reel, tape top and end, DEW SP/LP automatic discrimination prohibition, manual switching, 5 minutes pause release prohibition<br>Power off prohibition/release by battery end |
| 02     | Test mode 2<br>Not used                                                                                                                                                                                                                                                   |
| 03     | Test mode 3<br>Track shift<br>Performs the track shift playback<br>Rear lock distinction prohibition during PB SP/LP automatic discrimination prohibition, manual switching                                                                                               |
| 04     | Test mode 4<br>Rear lock mode<br>Performs rear lock playback<br>SP/LP automatic discrimination prohibition, manual switching                                                                                                                                              |

※ For page D, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (7.5 Vdc).

※ Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander.

## 4. Emergency code

Fault (error) symptoms can be checked.

|        |            |
|--------|------------|
| Page D | Address 06 |
| Page D | Address 07 |

First emergency code

.....First error code generated

Last emergency code

.....Last error code generated (This data will be renewed each time an error occurs.)

※ Be sure to rewrite the data of addresses 06 and 07 to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

| Code | Error Condition                           |
|------|-------------------------------------------|
| 00   | No error                                  |
| 01   | Loading motor error                       |
| 02   | Reel error during unloading               |
| 03   | Reel errors at other times                |
| 04   | Capstan error                             |
| 05   | FG error during drum start up             |
| 06   | PG error during drum start up             |
| 07   | FG error during normal drum conditions    |
| 08   | PG error during normal drum conditions    |
| 09   | Phase error during normal drum conditions |

## 5. Emergency mode

The operation mode can be checked during faults.

|        |            |
|--------|------------|
| Page D | Address 08 |
| Page D | Address 09 |

First emergency mode

.....The operation mode when the first error is generated

Last emergency mode

.....The operation mode when the last error is generated  
(This data will be renewed each time an error occurs.)

※ Be sure to rewrite the data of addresses 08 and 09 to 00 after repairs/adjustments.

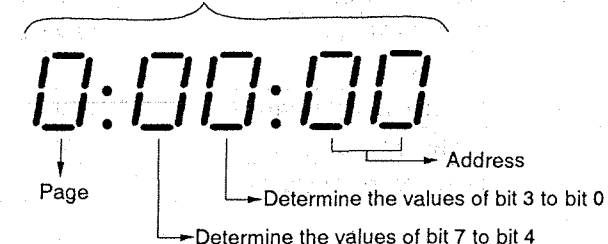
※ When rewriting the data, be sure to press the PAUSE button of the adjusting remote commander after setting the data.

| Code | Error Conditions    |
|------|---------------------|
| 00   | BEFOR INITIALIZE    |
| 01   | EJECTED             |
| 02   | NORMAL STOP         |
| 03   | FF                  |
| 04   | NORMAL REC          |
| 06   | NORMAL PB           |
| 07   | PB PAUSE            |
| 12   | LOADING             |
| 14   | REC PAUSE           |
| 26   | X1                  |
| 27   | 1/5 SLOW            |
| 31   | UNLOADING           |
| 46   | CUE                 |
| 56   | REVIEW              |
| 62   | STOP TAPE END       |
| 66   | X2                  |
| 67   | FRAME               |
| 72   | STOP TAPE TOP       |
| 83   | REWIND              |
| 85   | REC REVIEW (+)      |
| 95   | REC REVIEW (-)      |
| 97   | -PB PAUSE           |
| A2   | EMERGENCY LOADING   |
| A5   | EDIT SEARCH (+)     |
| B1   | EMERGENCY UNLOADING |
| B2   | STOP EMERGENCY 1    |
| B5   | EDIT SEARCH (-)     |
| C2   | STOP EMERGENCY 2    |
| E2   | STOP NO CASSETTE    |
| F5   | EDIT PAUSE          |

## 6. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".

Adjusting remote commander display



| Remote commander display | Bit value      |                |                |                |
|--------------------------|----------------|----------------|----------------|----------------|
|                          | bit 3 or bit 7 | bit 2 or bit 6 | bit 1 or bit 5 | bit 0 or bit 4 |
| 0                        | 0              | 0              | 0              | 0              |
| 1                        | 0              | 0              | 0              | 1              |
| 2                        | 0              | 0              | 1              | 0              |
| 3                        | 0              | 0              | 1              | 1              |
| 4                        | 0              | 1              | 0              | 0              |
| 5                        | 0              | 1              | 0              | 1              |
| 6                        | 0              | 1              | 1              | 0              |
| 7                        | 0              | 1              | 1              | 1              |
| 8                        | 1              | 0              | 0              | 0              |
| 9                        | 1              | 0              | 0              | 1              |
| A (H)                    | 1              | 0              | 1              | 0              |
| B (b)                    | 1              | 0              | 1              | 1              |
| C (c)                    | 1              | 1              | 0              | 0              |
| D (d)                    | 1              | 1              | 0              | 1              |
| E (E)                    | 1              | 1              | 1              | 0              |
| F (F)                    | 1              | 1              | 1              | 1              |

(Example) If the remote commander display data is "8E", bit values from bit7 to bit4 can be discriminated from column ①, and those from bit3 to bit0 from column ②.

## 7. Mode controller input check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 00 | Address 02 |
|--------|-------------|------------|

| Bit | Input Signal           | Input Signal Level                        |
|-----|------------------------|-------------------------------------------|
| 0   | BATT IN (IC902 15)     | "1"=H, "0"=L                              |
| 1   | PB V (IC902 16)        | "1"=PB V input present, "0"=No PB V input |
| 2   |                        |                                           |
| 3   | LANC PWR ON (IC902 18) | "1"=H, "0"=L                              |
| 4   | LI PREEND (IC902 19)   | "1"=H, "0"=L                              |
| 5   | EEPROM WE (IC902 20)   | "1"=H, "0"=L                              |
| 6   |                        |                                           |
| 7   | WIND ON (IC902 22)     | "1"=H, "0"=L                              |

Using method:

| Order | Page | Address | Data | Procedure                                                                                                |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                                                                             |
| 2     | 2    | 02      |      | The H/L of each input signal can be discriminated by differentiating the bit values of the display data. |

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 00 | Address 1C |
|--------|-------------|------------|

| Bit | Input Signal          | Input Signal Level |
|-----|-----------------------|--------------------|
| 0   | BATT SENCE (IC902 91) | "1"=L, "0"=H       |
| 1   |                       |                    |
| 2   | BRIGHT A (IC902 93)   | "1"=H              |
| 3   | BRIGHT B (IC902 94)   | "0"=L              |
| 4   |                       |                    |
| 5   |                       |                    |
| 6   |                       |                    |
| 7   |                       |                    |

Using method:

| Order | Page | Address | Data | Procedure                                                                                                |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                                                                             |
| 2     | 2    | 1C      |      | The H/L of each input signal can be discriminated by differentiating the bit values of the display data. |

## 8. White balance mode switching

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 00 | Address 21 |
|--------|-------------|------------|

| Data | White balance mode |
|------|--------------------|
| 01   | Indoor             |
| 02   | Outdoor            |
| 03   | Hold               |
| 06   | Auto               |

Using method:

| Order | Page | Address | Data | Procedure                                                       |
|-------|------|---------|------|-----------------------------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                                    |
| 2     | 2    | AE      | 40   | Prohibition of camera function renewal                          |
| 3     | 2    | 00      | 01   | Specification of category 1                                     |
| 4     | 2    | 21      |      | Specify the white balance mode by setting data 01 to 03 and 06. |

## 9. Zoom position check

|        |             |                |
|--------|-------------|----------------|
| Page 2 | Category 00 | Address 2B, 2C |
|--------|-------------|----------------|

| Address | Data                       |
|---------|----------------------------|
| 2B      | Zoom position data (lower) |
| 2C      | Zoom position data (upper) |

Using method:

| Order | Page | Address | Data | Procedure                                                                              |
|-------|------|---------|------|----------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                                                           |
| 2     | 2    | 2B      |      | Data (00 to FF) indicates lower data of zoom position                                  |
| 3     | 2    | 2C      |      | Data (00 to 02) indicates upper data of zoom position.<br>WIDE end: 00<br>TELE end: 02 |

## 10. LCD, LED check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 00 | Address AE |
|--------|-------------|------------|

| Data |                                                     |
|------|-----------------------------------------------------|
| 00   | Normal                                              |
| 10   | All segments of LCD light up<br>Tally LED lights up |

Using method:

| Order | Page | Address | Data | Procedure                                   |
|-------|------|---------|------|---------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                |
| 2     | 2    | AE      | 10   | All segments of LCD and tally LED light up. |

### 11. Key Input check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 3F | Address 01 |
|--------|-------------|------------|

| Bit | Key Switch                                   | Condition of Switch |
|-----|----------------------------------------------|---------------------|
| 0   | Date (+) (CF block S924)                     | "1"=OFF<br>"0"=ON   |
| 1   | Time (CF block S925)                         |                     |
| 2   | Cassette eject (DD-55 S451)                  |                     |
| 3   | Video power supply (Power switch unit S900)  |                     |
| 4   | Auto lock (CF block S927)                    |                     |
| 5   | Start/Stop (SW-222 S904)                     |                     |
| 6   | CC DOWN (Mechanism section)                  |                     |
| 7   | Camera power supply (Power switch unit S900) |                     |

Using method:

| Order | Page | Address | Data | Procedure                                                                                                 |
|-------|------|---------|------|-----------------------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 3F   | Specification of category 3F                                                                              |
| 2     | 2    | 01      |      | The on/off of each key switch can be discriminated by differentiating the bit values of the display data. |

### 12. Key Input check (A/D Port)

|        |             |                  |
|--------|-------------|------------------|
| Page 2 | Category 01 | Address 16 to 1A |
|--------|-------------|------------------|

| Display Data<br>Address | 00 to 10                      | 11 to 4C                  | 4D to 7E                    | 7F to B1                           | B2 to E7                           | E8 to FF     |
|-------------------------|-------------------------------|---------------------------|-----------------------------|------------------------------------|------------------------------------|--------------|
| 16<br>(AD0: IC902 ②)    | STOP<br>(CF block S901)       | Foward<br>(CF block S902) |                             | Edit search (+)<br>(CF block S904) | Edit search (-)<br>(CF block S905) | No key input |
| 17<br>(AD1: IC902 ③)    | Pause<br>(CF block S906)      | Rewind<br>(CF block S907) | Playback<br>(CF block S908) | Menu<br>(CF block S909)            |                                    | No Key input |
| 18<br>(AD2: IC902 ④)    | Slow<br>(CF block S910)       | Set<br>(CF block S911)    | Item<br>(CF block S912)     |                                    |                                    | No key input |
| 19<br>(AD3: IC902 ⑤)    | Program AE<br>(CF block S913) |                           | Focus<br>(CF block S915)    |                                    | Fader<br>(CF block S917)           | No key input |
| 1A<br>(AD4: IC902 ⑥)    | Reset<br>(CF block S918)      |                           |                             |                                    | Steady shot<br>(CF block S922)     | No key input |

Using method:

| Order | Page | Address  | Data | Procedure                                                                 |
|-------|------|----------|------|---------------------------------------------------------------------------|
| 1     | 2    | 00       | 01   | Specification of category 00                                              |
| 2     | 2    | 16 to 1A |      | The key pressed can be discriminated by the display data of each address. |

### 13. Wireless remote commander reception contents check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 01 | Address 11 |
|--------|-------------|------------|

| Display Data | Pressed Key of Wireless Remote Commander |
|--------------|------------------------------------------|
| FF           | Non                                      |
| 9A           | TELE                                     |
| 9B           | WIDE                                     |
| 99           | Start/Stop                               |
| 1B           | REW                                      |
| 1C           | FWD                                      |
| 18           | Stop                                     |
| 1A           | Playback                                 |
| 19           | Pause                                    |
| 5A           | Data screen                              |
| 23           | Slow                                     |

Using method:

| Order | Page | Address | Data | Procedure                                                                                  |
|-------|------|---------|------|--------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 01   | Specification of category 01                                                               |
| 2     | 2    | 11      |      | The pressed key of the wireless remote commander can be discriminated by the display data. |

### 14. Battery voltage check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 01 | Address 15 |
|--------|-------------|------------|

| Display Data | Battery Voltage |
|--------------|-----------------|
| FF           | Approx. 10 Vdc  |
| F0           | Approx. 9.4 Vdc |
| E0           | Approx. 8.8 Vdc |
| D0           | Approx. 8.2 Vdc |
| C0           | Approx. 7.5 Vdc |
| B0           | Approx. 6.9 Vdc |
| A0           | Approx. 6.3 Vdc |
| 90           | Approx. 5.6 Vdc |
| 80           | Approx. 5.0 Vdc |

Using method:

| Order | Page | Address | Data | Procedure                                                     |
|-------|------|---------|------|---------------------------------------------------------------|
| 1     | 2    | 00      | 01   | Specification of category 01                                  |
| 2     | 2    | 15      |      | The battery voltage can be discriminated by the display data. |

※ Voltage measurement accuracy is approx.  $\pm 10\%$ .

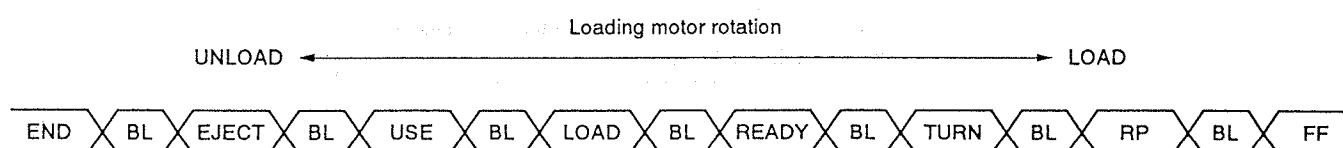
# 15. Mechanism section switch, etc. check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 00 | Address 86 |
|--------|-------------|------------|

| Bit | Switch, etc. | Condition                                        |
|-----|--------------|--------------------------------------------------|
| 0   | Hi8 MP       | "1"=Hi8 MP tape, "0"=Others                      |
| 1   | PB E/L       | "1"=Hi8 mode playback, "0"=Others                |
| 2   | ME/MP        | "1"=ME tape, "0"=MP tape                         |
| 3   | REC PROOF    | "1"=Recording prohibited, "0"=Recording possible |
| 4   |              |                                                  |
| 5   | MODE SW 0    | Mode switch position*1                           |
| 6   | MODE SW 1    |                                                  |
| 7   | MODE SW 2    |                                                  |

## Note 1

| MODE SW |   |   | POSITION | FUNCTION                                                      | CC DOWN |
|---------|---|---|----------|---------------------------------------------------------------|---------|
| 0       | 1 | 2 |          |                                                               |         |
| 1       | 1 | 1 | BL       | Interval of each position                                     |         |
| 0       | 1 | 1 | END      | FULL END processing (T side lock removal)                     | 1       |
| 0       | 0 | 1 | EJECT    | Cassette compartment ejection                                 | 1       |
| 1       | 0 | 1 | USE      | EJECTED (Unskate end)                                         | 1       |
| 0       | 0 | 1 | LOAD     | LOADING (Skate in)                                            | 0       |
| 1       | 0 | 0 | READY    | NORMAL STOP position                                          | 0       |
| 1       | 1 | 0 | TURN     | OFF of pinch roller only with PB ↔ REV (oscillating position) | 0       |
| 0       | 1 | 0 | RP       | PB, REC, RVS, REV, REW                                        | 0       |
| 0       | 0 | 0 | FF       | FF/CUE                                                        | 0       |



## Using method:

| Order | Page | Address | Data | Procedure                                                                                                                                                                              |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                                                                                                                                                           |
| 2     | 2    | 86      |      | The mode switch position can be discriminated by the upper 1 digit of the display data. The conditions of various switches can be discriminated by the bit value of the lower 1 digit. |

# 16. Mechanism controller input/output check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 00 | Address 85 |
|--------|-------------|------------|

| Bit | I/O Signal   | Condition                               |
|-----|--------------|-----------------------------------------|
| 0   | PB LP/SP DET | "1"=LP playback, "0"=Others             |
| 1   | SYNC DET     | "1"=VTR SYNC present, "0"=No VTR SYNC   |
| 2   | REC CLOG     | "1"=Clog occurred, "0"=Others           |
| 3   |              |                                         |
| 4   | JOG          | "1"=Variable speed playback, "0"=Others |
| 5   | VA PB MODE   | "1"=PB mode, "0"=E-E mode               |
| 6   | AUDIO MUTE   | "1"=Mute, "0"=Audio output              |
| 7   | VIDEO MUTE   | "1"=Mute, "0"=Video output              |

## Using method:

| Order | Page | Address | Data | Procedure                                                                                                            |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                                                                                         |
| 2     | 2    | 85      |      | The condition of each input/output signal can be discriminated by differentiating the bit value of the display data. |

# 17. Mechanism controller input check

|        |             |            |
|--------|-------------|------------|
| Page 2 | Category 00 | Address 89 |
|--------|-------------|------------|

| Bit | I/O Signal  | Condition                                                                                                 |
|-----|-------------|-----------------------------------------------------------------------------------------------------------|
| 0   | S IN        | "0"=S VIDEO terminal connection condition, "1"=S VIDEO terminal open condition                            |
| 1   | DEW DET     | "0"=Condensation occurred, "1"=Others                                                                     |
| 2   |             |                                                                                                           |
| 3   |             |                                                                                                           |
| 4   | MIC MONO    | "0"=During monaural external microphone use, "1"=Others                                                   |
| 5   | JACK MONO   | "0"=Audio output terminal (right) connection condition. "1"=Audio output terminal (right) open condition. |
| 6   | PB 1.7M DET | "1"=During AFM stereo/bilingual tape playback, "0"=Others                                                 |
| 7   |             |                                                                                                           |

## Using method:

| Order | Page | Address | Data | Procedure                                                                                                      |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------|
| 1     | 2    | 00      | 00   | Specification of category 00                                                                                   |
| 2     | 2    | 89      |      | The condition of each input signal can be discriminated by differentiating the bit values of the display data. |



# 18. Mechanism controller A/D port input voltage check

|              |                                |            |
|--------------|--------------------------------|------------|
| Page 3       | Category 02                    | Address 14 |
| Display Data | A/D Port Input Voltage         |            |
| 00 to FF     | Approx. 0 Vdc to approx. 5 Vdc |            |

Using method:

| Order | Page                      | Address | Data | Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
|-------|---------------------------|---------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------|----|-----------------------|----|-----------------------|----|-----------------------|----|------------------------|----|---------------------|----|----------------------|----|----------------------|
| 1     | 3                         | 00      | 02   | Specification of category 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 2     | 3                         | 0E      | 02   | Permission for A/D conversion operations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 3     | 3                         | 13      |      | Set the data according to the following table, and specify the A/D port of the mechanism controller. <table><tr><th>Data</th><th>Mechanism Controller Port</th></tr><tr><td>00</td><td>Ⓔ pin; AN0, T REEL FG</td></tr><tr><td>01</td><td>Ⓔ pin; AN1, S REEL FG</td></tr><tr><td>02</td><td>Ⓔ pin; AN2, ATF ERROR</td></tr><tr><td>03</td><td>Ⓔ pin; AN3, BATT SENSE</td></tr><tr><td>04</td><td>Ⓔ pin; AN4, DEW DET</td></tr><tr><td>05</td><td>Ⓔ pin; AN5, TAPE TOP</td></tr><tr><td>06</td><td>Ⓔ pin; AN6, TAPE END</td></tr></table> | Data | Mechanism Controller Port | 00 | Ⓔ pin; AN0, T REEL FG | 01 | Ⓔ pin; AN1, S REEL FG | 02 | Ⓔ pin; AN2, ATF ERROR | 03 | Ⓔ pin; AN3, BATT SENSE | 04 | Ⓔ pin; AN4, DEW DET | 05 | Ⓔ pin; AN5, TAPE TOP | 06 | Ⓔ pin; AN6, TAPE END |
| Data  | Mechanism Controller Port |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 00    | Ⓔ pin; AN0, T REEL FG     |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 01    | Ⓔ pin; AN1, S REEL FG     |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 02    | Ⓔ pin; AN2, ATF ERROR     |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 03    | Ⓔ pin; AN3, BATT SENSE    |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 04    | Ⓔ pin; AN4, DEW DET       |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 05    | Ⓔ pin; AN5, TAPE TOP      |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 06    | Ⓔ pin; AN6, TAPE END      |         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |
| 4     | 3                         | 14      |      | The A/D port input voltage can be discriminated according to the display data.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |                           |    |                       |    |                       |    |                       |    |                        |    |                     |    |                      |    |                      |

# 19. Tape top/end sensor check

|              |                               |            |
|--------------|-------------------------------|------------|
| Page 3       | Category 02                   | Address 0A |
| Display Data | Tape Top/End Sensor Condition |            |
| 00           | Tape present (Middle of tape) |            |
| 01           | Tape end                      |            |
| 10           | Tape top                      |            |
| 11           | No tape                       |            |

Tape end sensor condition "0"=Non active (Not receiving light)  
Tape top sensor condition "1"=Active (Receiving light)

Using method:

| Order | Page | Address | Data | Procedure                                                                          |
|-------|------|---------|------|------------------------------------------------------------------------------------|
| 1     | 3    | 00      | 02   | Specification of category 02                                                       |
| 2     | 3    | 0E      | 10   | Request for tape top/end sampling operations                                       |
| 3     | 3    | 0A      |      | The condition of the tape top/end sensor can be discriminated by the display data. |

# 20. Individual operations of the drum, capstan, and loading motor

|         |                                   |            |
|---------|-----------------------------------|------------|
| Page 3  | Category 02                       | Address 11 |
| Display | Operations                        |            |
| 00      | Normal                            |            |
| 02      | Drum in normal rotation           |            |
| 04      | Drum in reverse rotation          |            |
| 06      | Capstan in normal rotation        |            |
| 08      | Capstan in reverse rotation       |            |
| 0A      | Loading motor in normal rotation  |            |
| 0C      | Loading motor in reverse rotation |            |
| 01      | All motors stop                   |            |
| 03      |                                   |            |
| 05      |                                   |            |
| 07      |                                   |            |
| 09      |                                   |            |
| 0B      |                                   |            |
| 0D      |                                   |            |
| 0F      |                                   |            |

Using method:

| Order | Page | Address | Data | Procedure                                                                   |
|-------|------|---------|------|-----------------------------------------------------------------------------|
| 1     | 3    | 00      | 02   | Specification of category 02                                                |
| 2     | 3    | 0E      | 01   | Permission for individual operations of motor                               |
| 3     | 3    | 11      |      | The motor can be operated individually by setting the data indicated above. |
| 4     |      |         |      | Turn off the main power supply (7.5 Vdc).                                   |

# 21. Version of mechanical control microprocessor

|        |             |            |
|--------|-------------|------------|
| Page 3 | Category 02 | Address 0B |
|--------|-------------|------------|

|      |                                                  |
|------|--------------------------------------------------|
| Data | Microprocessor version                           |
| 01   | Version 1<br>(CXP80624A-019R: VS-99 board IC501) |

## 22. Page D address list

**Note 1:** The adjustment data initial value is the data input before performing video section adjustments (Page D) if the Page D data has been erased due to some reason.

**Note 2:** The data written in the adjustment data memo column are fixed.  
After adjusting, check that these data have not been rewritten by mistake.

\*1 No mark : AEP, UK model  
[ ] : E, Australian model

| Address | Name                          | Function<br>[ ] contains the adjustment voltage output terminal                                                           | Adjustment data |             |
|---------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|
|         |                               |                                                                                                                           | Initial value   | Memo column |
| 00      |                               | Not used                                                                                                                  | FF              | FF          |
| 01      | Test mode                     | Test mode                                                                                                                 | 00              | 00          |
| 02      | Destination flag              | Destination flag                                                                                                          | 8A[AA]*1        | 8A[AA]*1    |
| 03      | BATT END                      | Battery end adjustment                                                                                                    | 8D              |             |
| 04      | SW POSITION (LOW)             | SW POSITION adjustment [Lower]                                                                                            | 80              |             |
| 05      | SW POSITION (HIGH)            | SW POSITION adjustment [Upper]                                                                                            | 0B              |             |
| 06      | EMERGENCY code (FIRST)        | Error codes and modes are recorded in the memory.<br>Rewrite the data of these addresses to 00 after repairs/adjustments. | 00              | 00          |
| 07      | EMERGENCY code (LAST)         |                                                                                                                           | 00              | 00          |
| 08      | EMERGENCY mode (FIRST)        |                                                                                                                           | 00              | 00          |
| 09      | EMERGENCY mode (LAST)         |                                                                                                                           | 00              | 00          |
| 0A      | SR DATA (MP NORMAL SP)        | CXA1207 serial data                                                                                                       | 28              | 28          |
| 0B      | SR DATA (MP NORMAL LP)        | CXA1207 serial data                                                                                                       | 3E              | 3E          |
| 0C      | SR DATA (ME HI8 SP)           | CXA1207 serial data                                                                                                       | 2C              | 2C          |
| 0D      | SR DATA (ME HI8 LP)           | CXA1207 serial data                                                                                                       | 28              | 28          |
| 0E      | SR DATA (ME NORMAL SP)        | CXA1207 serial data                                                                                                       | 28              | 28          |
| 0F      | SR DATA (ME NORMAL LP)        | CXA1207 serial data                                                                                                       | 3E              | 3E          |
| 10      | SR DATA (MP HI8 SP)           | CXA1207 serial data                                                                                                       | 3C              | 3C          |
| 11      | SR DATA (MP HI8 LP)           | CXA1207 serial data                                                                                                       | 3C              | 3C          |
| 12      | SR DATA (EDIT ON NORMAL)      | CXA1207 serial data                                                                                                       | 28              | 28          |
| 13      | SR DATA (EDIT ON HI8)         | CXA1207 serial data                                                                                                       | 28              | 28          |
| 14      |                               | Not used                                                                                                                  | FF              | FF          |
| 15      |                               | Not used                                                                                                                  | FF              | FF          |
| 16      |                               | Not used                                                                                                                  | FF              | FF          |
| 17      |                               | Not used                                                                                                                  | FF              | FF          |
| 18      |                               | Not used                                                                                                                  | FF              | FF          |
| 19      |                               | Not used                                                                                                                  | FF              | FF          |
| 1A      |                               | Not used                                                                                                                  | FF              | FF          |
| 1B      |                               | Not used                                                                                                                  | FF              | FF          |
| 1C      |                               | Not used                                                                                                                  | FF              | FF          |
| 1D      |                               | Not used                                                                                                                  | 00              | 00          |
| 1E      |                               | Not used                                                                                                                  | 00              | 00          |
| 1F      |                               | Not used                                                                                                                  | 00              | 00          |
| 20      | VARIATION                     | DDS display start year, EJECT permission, MUTE.                                                                           | 05              | 05          |
| 21      | ADJUST MODE                   | CAMP ON, VTR P ON, etc.                                                                                                   | 00              | 00          |
| 22 - 26 |                               | Not used                                                                                                                  | FF              | FF          |
| 27      | BATT HUNTING PREVENTION LEVEL | Battery hunting prevention threshold level                                                                                | 00              |             |
| 28      | BATT REF                      | Battery pre end                                                                                                           | 8F              |             |

Table 9-3 (1).

| Address | Name             | Function<br>[ ] contains the adjustment voltage output terminal | Adjustment data |             |
|---------|------------------|-----------------------------------------------------------------|-----------------|-------------|
|         |                  |                                                                 | Initial value   | Memo column |
| 29      | MECH SW          | Mechanism control switch                                        | 06              | 06          |
| 2A      | TRAC FWD ADJUST  | Slow brake (Forward)                                            | 00              | 00          |
| 2B      | TRAK REV ADJUST  | Slow brake (Reverse)                                            | 00              | 00          |
| 2C      | STILL BRK ADJUST | Still brake                                                     | 00              | 00          |
| 2D      | BATT REF (LOW)   | Amount of remaining battery (Low)                               | 94              |             |
| 2E      | BATT REF (MID)   | Amount of remaining battery (Mid)                               | 99              |             |
| 2F      | BATT REF (FULL)  | Amount of remaining battery (Full)                              | A0              |             |
| 30 - 39 |                  | Not used                                                        | FF              | FF          |
| 3A      | MT' CH           | MT' CH                                                          | AA              | AA          |
| 3B - 3D |                  | Not used                                                        | FF              | FF          |
| 3E      | MT 2A (E)        | Hi8 2Ach frequency characteristics adjustment                   | 88              |             |
| 3F      | MT 2A (L)        | Normal 2Ach frequency characteristics adjustment ( ⑫ of IC003)  | 88              |             |
| 40      |                  | Not used                                                        | FF              | FF          |
| 41      |                  | Not used                                                        | FF              | FF          |
| 42      | MT 1A (E)        | Hi8 1Ach frequency characteristics adjustment                   | 82              |             |
| 43      | MT 1A (L)        | Normal 1Ach frequency characteristics adjustment ( ③ of IC003)  | 82              |             |
| 44      |                  | Not used                                                        | FF              | FF          |
| 45      |                  | Not used                                                        | FF              | FF          |
| 46      | REC C (REC)      | REC C level adjustment (EE) ( ⑨ of IC005)                       | A1              |             |
| 47      | REC C (PB)       | REC C level adjustment (PB) ( ⑨ of IC005)                       | 00              | 00          |
| 48      |                  | Not used                                                        | FF              | FF          |
| 49      |                  | Not used                                                        | FF              | FF          |
| 4A      | SYNC AGC         | EE level adjustment ( ⑦ of IC005)                               | 62              |             |
| 4B      |                  | Not used                                                        | FF              | FF          |
| 4C      | C COMB           | Chroma comb type filter adjustment ( ⑧ of IC005)                | A6              |             |
| 4D      | SR IR            | IR adjustment ( ④ of IC005)                                     | AF              |             |
| 4E      | CAR.-E           | Hi8 Y-FM carrier frequency adjustment                           | A8              | A8          |
| 4F      | CAR.-L           | Normal Y-FM carrier frequency adjustment ( ⑥ of IC005)          | A8              |             |
| 50      | DEV.-E           | Hi8 Y-FM deviation adjustment                                   | 98              | 98          |
| 51      | DEV.-L           | Normal Y-FM deviation adjustment ( ⑤ of IC005)                  | 98              |             |
| 52      | REC Y (ME E)     | Hi8 ME REC Y level adjustment. Not used.                        | 7E              | 7E          |
| 53      | REC Y (MP E)     | Hi8 MP REC Y level adjustment. Not used.                        | 7E              | 7E          |
| 54      | REC Y (ME L)     | Normal ME REC Y level adjustment ( ⑫ of IC005)                  | 7E              |             |
| 55      | REC Y (MP L)     | Normal MP REC Y level adjustment ( ⑫ of IC005)                  | 7E              |             |
| 56      | REC Y (PB)       | REC Y level adjustment (PB) ( ⑫ of IC005)                       | 00              | 00          |
| 57      | PB Y (REC)       | EE mode PB Y level ( ② of IC005)                                | 00              | 00          |
| 58      | PB Y (E)         | Hi8 PB Y level adjustment. Not used                             | 8F              | 8F          |
| 59      | PB Y (L)         | Normal PB Y level adjustment ( ② of IC005)                      | 97              |             |
| 5A      | EMPH (EE)        | EE emphasis input level adjustment ( ③ of IC005)                | 86              |             |
| 5B      | EMPH (PB)        | PB emphasis input level adjustment ( ③ of IC005)                | 8E              |             |

Table 9-3 (2).

| Address | Name                 | Function<br>[ ] contains the adjustment voltage output terminal | Adjustment data |             |
|---------|----------------------|-----------------------------------------------------------------|-----------------|-------------|
|         |                      |                                                                 | Initial value   | Memo column |
| 5C      | REC L CONT (ME E SP) | Hi8 ME SP REC level control. Not used                           | 80              | 80          |
| 5D      | REC L CONT (MP E SP) | Hi8 MP SP REC level control. Not used                           | 80              | 80          |
| 5E      | REC L CONT (ME L SP) | Normal ME SP REC level control                                  | A5              | A5          |
| 5F      | REC L CONT (MP L SP) | Normal MP SP REC level control                                  | 88              | 88          |
| 60      | REC L CONT (ME E LP) | Hi8 ME LP REC level control. Not used                           | 80              | 80          |
| 61      | REC L CONT (MP E LP) | Hi8 MP LP REC level control. Not used                           | 80              | 80          |
| 62      | REC L CONT (ME L LP) | Normal ME LP REC level control                                  | A5              | A5          |
| 63      | REC L CONT (MP L LP) | Normal MP LP REC level control                                  | 88              | 88          |
| 64      | PILOT CONT (ME)      | ME pilot control                                                | 95              | 95          |
| 65      | PILOT CONT (MP)      | MP pilot control                                                | 84              | 84          |
| 66      |                      | Not used                                                        | FF              | FF          |
| 67      |                      | Not used                                                        | FF              | FF          |
| 68      | D. CLIP (ME E SP)    | Hi8 ME SP DARK CLIP. Not used.                                  | 4D              | 4D          |
| 69      | D. CLIP (MP E SP)    | Hi8 MP SP DARK CLIP. Not used.                                  | 79              | 79          |
| 6A      | D. CLIP (ME L SP)    | Normal ME SP DARK CLIP ( ⑥ of IC003)                            | 23              | 23          |
| 6B      | D. CLIP (MP L SP)    | Normal MP SP DARK CLIP ( ⑥ of IC003)                            | 23              | 23          |
| 6C      | D. CLIP (ME E LP)    | Hi8 ME LP DARK CLIP. Not used.                                  | 4D              | 4D          |
| 6D      | D. CLIP (MP E LP)    | Hi8 MP LP DARK CLIP. Not used.                                  | 79              | 79          |
| 6E      | D. CLIP (ME L LP)    | Normal ME LP DARK CLIP ( ⑥ of IC003)                            | 2F              | 2F          |
| 6F      | D. CLIP (MP L LP)    | Normal MP LP DARK CLIP ( ⑥ of IC003)                            | 2F              | 2F          |
| 70      | W. CLIP (ME E SP)    | Hi8 ME SP WHITE CLIP. Not used                                  | 77              | 77          |
| 71      | W. CLIP (MP E SP)    | Hi8 MP SP WHITE CLIP. Not used                                  | 4F              | 4F          |
| 72      | W. CLIP (ME L SP)    | Normal ME SP WHITE CLIP ( ⑤ of IC003)                           | C7              | C7          |
| 73      | W. CLIP (MP L SP)    | Normal MP SP WHITE CLIP ( ⑤ of IC003)                           | C7              | C7          |
| 74      | W. CLIP (ME E LP)    | Hi8 ME LP WHITE CLIP. Not used                                  | 77              | 77          |
| 75      | W. CLIP (MP E LP)    | Hi8 MP LP WHITE CLIP. Not used                                  | 4F              | 4F          |
| 76      | W. CLIP (ME L LP)    | Normal ME LP WHITE CLIP ( ⑤ of IC003)                           | A7              | A7          |
| 77      | W. CLIP (MP L LP)    | Normal MP LP WHITE CLIP ( ⑤ of IC003)                           | A7              | A7          |
| 78      | REC/PB MX (REC)      | REC matrix adjustment ( ①⑨ of IC005)                            | 61              |             |
| 79      | REC/PB MX (PB)       | PB matrix adjustment ( ①⑨ of IC005)                             | A0              |             |
| 7A      | 1.5 IR               | 1.5 MHz IR adjustment ( ⑬ of IC003). Not used.                  | B0              |             |
| 7B      | 1.5 DEV              | 1.5 MHz deviation adjustment ( ⑦ of IC003)                      | 9B              |             |
| 7C      | 1.7 IR               | 1.7 MHz IR adjustment ( ④ of IC003). Not used.                  | B0              |             |
| 7D      | 1.7 DEV              | 1.7 MHz deviation adjustment ( ⑧ of IC003)                      | AB              |             |
| 7E      | A FADER              | Auto fader ( ⑬ of IC005)                                        | FF              | FF          |
| 7F      | ID VCO               | EVR ID VCO                                                      | 00              |             |
| 80      | ZOOM CONT B          | Zoom control B                                                  | FF              | FF          |
| 81      | ZOOM CONT A          | Zoom control A                                                  | FF              | FF          |

Table 9-3 (3).

| Address | Name          | Function<br>[ ] contains the adjustment voltage output terminal                                                                     | Adjustment data |             |
|---------|---------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|
|         |               |                                                                                                                                     | Initial value   | Memo column |
| 82-DF   |               | Not used                                                                                                                            | FF              | FF          |
| E0      | NEST DEF BIT  | CCD imager correction pattern (for backup)                                                                                          | 00              |             |
| E1      | CCD DEFECT 0  | CCD imager correction data (for backup)<br>※ Refer to "7-2. 8 CCD Imager Correction Data Writing" of Camera<br>Section Adjustments. | 00              |             |
| E2      | CCD DEFECT 1  |                                                                                                                                     | 00              |             |
| E3      | CCD DEFECT 2  |                                                                                                                                     | 00              |             |
| E4      | CCD DEFECT 3  |                                                                                                                                     | 00              |             |
| E5      | CCD DEFECT 4  |                                                                                                                                     | 00              |             |
| E6      | CCD DEFECT 5  |                                                                                                                                     | 00              |             |
| E7      | CCD DEFECT 6  |                                                                                                                                     | 00              |             |
| E8      | CCD DEFECT 7  |                                                                                                                                     | 00              |             |
| E9      | CCD DEFECT 8  |                                                                                                                                     | 00              |             |
| EA      | CCD DEFECT 9  |                                                                                                                                     | 00              |             |
| EB      | CCD DEFECT 10 |                                                                                                                                     | 00              |             |
| EC      | CCD DEFECT 11 |                                                                                                                                     | 00              |             |
| ED      | CCD DEFECT 12 |                                                                                                                                     | 00              |             |
| EE      | CCD DEFECT 13 |                                                                                                                                     | 00              |             |
| EF      | CCD DEFECT 14 |                                                                                                                                     | 00              |             |
| F0-FF   |               | Establishment area                                                                                                                  |                 |             |

Table 9-3 (4).

9-2. ADJUSTING POINTS WHEN REPLACING MAIN PARTS

1. When replacing drum

"Switching Position Adjustment" of "Servo System Adjustments"  
"Playback Frequency Characteristics Adjustment" of "Video System Adjustments"

9-3. POWER SUPPLY SYSTEM ADJUSTMENTS

1. Oscillator frequency check (DD-55 board)

|                      |                   |
|----------------------|-------------------|
| Mode                 | Camera record     |
| Subject              | Arbitrary         |
| Measurement Point    | Q454 collector    |
| Measuring Instrument | Frequency counter |
| Specified Value      | 460 ± 30 kHz      |

2. Power supply voltage check (DD-55 board)

|                      |                       |
|----------------------|-----------------------|
| Mode                 | Camera record         |
| Subject              | Arbitrary             |
| Measuring Instrument | Digital voltmeter     |
| EVF 5V check         |                       |
| Measurement Point    | Pin ② of CN451        |
| Specified Value      | 4.99 ± 0.15 Vdc       |
| SS5V check           |                       |
| Measurement Point    | Pin ② of CN451        |
| Specified Value      | 4.70 ± 0.15 Vdc       |
| D5V check            |                       |
| Measurement Point    | Pins ⑤ and ⑥ of CN451 |
| Specified Value      | 4.89 ± 0.15 Vdc       |
| D4V check            |                       |
| Measurement Point    | Pin ③ of CN451        |
| Specified Value      | 3.80 ± 0.15 Vdc       |
| VIDEO 5V check       |                       |
| Measurement Point    | Pins ② and ② of CN451 |
| Specified Value      | 4.70 ± 0.15 Vdc       |
| AU5V check           |                       |
| Measurement Point    | Pin ② of CN451        |
| Specified Value      | 4.70 ± 0.15 Vdc       |
| CAM 5V check         |                       |
| Measurement Point    | Pin ① of CN451        |
| Specified Value      | 4.90 ± 0.15 Vdc       |
| 15V check            |                       |
| Measurement Point    | Pin ④ of CN451        |
| Specified Value      | 15.00 ± 0.4 Vdc       |
| -8.5V check          |                       |
| Measurement Point    | Pin ② of CN451        |
| Specified Value      | -8.5 ± 0.5 Vdc        |

9-4. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page D initial value input

If the page D data is erased due to some cause, input the page D initial value before adjusting. For details on the initial value, refer to "Page D Address List" in "9-1-9. Service Mode". Input the CCD correction data (Page F, addresses 1F to 2E) to addresses E0 to EF as backup data. For details, refer to "CCD correction data writing" of "Camera Section Adjustments".

|                    |                    |
|--------------------|--------------------|
| Mode               | Stop               |
| Signal             | Arbitrary          |
| Adjustment Page    | D                  |
| Adjustment Address | 00 to 8F, E0 to EF |

Inputting method:

| Order | Page | Address                   | Data | Procedure                                                                                                                                                                                                                                                                 | Conditions |
|-------|------|---------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     | 1    | 00                        | 01   | Releasing of protect.                                                                                                                                                                                                                                                     |            |
| 2     | D    | 00~8F                     |      | Input the data (initial value) according to the "Page D Address List". After setting each data, be sure to press the PAUSE button.                                                                                                                                        |            |
| 3     | D    | E0<br>E1<br>E2<br>⋮<br>EF |      | Set the data of page F address 1F, and press the PAUSE button.<br>Set the data of page F address 20, and press the PAUSE button.<br>Set the data of page F address 21, and press the PAUSE button.<br>⋮<br>Set the data of page F address 2E, and press the PAUSE button. |            |

## 2. Battery end adjustment

|                      |                                                                                                                                            |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Mode                 | Camera record, auto focus off                                                                                                              |
| Subject              | Arbitrary                                                                                                                                  |
| Measurement Point    | LCD display of the adjusting remote commander                                                                                              |
| Measuring Instrument |                                                                                                                                            |
| Adjustment Page      | D                                                                                                                                          |
| Adjustment Address   | 03 (BATT END)<br>27 (BATT HUNTING PREVENTION LEVEL)<br>28 (BATT REF)<br>2D (BATT REF (LOW))<br>2E (BATT REF (MID))<br>2F (BATT REF (FULL)) |

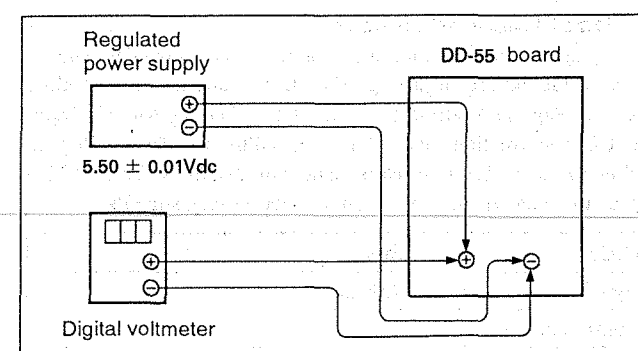


Fig. 9-4.

Connection:

- 1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-4.

Adjusting method:

| Order | Page | Address                    | Data | Procedure                                                                                                                                                                                                                                                                   | Conditions |
|-------|------|----------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     |      |                            |      | Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes $7.5 \pm 0.1 \text{ Vdc}$ .                                                                                                                                           |            |
| 2     |      |                            |      | Set the camera recording mode. The auto focus turns off.                                                                                                                                                                                                                    |            |
| 3     | 1    | 00                         | 01   | <b>Releasing of protect.</b>                                                                                                                                                                                                                                                |            |
| 4     | D    | 01                         | 01   | Set the data, and press the PAUSE button. (Setting of TEST MODE 1)                                                                                                                                                                                                          |            |
| 5     |      |                            |      | Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes $5.50 \pm 0.01 \text{ Vdc}$ .                                                                                                                                         |            |
| 6     | 2    | 00                         | 01   | Specification of page 2, category 1.                                                                                                                                                                                                                                        |            |
| 7     | 2    | 15                         |      | Read the adjusting remote commander display data and take it as DEND.                                                                                                                                                                                                       |            |
| 8     | D    | 03                         |      | Set DEND, and press the PAUSE button.                                                                                                                                                                                                                                       |            |
| 9     |      |                            |      | Convert DEND to decimal to obtain DEND'. (Refer to Table 7-5., "Hexadecimal-Decimal Conversion Table")                                                                                                                                                                      |            |
| 10    |      |                            |      | Obtain the adjustment data (decimal) by following formula (decimal notation calculation), convert to hexadecimal and enter the data into each adjustment address.                                                                                                           |            |
| 11    | D    | 2F<br>2E<br>2D<br>28<br>27 |      | $D_{2F} = D_{END'} + 19$<br>$D_{2E} = D_{END'} + 17$<br>$D_{2D} = D_{END'} + 13$<br>$D_{28} = D_{END'} + 4$<br>$D_{27} = D_{END'} - 5$<br><b>Note:</b> After setting the data, be sure to press the PAUSE button of the adjusting remote commander before changing address. |            |
| 12    | D    | 01                         | 00   | Set the data, and press the PAUSE button. (Releasing of TEST MODE 1)                                                                                                                                                                                                        |            |
| 13    |      |                            |      | Perform "Battery Down check"                                                                                                                                                                                                                                                |            |

## 3. Battery down check

|         |               |
|---------|---------------|
| Mode    | Camera record |
| Subject | Arbitrary     |

Connection

- 1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-4.

Checking method:

| Order | Procedure                                                                                                                                   |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Remove the adjusting remote control unit, and perform the following check. If the check is not satisfied, perform from the beginning again. |
| 2     | Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes $7.5 \pm 0.1 \text{ Vdc}$ .           |
| 3     | Set to the camera recording mode.                                                                                                           |
| 4     | Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes $5.75 \pm 0.01 \text{ Vdc}$ .       |
| 5     | Check that the $\square$ mark on the EVF (viewfinder) display is not lighted up. (TALLY lamp lights up).                                    |
| 6     | Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes $5.69 \pm 0.01 \text{ Vdc}$ .       |
| 7     | Check that the $\square$ mark and the TALLY lamp on the EVF display on the EVF display blinks every second.                                 |
| 8     | Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes $5.47 \pm 0.01 \text{ Vdc}$ .       |
| 9     | Check that the $\square$ mark and the TALLY lamp on the EVF display are blinking faster, the VTR stops and the power supply turns off.      |



9-5. SERVO SYSTEM ADJUSTMENTS

1. Switching position adjustment (VS-99 board)

|                      |                                                     |
|----------------------|-----------------------------------------------------|
| Mode                 | Playback                                            |
| Signal               | Alignment tape:<br>For adjusting tracking(WR5-1CP)  |
| Measurement Point    | CH1: ④ of CN002 (RF SWP)<br>CH2: ③ of CN002 (PB RF) |
| Measuring Instrument | Oscilloscope                                        |
| Adjustment Page      | D                                                   |
| Adjustment Address   | 04 (SW POSITION (LOW))<br>05 (SW POSITION (HIGH))   |
| Specified Value      | $t_1 = 0 \pm 10 \mu\text{sec.}$                     |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                | Conditions    |
|-------|------|---------|------|------------------------------------------------------------------------------------------|---------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                    |               |
| 2     | D    | 05      | 80   | Initial setting.                                                                         |               |
| 3     | D    | 05      |      | Change the data with the PLAY and STOP buttons, and minimize $t_1$ .                     | Playback mode |
| 4     | D    | 05      |      | Press the PAUSE button.                                                                  |               |
| 5     | D    | 04      |      | Change the data with the PLAY and STOP buttons, and minimize $t_1$ .                     | Playback mode |
| 6     | D    | 04      |      | Press the PAUSE button.                                                                  |               |
| 7     |      |         |      | Check that $t_1$ satisfies the specified value.<br>If not, repeat steps 3 to 7 in order. |               |

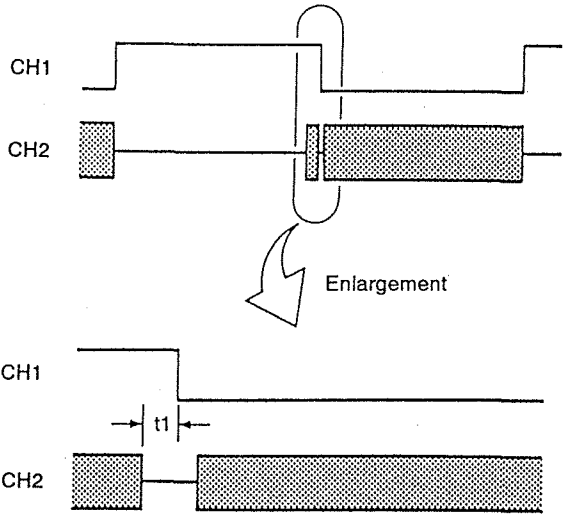


Fig. 9-5.

9-6. VIDEO ADJUSTMENTS

Basically, the video system must be adjusted according to the following adjustment procedures.

The color video signal supplied from the pattern generator is used as the video input signal for adjusting the video system in the recording mode. Check that the sync signal and the color burst signal satisfy the standards specified for the set-ups for adjustments shown in Fig. 9-2.

[Adjusting procedure]

- 1) Playback frequency characteristics adjustment
- 2) Flying erase check
- 3) VXO oscillation frequency check
- 4) EE level adjustment
- 5) IR adjustment
- 6) Chroma comb filter adjustment
- 7) Emphasis input level adjustment
- 8) PB Y level adjustment
- 9) PB line out level adjustment
- 10) Y FM deviation adjustment
- 11) Y carrier frequency adjustment
- 12) Chroma emphasis fo adjustment
- 13) REC Y level adjustment
- 14) REC C level adjustment
- 15) REC ATF level check
- 16) REC AFM level check
- 17) Chroma comb filter fine adjustment

1. Playback frequency characteristic adjustment (VS-99 board)

Note: The adjusting element for CH2 is shown in parentheses [ ].

|                      |                                                                     |
|----------------------|---------------------------------------------------------------------|
| Mode                 | Playback                                                            |
| Signal               | Alignment tape:<br>For adjusting frequency characteristics (WR5-6C) |
| Measurement Point    | CH1: Pin ③ of CN002 (PB RF)<br>EXT TRIG: Pin ④ of CN002 (RF SWP)    |
| Measuring Instrument | Oscilloscope<br>TRIG SLOPE: + [ - ]                                 |
| Adjustment Page      | D                                                                   |
| Adjustment Address   | 43 (MT 1A (L)) [3F (MT 2A (L))]<br>42 (MT 1A (E)) [3E (MT 2A (E))]  |
| Specified Value      | 3.58 MHz level: 5.5 MHz level=<br>4: (3.0±0.3)                      |

Adjusting method:

| Order | Page | Address    | Data | Procedure                                                                                                                                                                                                                                                                             | Conditions    |
|-------|------|------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1     | 1    | 00         | 01   | Releasing of protect.                                                                                                                                                                                                                                                                 |               |
| 2     | D    | 05         |      | After memorizing the data, set the data to 10.                                                                                                                                                                                                                                        | Playback mode |
| 3     | D    | 05         |      | Press the PAUSE button                                                                                                                                                                                                                                                                |               |
| 4     | D    | 43<br>[3F] |      | Change the data with the PLAY and STOP buttons, and adjust the level ratio of 3.58 MHz and 5.5 MHz of PB RF output waveform to the specified value<br>Note: After each address adjustment, be sure to press the PAUSE button of the adjusting remote commander and memorize the data. | Playback mode |
| 5     | D    | 42<br>[3E] |      | Set the data, same data as address 43                                                                                                                                                                                                                                                 |               |
| 6     | D    | 05         |      | Set the data memorized at step 2), and press the PAUSE button of the adjusting remote commander.                                                                                                                                                                                      |               |

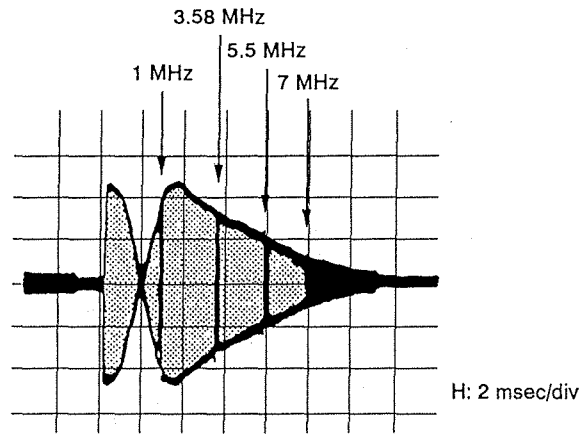


Fig. 9-6.

2. Flying erase check (VS-99 board)

|                      |                                                                                           |
|----------------------|-------------------------------------------------------------------------------------------|
| Mode                 | Record                                                                                    |
| Signal               | Arbitrary                                                                                 |
| Measurement Point    | Pin ② of W001 (FE (X))                                                                    |
| Measuring Instrument | Oscilloscope and frequency counter                                                        |
| Specified Value      | Frequency: Above 7.5 MHz<br>Voltage: Above 5.5 Vp-p (ME tape)<br>Above 7.0 Vp-p (MP tape) |

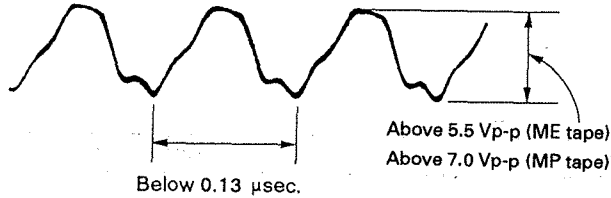


Fig. 9-7.

3. VXO oscillation frequency check (VS-99 board)

|                      |                          |
|----------------------|--------------------------|
| Mode                 | Playback                 |
| Signal               | Any tape                 |
| Measurement Point    | Pin ② of IC301 (FSC OUT) |
| Measuring Instrument | Frequency counter        |
| Specified Value      | 4433619±70 Hz            |

Note: Connect the frequency counter via a high impedance (approximately 10 MΩ ) and low capacity (below 10 pF) buffer.

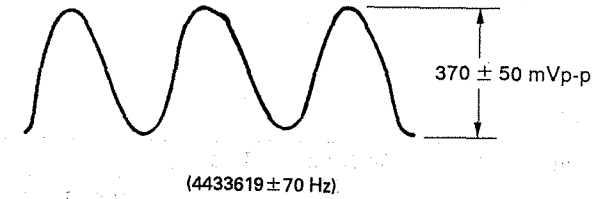


Fig. 9-8.

#### 4. EE level adjustment (VS-99 board)

|                      |                                            |
|----------------------|--------------------------------------------|
| Mode                 | E-E                                        |
| Signal               | Color bar                                  |
| Measurement Point    | Pin ② of CN101 (VIDEO OUT) <sup>Note</sup> |
| Measuring Instrument | Oscilloscope                               |
| Adjustment Page      | D                                          |
| Adjustment Address   | 4A (SYNC AGC)                              |
| Specified Value      | A=1.00±0.05 V                              |

**Note:** Terminate pin ② of CN101 at 75 Ω.  
After completing adjustments, remove the 75 Ω resistor.

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                 | Conditions |
|-------|------|---------|------|-----------------------------------------------------------------------------------------------------------|------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                     |            |
| 2     | D    | 4A      |      | Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value. | E-E mode   |
| 3     | D    | 4A      |      | Press the PAUSE button.                                                                                   |            |

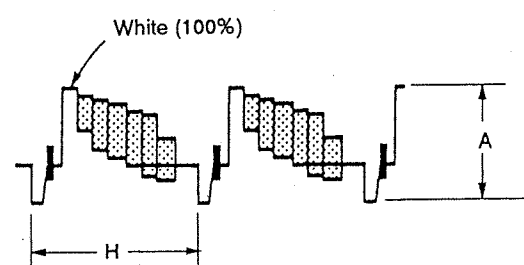


Fig. 9-9.

Related Adjustments:  
"Emphasis input level adjustment", "PB Y level adjustment",  
"Y FM carrier frequency adjustment", "Y FM deviation adjustment".

#### 5. IR adjustment (VS-99 board)

|                      |                                                        |
|----------------------|--------------------------------------------------------|
| Mode                 | Record                                                 |
| Signal               | Color bar                                              |
| Measurement Point    | Pin ⑦ of IC201 (YCOMB OUT)                             |
| Measuring Instrument | Oscilloscope                                           |
| Adjustment Page      | D                                                      |
| Adjustment Address   | 4D (SR IR)                                             |
| Specified Value      | Minimum residual chroma component (A) (Below 80 mVp-p) |

Connection:

- 1) Connect Pin ⑭ of IC201 (or Pin ② of IC202) and Pin ⑤① of IC201 with a jumper wire

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                       | Conditions                                                                       |
|-------|------|---------|------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1     |      |         |      | Check that the input is "VIDEO".                                                                |                                                                                  |
| 2     | 1    | 00      | 01   | Releasing of protect.                                                                           |                                                                                  |
| 3     | D    | 4D      |      | Change the data with the PLAY and STOP buttons, and minimize the residual chroma component (A). | Recording mode<br>Connect Pin ② of IC202 and Pin ⑤① of IC201 with a jumper wire. |
| 4     | D    | 4D      |      | Press the PAUSE button.                                                                         |                                                                                  |

**Note:** Remove the lens block and adjust.

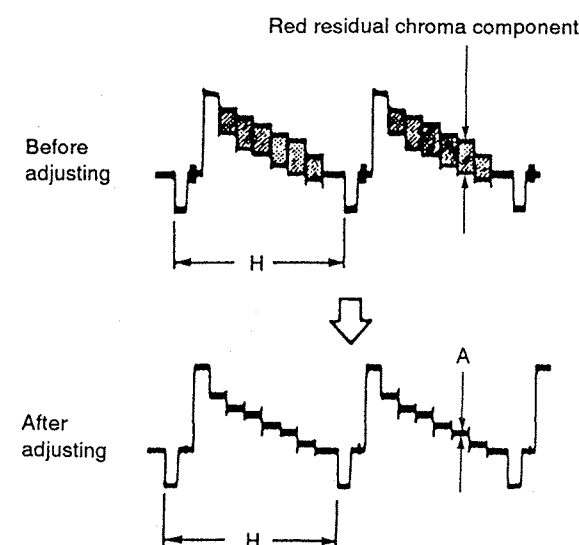


Fig. 9-10.

Related Adjustments:  
"Emphasis input level adjustment", "PB Y level adjustment",  
"Y FM deviation adjustment", "Y FM carrier frequency adjustment".

6. Chroma comb filter adjustment (VS-99 board)

|                      |                                       |
|----------------------|---------------------------------------|
| Mode                 | Record                                |
| Signal               | Color bar                             |
| Measurement Point    | Pin ① of IC201 (C+CD)                 |
| Measuring Instrument | Oscilloscope                          |
| Adjusting Element    | RV161 (Phase)                         |
| Adjustment Page      | D                                     |
| Adjustment Address   | 4C (C COMB)                           |
| Specified Value      | Minimum residual chroma component (A) |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                   | Conditions     |
|-------|------|---------|------|---------------------------------------------------------------------------------------------|----------------|
| 1     |      |         |      | Check that the input is "VIDEO".                                                            |                |
| 2     | 1    | 00      | 01   | Releasing of protect.                                                                       |                |
| 3     |      |         |      | Minimize the residual chroma component (A) with RV161                                       | Recording mode |
| 4     | D    | 4C      |      | Change the data with the PLAY and STOP buttons, and minimize the residual chroma component. | Recording mode |
| 5     | D    | 4C      |      | Press the PAUSE button.                                                                     |                |
| 6     |      |         |      | Repeat steps 3 to 5 in order.                                                               |                |

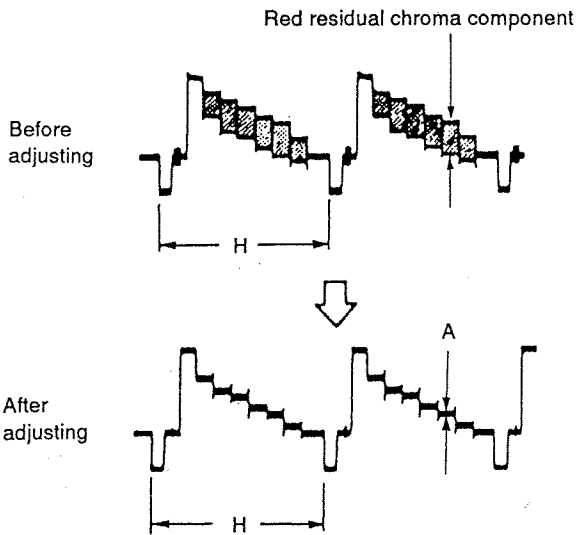


Fig. 9-11.

Related Adjustments:  
"Chroma comb filter fine adjustment".

7. Emphasis input level adjustment (VS-99 board)

|                      |                          |
|----------------------|--------------------------|
| Mode                 | Record                   |
| Signal               | Color bar                |
| Measurement Point    | Pin ③ of IC201 (EMPH IN) |
| Measuring Instrument | Oscilloscope             |
| Adjustment Page      | D                        |
| Adjustment Address   | 5A (EMPH (EE))           |
| Specified Value      | A=0.50±0.025V            |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                 | Conditions     |
|-------|------|---------|------|-----------------------------------------------------------------------------------------------------------|----------------|
| 1     | 1    | 00      | 01   | Releasing of the protect.                                                                                 |                |
| 2     | D    | 5A      |      | Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value. | Recording mode |
| 3     | D    | 5A      |      | Press the PAUSE button.                                                                                   |                |

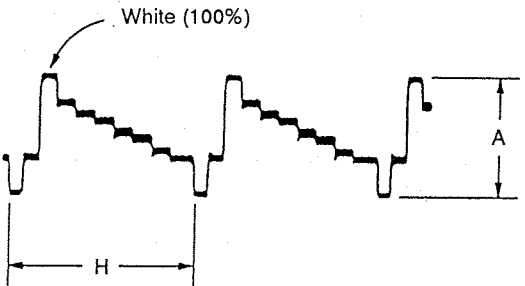


Fig. 9-12.

Related Adjustments:  
"PB Y level adjustment", "Y FM deviation adjustment".

# 8. PB Y level adjustment (VS-99 board)

|                      |                                                                               |
|----------------------|-------------------------------------------------------------------------------|
| Mode                 | Playback                                                                      |
| Signal               | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Color bar section |
| Measurement Point    | Pin ② of IC201 (DL IN 1)                                                      |
| Measuring Instrument | Oscilloscope                                                                  |
| Adjustment Page      | D                                                                             |
| Adjustment Address   | 59 (PB Y L)                                                                   |
| Specified Value      | $A=0.50\pm0.025V$                                                             |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                        | Conditions          |
|-------|------|---------|------|------------------------------------------------------------------------------------------------------------------|---------------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                            |                     |
| 2     |      |         |      | Play back the color bar section of the normal mode alignment tape.                                               |                     |
| 3     | D    | 59      |      | Change the data with the PLAY and STOP buttons, and adjust the playback signal level (A) to the specified value. | Play back WR5-5CSP. |
| 4     | D    | 59      |      | Press the PAUSE button.                                                                                          |                     |

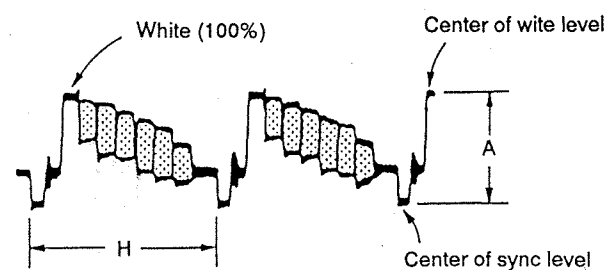


Fig. 9-13.

# 9. PB line out level adjustment

|                      |                                                                               |
|----------------------|-------------------------------------------------------------------------------|
| Mode                 | Playback                                                                      |
| Signal               | Alignment tape:<br>For checking operations<br>(WR5-5CSP)<br>Color bar section |
| Measurement Point    | Video output terminal<br>(terminated at 75 $\Omega$ )                         |
| Measuring Instrument | Oscilloscope                                                                  |
| Adjustment Page      | D                                                                             |
| Adjustment Address   | 5B (EMPH (PB))                                                                |
| Specified Value      | $A=1.0\pm0.05V$                                                               |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                     | Conditions    |
|-------|------|---------|------|---------------------------------------------------------------------------------------------------------------|---------------|
| 1     | 1    | 00      | 01   | Releasing of the protect.                                                                                     |               |
| 2     | D    | 5B      |      | Change the data with the PLAY and STOP buttons, and adjust the video signal level (A) to the specified value. | Playback mode |
| 3     | D    | 5B      |      | Press the PAUSE button.                                                                                       |               |

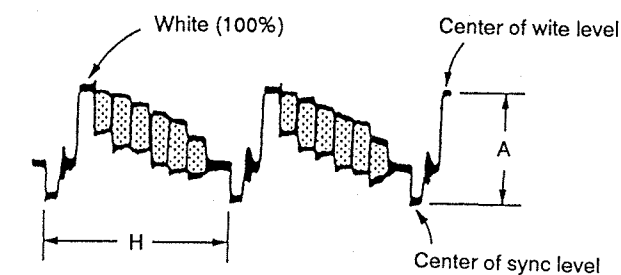


Fig. 9-14.



10. Y FM deviation adjustment  
(VS-99 board)

|                      |                          |
|----------------------|--------------------------|
| Mode                 | Record and playback      |
| Signal               | Color bar                |
| Measurement Point    | Pin ② of IC201 (DL IN 1) |
| Measuring Instrument | Oscilloscope             |
| Adjustment Page      | D                        |
| Adjustment Address   | 51 (DEV. -L)             |
| Specified Value      | A=0.50±0.025V            |

**Note:** Check that the "Emphasis input level adjustment" and "PB Y level adjustment" have been completed.

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                                                                                                                                                 | Conditions |
|-------|------|---------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                                                                                                                                                     |            |
| 2     |      |         |      | Record the color bar signal.                                                                                                                                                                                                              |            |
| 3     |      |         |      | Play back the recorded signal.                                                                                                                                                                                                            |            |
| 4     |      |         |      | Compare the playback signal level with the specified value.<br>If it satisfies the value, the adjustment is completed.                                                                                                                    |            |
| 5     | D    | 51      |      | If not,;<br>Change the data with the PLAY and STOP buttons. <ul style="list-style-type: none"><li>• Decrease the data if the playback signal level is greater than the specified value.</li><li>• Increase the data if smaller.</li></ul> |            |
| 6     | D    | 51      |      | Press the PAUSE button.                                                                                                                                                                                                                   |            |

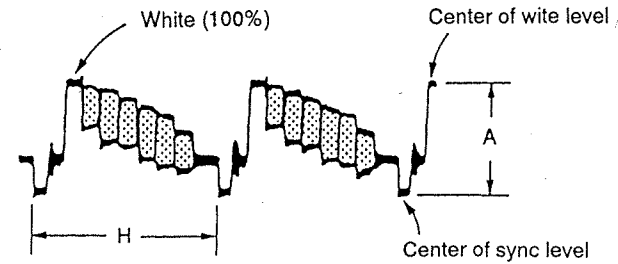


Fig. 9-15.

Related Adjustments:  
"Y FM carrier frequency adjustment".

11. Y FM carrier frequency adjustment  
(VS-99 board)

|                      |                           |
|----------------------|---------------------------|
| Mode                 | Record                    |
| Signal               | No signal                 |
| Measurement Point    | Pin ④ of IC201 (Y RF OUT) |
| Measuring Instrument | Frequency counter         |
| Adjustment Page      | D                         |
| Adjustment Address   | 4F (CAR. -L)              |
| Specified Value      | 4.20±0.04 MHz             |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                     | Conditions                      |
|-------|------|---------|------|---------------------------------------------------------------------------------------------------------------|---------------------------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                         |                                 |
| 2     | D    | 4F      |      | Change the data with the PLAY and STOP buttons, and adjust the Y FM carrier frequency to the specified value. | Recording mode, no signal input |
| 3     | D    | 4F      |      | Press the PAUSE button.                                                                                       |                                 |



Fig. 9-16.

## 12. Chroma emphasis f0 adjustment (VS-99 board)

|                      |                       |
|----------------------|-----------------------|
| Mode                 | Record                |
| Signal               | Color bar             |
| Measurement Point    | Pin ②④ of IC301       |
| Measuring Instrument | Oscilloscope          |
| Adjustment Element   | FL302                 |
| Adjustment value     | Minimum f0 components |

Connection:

- 1) Connect pin ②④ of IC301 to GND with a 3.3 k $\Omega$  resistor (1-249-423-11).

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                      | Conditions |
|-------|------|---------|------|------------------------------------------------------------------------------------------------|------------|
| 1     |      |         |      | Minimize the amplitude of the rear part of the yellow section of the chroma signal with FL302. |            |

Minimize the amplitude of the rear part of the yellow section

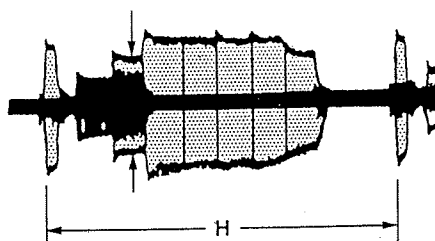


Fig. 9-17.

## 13. REC Y level adjustment (VS-99 board)

|                      |                                                                                                                                          |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Mode                 | Record (SP)                                                                                                                              |
| Signal               | No signal                                                                                                                                |
| Measurement Point    | Pin ⑥ of CN002 (REC 2CH)                                                                                                                 |
| Measuring Instrument | Oscilloscope                                                                                                                             |
| Adjustment Page      | D                                                                                                                                        |
| Adjustment Address   | 54 (REC Y (ME L)),<br>55 (REC Y (MP L))                                                                                                  |
| Specified Value      | <ul style="list-style-type: none"> <li>• ME mode A=175<math>\pm</math>5 mVp-p</li> <li>• MP mode A=175<math>\pm</math>5 mVp-p</li> </ul> |

**Note:** Use a MP type tape

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                              | Conditions     |
|-------|------|---------|------|--------------------------------------------------------------------------------------------------------|----------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                  |                |
| 2     | D    | 55      |      | Change the data with the PLAY and STOP buttons, and adjust the REC Y level (A) to the specified value. | Recording mode |
| 3     | D    | 55      |      | Press the PAUSE button.                                                                                |                |
| 4     | D    | 54      |      | Set the same data as address 55, and press the PAUSE button.                                           |                |

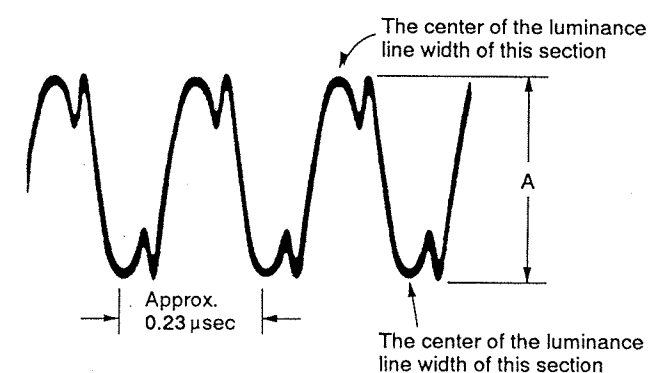


Fig. 9-18.

#### 14. REC C level adjustment (VS-99 board)

|                      |                           |
|----------------------|---------------------------|
| Mode                 | Record (SP)               |
| Signal               | Color bar                 |
| Measurement Point    | Pin ⑤ of IC302 (REC C RF) |
| Measuring Instrument | Oscilloscope              |
| Adjustment Page      | D                         |
| Adjustment Address   | 46 (REC C (REC))          |
| Specified Value      | $A=115 \pm 10 \text{ mV}$ |

**Note:** Use a MP type tape

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                                                                | Conditions     |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                                                                    |                |
| 2     | D    | 46      |      | Change the data with the PLAY and STOP buttons, and adjust the amplitude (A) of the flat section of the "red" of the REC C level to the specified value. | Recording mode |
| 3     | D    | 46      |      | Press the PAUSE button.                                                                                                                                  |                |

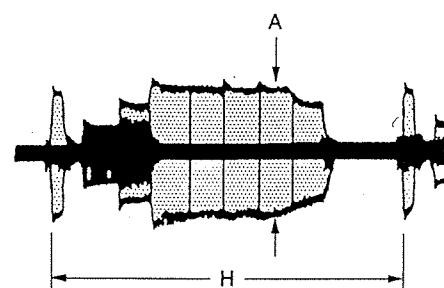


Fig. 9-19.

#### 15. REC ATF level check (VS-99 board)

|                      |                             |
|----------------------|-----------------------------|
| Mode                 | Record (SP)                 |
| Signal               | No signal                   |
| Measurement Point    | Pin ⑥ of CN002 (REC 2CH)    |
| Measuring Instrument | Oscilloscope                |
| Specified Value      | $A=8 \pm 2.0 \text{ mVp-p}$ |

**Note:** Use a MP type tape

Connection:

1) Remove CN505 of the AU-149 board.

Checking method:

| Order | Page | Address | Data | Procedure                                                                                                                        | Conditions     |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                                            |                |
| 2     | D    | 55      |      | Set the data to 00. (Minimizing the REC Y level)<br><b>Note:</b> Don't press the PAUSE button of the adjusting remote commander. |                |
| 3     |      |         |      | Check that the REC ATF signal level (A) satisfies the specified value.                                                           | Recording mode |
| 4     |      |         |      | Turn the main power supply (7.5V) off                                                                                            |                |

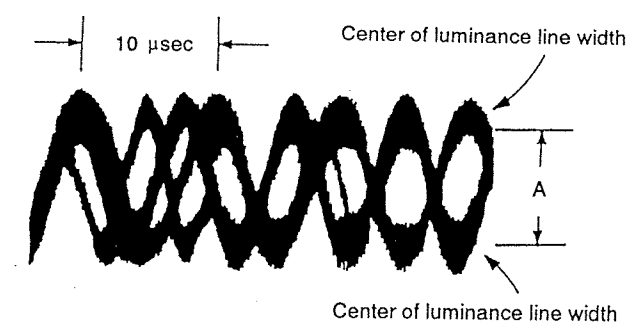


Fig. 9-20.

# 16. REC AFM level check (VS-99 board)

|                      |                          |
|----------------------|--------------------------|
| Mode                 | Record (SP)              |
| Signal               | No signal                |
| Measurement Point    | Pin ⑥ of CN002 (REC 2CH) |
| Measuring Instrument | Oscilloscope             |
| Specified Value      | $A=9 \pm 2.0$ mVp-p      |

**Note :** Use a MP type tape

Connection:

- 1) Connect Pin ⑨ of IC504 and GND with a  $0.01 \mu\text{F}$  capacitor (1-101-004-00).

Checking method:

| Order | Page | Address | Data | Procedure                                                                                                                        | Conditions     |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                                            |                |
| 2     | D    | 55      |      | Set the data to 00. (Minimizing the REC Y level)<br><b>Note:</b> Don't press the PAUSE button of the adjusting remote commander. |                |
| 3     |      |         |      | Check that the REC AFM signal level (A) satisfies the specified value.                                                           | Recording mode |
| 4     |      |         |      | Turn the main power supply (7.5V) off                                                                                            |                |

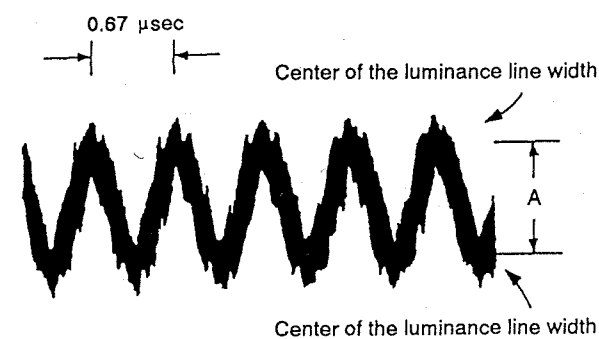


Fig. 9-21.

# 17. Chroma comb filter fine adjustment (VS-99 board)

|                      |                                                                                |
|----------------------|--------------------------------------------------------------------------------|
| Mode                 | Playback                                                                       |
| Signal               | Alignment tape:<br>For checking operations<br>Color bar section                |
| Measurement Point    | Video output terminal                                                          |
| Measuring Instrument | Vectorscope                                                                    |
| Adjusting Element    | RV161                                                                          |
| Adjustment Page      | D                                                                              |
| Adjustment Address   | 4C (C COMB)                                                                    |
| Specified Value      | Minimum color luminance point movement when the "Edit" switch is turned on/off |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                                        | Conditions    |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                                            |               |
| 2     |      |         |      | Minimize the movements of the color luminance point when the edit is on/off with RV161.                                          | Playback mode |
| 3     | D    | 4C      |      | Change the data with the PLAY and STOP buttons, and minimize the movements of the color luminance point when the edit is on/off. | Playback mode |
| 4     | D    | 4C      |      | Press the PAUSE button.                                                                                                          |               |
| 5     |      |         |      | Repeat steps 2 to 4.                                                                                                             |               |

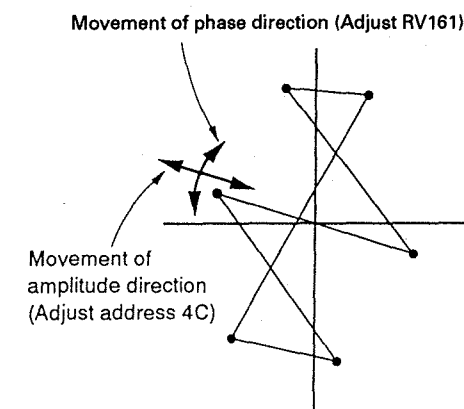


Fig. 9-22.

9-7. AUDIO SYSTEM ADJUSTMENT

- Adjust using the color bar signal as the video signal input.

[Connecting the measuring equipments for audio]

In addition to the measuring equipments for the video system, connect the measuring equipments for the audio system as shown in Fig. 9-23, and adjust with the power supply switch at "Player". Inputting signal and setting REC mode are described in section 9-1-3. Mode of HiFi sound select STEREO.  
(How to setting: Refer to page 20, please changing the Mode Settings.)

- Note:** 1) When inputting the audio signal, input the same signal to both the L and R channels, unless specified otherwise.
- 2) Be sure to insert the plug (shorting plug or dummy plug, etc.) into the audio output (or input/output) terminal (right). If the plug is not inserted, the monaural mode will be set, and correct adjustments cannot be carried out.  
(Monaural mode)  
During recording..... REC AFM RF 1.7 MHz carrier will not be output.  
During playback ..... The L+R signal will be output from the audio output (or input/output) terminal (left).
- 3) Adjustments for channel R in adjustments for both channels L and R are in the [ ].

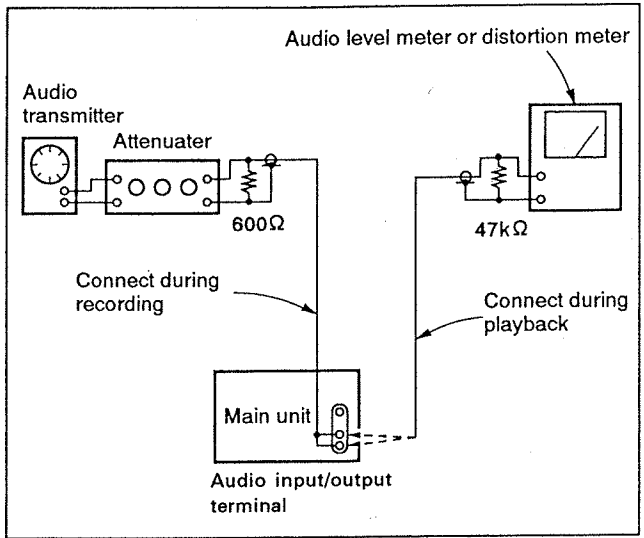


Fig. 9-23.

[Adjusting Procedure]

- 1.5 MHz recording level check
- E-E output level check
- REC matrix L-R adjustment
- REC matrix L+R check
- 1.5 MHz deviation adjustment
- 1.7 MHz deviation adjustment
- Overall level characteristics, distortion rate check
- Separation check
- Overall noise level check

1. 1.5 MHz record level check (AU-149 board)

| Mode                 | Record (Monaural)           |
|----------------------|-----------------------------|
| Signal               | No signal                   |
| Measurement Point    | Pin ② of CN802 (REC AFM RF) |
| Measuring Instrument | Oscilloscope                |
| Specified Value      | A=35±5 mV                   |

**Note:** Do not insert the plug into the right audio output terminal.

Checking method:

| Order | Procedure                                                                 |
|-------|---------------------------------------------------------------------------|
| 1     | Read the center of the luminance line width and note down the read level. |

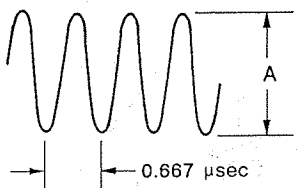


Fig. 9-24.

2. E-E output level check (AU-149 board)

| Mode                 | Record                                                    |
|----------------------|-----------------------------------------------------------|
| Signal               | 400 Hz, -7.5 dBs right audio input terminal [left][right] |
| Measurement Point    | Pin ④ of IC801 [Pin ⑤ of IC801]                           |
| Measuring Instrument | Oscilloscope                                              |
| Specified Value      | 925 <sup>+240</sup> / <sub>-190</sub> mVp-p (-7.5±2 dBs)  |

3. REC matrix L-R adjustment (AU-149 board)

| Mode                 | Record                                                                                 |
|----------------------|----------------------------------------------------------------------------------------|
| Signal               | 400 Hz, -7.5 dBs<br>Input to both left and right terminals of the audio input terminal |
| Measurement Point    | Pin ⑤ of IC801                                                                         |
| Measuring Instrument | Oscilloscope (Use 1:1 probe)                                                           |
| Adjustment Page      | D                                                                                      |
| Adjustment Address   | 78 (REC/PB MX (REC))                                                                   |
| Specified Value      | 0±20 mVp-p                                                                             |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                             | Conditions |
|-------|------|---------|------|---------------------------------------------------------------------------------------|------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                 |            |
| 2     | D    | 78      |      | Change the data with the PLAY and STOP buttons, and minimize the 400 Hz signal level. |            |
| 3     | D    | 78      |      | Press the PAUSE button.                                                               |            |



4. REC matrix L+R check (AU-149 board)

| Mode                 | Record                                                                                                                                                      |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Signal               | 1. 400 Hz, -7.5 dBs :<br>Audio input terminal (left)<br>No signal:<br>Audio input terminal (right)                                                          |
|                      | 2. No signal:<br>Audio input terminal (left)<br>400 Hz, -7.5 dBs:<br>Audio input terminal (right)                                                           |
| Measurement Point    | Pin ④ of IC801                                                                                                                                              |
| Measuring Instrument | Oscilloscope                                                                                                                                                |
| Specified Value      | The level difference when the signal is input to only the left terminal and when the signal is input to only the right terminal should be $0 \pm 20$ mVp-p. |

**Note:** When measuring the signal level of Pin ④ of IC801, wait for more than 1 minute after signal input before measuring. (To regulate the AGC.)

Checking method:

| Order | Page | Address | Data | Procedure                                                                                                                              | Conditions                         |
|-------|------|---------|------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| 1     |      |         |      | Input the 400 Hz, -7.5 dBs signal only to the left audio input terminal. (Insert the shorting plug to the right audio input terminal.) |                                    |
| 2     |      |         |      | Read the 400 Hz signal level of Pin ④ of IC801, and note it down. (Approximately 400 mVp-p)                                            | Input signal to left channel only  |
| 3     |      |         |      | Input the 400 Hz, -7.5 dBs signal only to the right audio input terminal. (Insert the shorting plug to the left audio input terminal.) |                                    |
| 4     |      |         |      | Check that the 400 Hz signal level of Pin ④ of IC801 is (the value noted down at step 2) $\pm 20$ mVp-p.                               | Input signal to right channel only |

5. 1.5 MHz deviation adjustment

| Mode                 | Playback                                                 |
|----------------------|----------------------------------------------------------|
| Signal               | Alignment tape:<br>For checking operations<br>(WR5-5CSP) |
| Measurement Point    | Left or right audio output terminal                      |
| Measuring Instrument | Oscilloscope, level meter                                |
| Adjustment Page      | D                                                        |
| Adjustment Address   | 7B (1.5 DEV)                                             |
| Specified Value      | $-7.5 \pm 0.5$ dBs                                       |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                  | Conditions             |
|-------|------|---------|------|------------------------------------------------------------------------------------------------------------|------------------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                      |                        |
| 2     | D    | 7B      |      | Change the data with the PLAY and STOP buttons, and adjust the 400 Hz signal level to the specified value. | WR5-5CSP playback mode |
| 3     | D    | 7B      |      | Press the PAUSE button.                                                                                    |                        |

## 6. 1.7 MHz deviation adjustment (AU-149 board)

|                      |                                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------|
| Mode                 | Playback                                                                                            |
| Signal               | Alignment tape:<br>AFM stereo<br>For checking operations (WR5-9CS)<br>Bilingual (Monoscope) section |
| Measurement Point    | 1. Pin ④⑨ of IC801<br>2. Pin ⑤① of IC801                                                            |
| Measuring Instrument | Oscilloscope                                                                                        |
| Adjustment Page      | D                                                                                                   |
| Adjustment Address   | 7D (1.7 DEV)                                                                                        |
| Specified Value      | $8 \pm 0.05$ graduation                                                                             |

Adjusting method:

| Order | Page | Address | Data | Procedure                                                                                                                                                                          | Conditions            |
|-------|------|---------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1     | 1    | 00      | 01   | Releasing of protect.                                                                                                                                                              |                       |
| 2     |      |         |      | Connect the oscilloscope to Pin ④⑨ of IC801.                                                                                                                                       |                       |
| 3     |      |         |      | Adjust the 400 Hz signal amplitude to the 8.0 scale using the VOLT/DIV knob of the oscilloscope.                                                                                   | WR5-9CS playback mode |
| 4     |      |         |      | Connect the oscilloscope to Pin ⑤① of IC801.                                                                                                                                       |                       |
| 5     | D    | 7D      |      | Change the data with the PLAY and STOP buttons, and adjust the amplitude of the 1 kHz signal to the $8 \pm 0.05$ graduation. (Adjust with the center of the luminance line width.) | WR5-9CS playback mode |
| 6     | D    | 7D      |      | Press the PAUSE button.                                                                                                                                                            |                       |

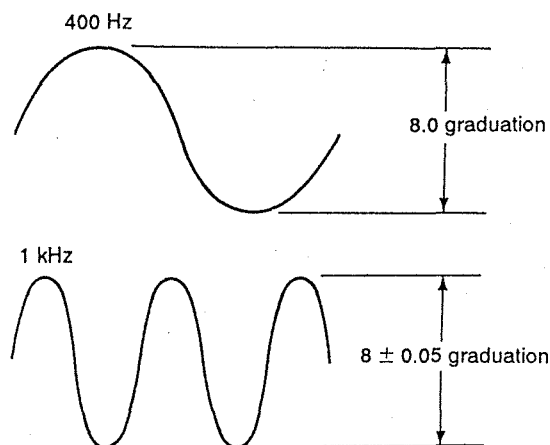


Fig. 9-25.

7. Overall level characteristics, distortion rate check

|                      |                                                                                                           |
|----------------------|-----------------------------------------------------------------------------------------------------------|
| Mode                 | Self record/playback                                                                                      |
| Signal               | 400 Hz, -7.5 dBs:<br>Left audio input terminal [right]<br>No signal:<br>Right audio input terminal [left] |
| Measurement Point    | Left audio output terminal [right]                                                                        |
| Measuring Instrument | Audio level meter and distortion meter                                                                    |
| Specified Value      | Level: $-7.5 \pm 2$ dBs<br>Distortion rate: Below 0.8% (Note 2)                                           |

**Note:** 1) The [ ] contains points to be measured when checking the right channel.  
2) Value when the 200Hz to 6 kHz band pass filter is used.

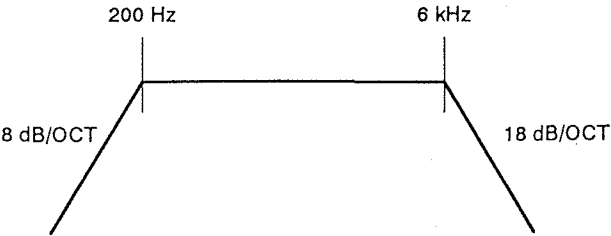


Fig. 9-26.

Checking method:

| Order | Procedure                                                                                                                                                                 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Input the 400 Hz, -7.5 dBs signal only to the left audio input terminal [right].<br><b>Note:</b> Be sure to insert the shorting plug to the terminal of non-signal input. |
| 2     | Record the signal.                                                                                                                                                        |
| 3     | Remove the input signal, and playback the recorded section.                                                                                                               |
| 4     | Check that the 400 Hz signal level of the left audio output terminal [right] is $-7.5 \pm 2$ dBs, and that the distortion rate is below 0.8% (Note 2)                     |

8. Separation check

|                      |                                                                                                           |
|----------------------|-----------------------------------------------------------------------------------------------------------|
| Mode                 | Self recording/playback                                                                                   |
| Signal               | No signal:<br>Left audio input terminal [right]<br>400 Hz, -7.5 dBs:<br>Right audio input terminal [left] |
| Measurement Point    | Left audio output terminal [right]                                                                        |
| Measuring Instrument | Audio level meter<br>(Use an IHF-A curve auditory correction filter)                                      |
| Specified Value      | Below -27.5 dBs                                                                                           |

**Note:** The [ ] contains points to be measured when checking the right channel.

Checking method:

| Order | Procedure                                                                                                                                            |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Insert a shorting plug into the left audio input terminal [right], and input a 1 kHz, -7.5 dBs signal only to the right audio input terminal [left]. |
| 2     | Record the signal.                                                                                                                                   |
| 3     | Remove the input signal.                                                                                                                             |
| 4     | Play back the recorded section.                                                                                                                      |
| 5     | Check that the cross talk level (1 kHz) of the left audio output terminal [right] is below -27.5 dBs.                                                |

9. Overall noise level check

|                      |                                                                      |
|----------------------|----------------------------------------------------------------------|
| Mode                 | Self record/playback                                                 |
| Signal               | No signal:<br>Left and right audio input terminals                   |
| Measurement Point    | Left audio output terminal [right]                                   |
| Measuring Instrument | Audio level meter<br>(Use an IHF-A curve auditory correction filter) |
| Specified Value      | Below -67.5 dBs                                                      |

**Note:** The [ ] contains points to be measured when checking the right channel.

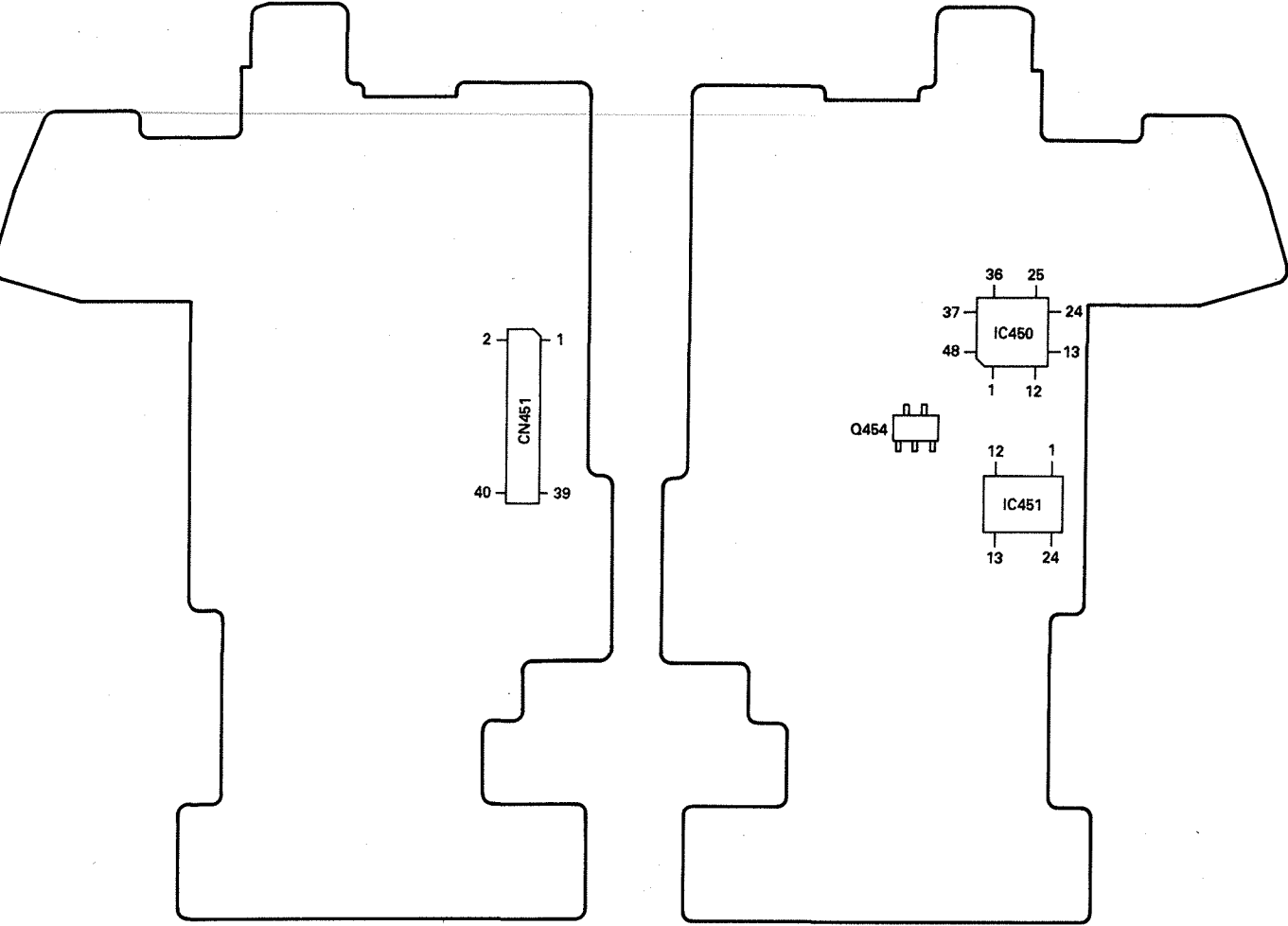
Checking method:

| Order | Procedure                                                                                |
|-------|------------------------------------------------------------------------------------------|
| 1     | Insert the shorting plug to both the left and right audio input terminals.               |
| 2     | Record.                                                                                  |
| 3     | Remove the shorting plug.                                                                |
| 4     | Play back the recorded section.                                                          |
| 5     | Check that the noise level of the left audio output terminal [right] is below -67.5 dBs. |

9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

DD-55 BOARD (COMPONENT SIDE)

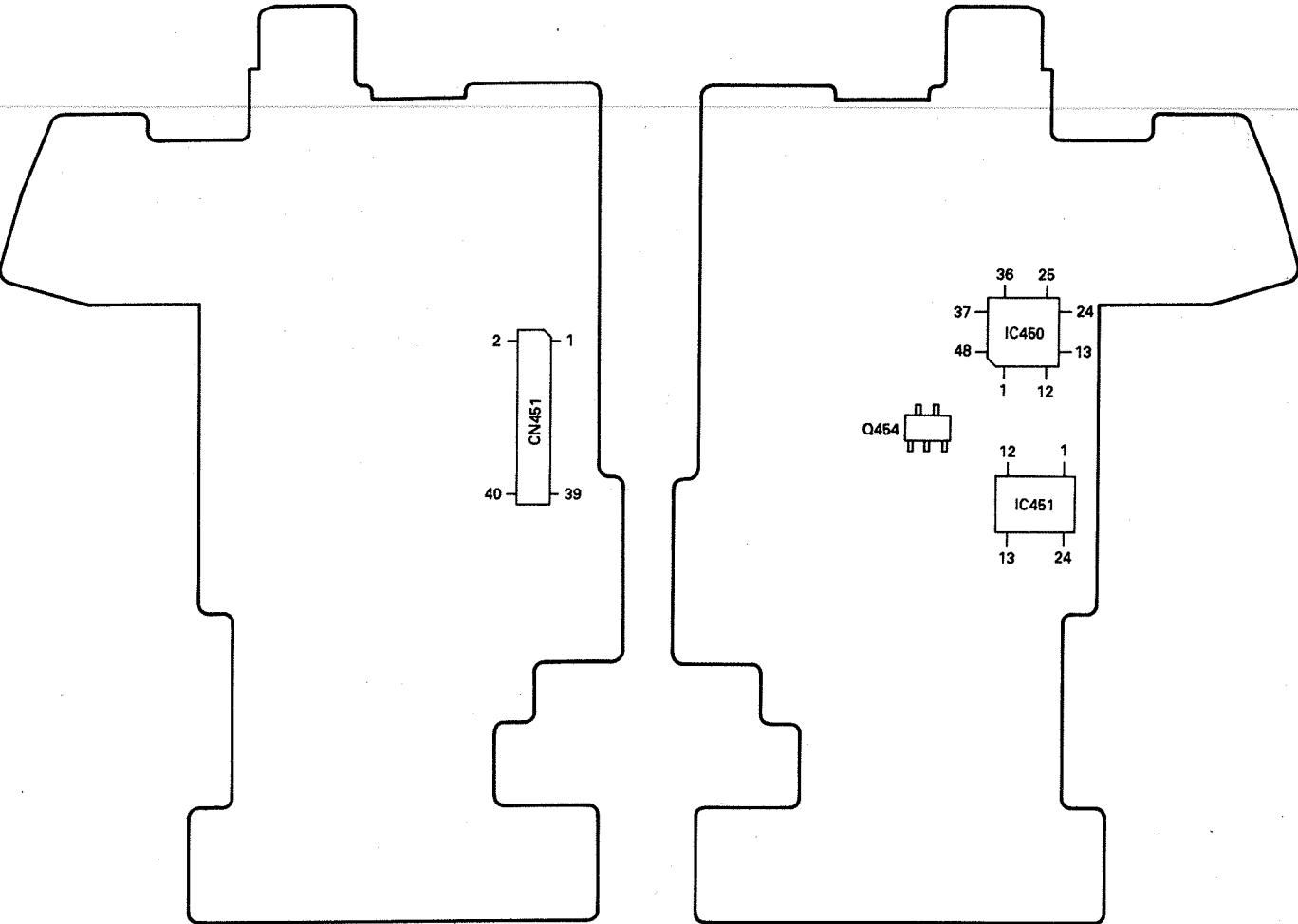
DD-55 BOARD (CONDUCTOR SIDE)



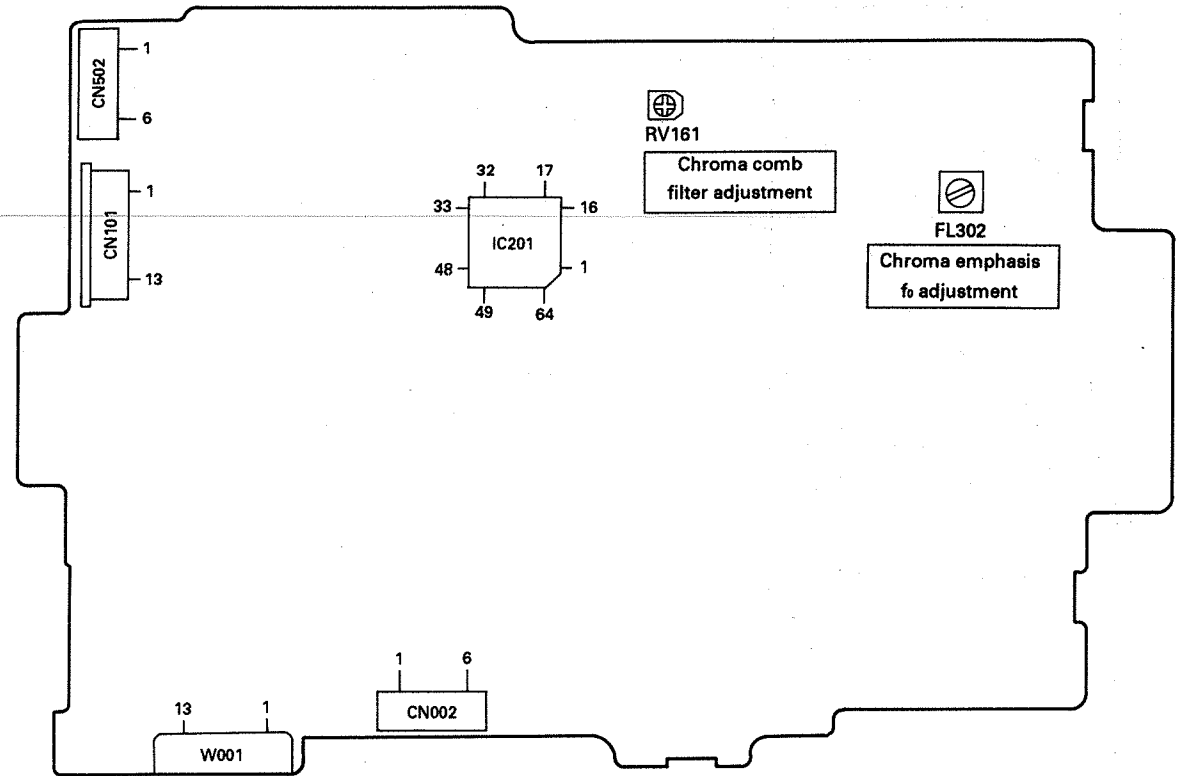
9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

DD-55 BOARD (COMPONENT SIDE)

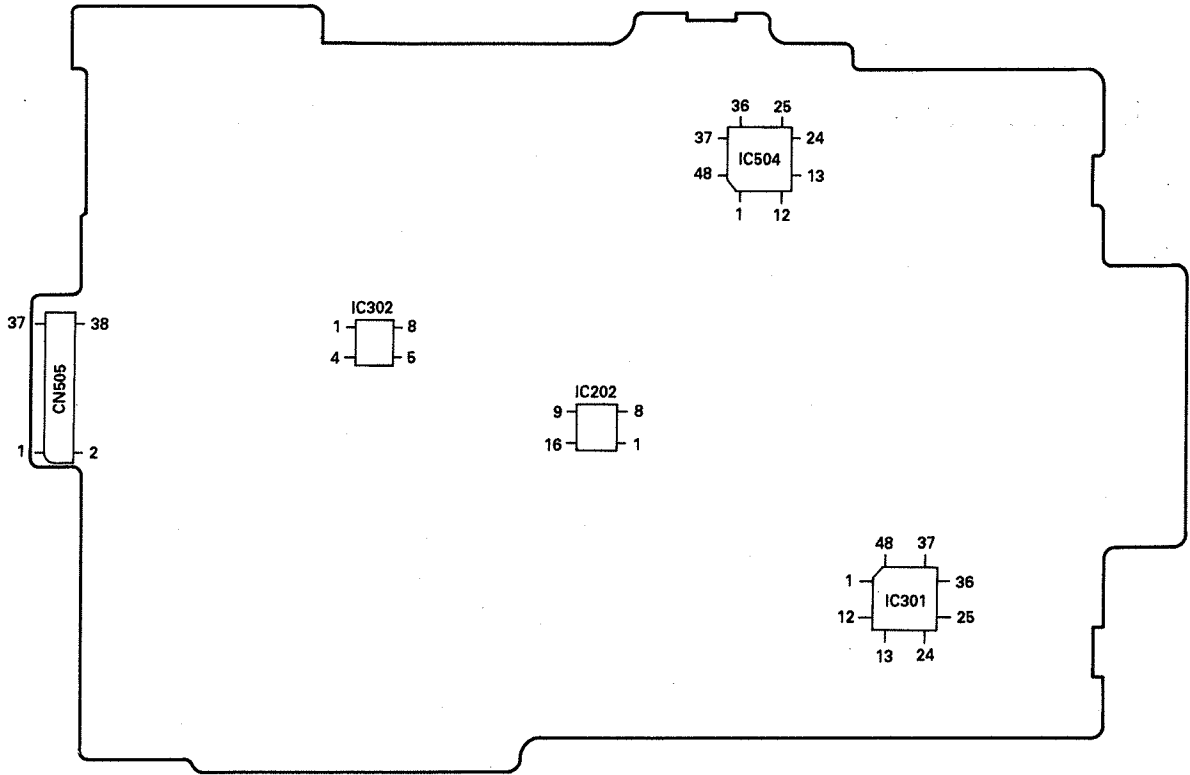
DD-55 BOARD (CONDUCTOR SIDE)



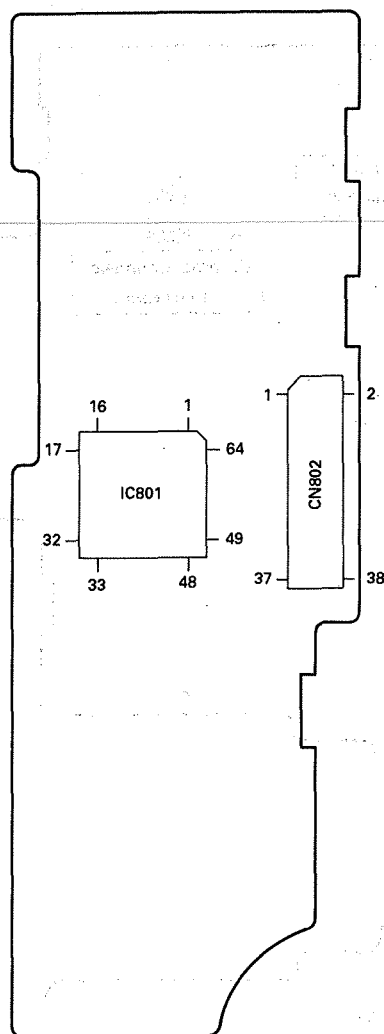
VS-99 BOARD (COMPONENT SIDE)



VS-99 BOARD (CONDUCTOR SIDE)

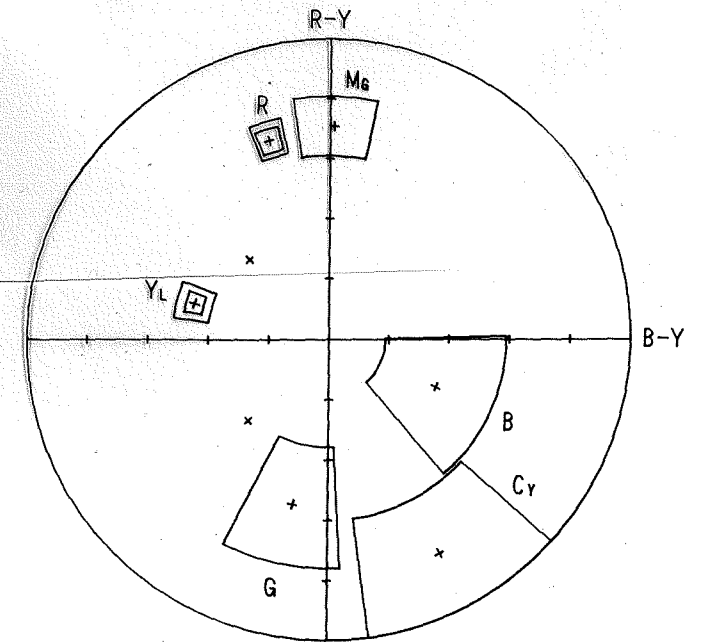


# **AU-149 BOARD (COMPONENT SIDE)**





# FOR CAMERA COLOR REPRODUCTION ADJUSTMENT



CCD-TR606E