

CCD-TR28/TR30/TR350/TR350PK

RMT-708

SERVICE MANUAL



Photo : CCD-TR30

US Model

CCD-TR28/TR30

Canadian Model

CCD-TR30

E Model

CCD-TR350/TR350PK

Tourist Model

CCD-TR350

Video8 Handycam

A MECHANISM

The remote commander RMT-708 is not provided for CCD-TR350/TR350PK and cannot be used for it.

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

SPECIFICATIONS

System

Video recording system Two rotary heads, Helical scanning
FM system

Audio recording system Two rotary heads, FM system

Video signal NTSC color, EIA standards

Usable cassette 8 mm video format cassette (standard 8 mm)

Tape speed SP mode: Approx. 19/32 inches (1.43 cm)/s
LP mode: Approx. 5/16 inches (0.72 cm)/s (playback only)

Recording time SP mode: 2 hours (P6-120)

Playback time SP mode: 2 hours (P6-120)
LP mode: 4 hours (P6-120)

Fastforward/rewind time Approx. 6 min 30 s (P6-120)

Image device CCD (Charge Coupled Device)

Viewfinder Electronic viewfinder (monochrome)

Lens Combined 10 x Power zoom lens
 $f = 1/4$ to $2\ 7/16$ inches (6.2 to 62 mm)
F 1.6 to 2.9 (45 to 450 mm when converted to a 35 mm still camera)
Filter diameter $1\ 1/2$ inches (37 mm)
TTL autofocus system inner focus wide macro system

Color temperature

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

Input and output connectors

Video output Phono jack, 1 V_{p-p}, 75 Ω , unbalanced, sync negative

Audio output Phono jacks -7.5 dBs, (at load impedance 47 k Ω) impedance less than 2.2 k Ω

RFU DC OUT Special minijack, DC 5 V

Remote jack Stereo mini-minijack (ϕ 2.5 mm)

MIC jack Minijack, -66 dBs low impedance with 2.5 to 3 V DC, output impedance 6.8 k Ω (ϕ 3.5 mm)

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8 VIDEO CAMERA RECORDER
SONY[®]

CCD-TR28/TR30/TR350/TR350PK

RMT-708

SERVICE MANUAL



Model - CCD-TR30

US Model
CCD-TR30TR300

Canadian Model
CCD-TR30

E Model
CCD-TR30/TR30PK

Tourist Model
CCD-TR300

Video8 Handycam

A. MUSEUM

The service manual that this is not provided for CCD-TR30/300/350/350PK and cannot be used for it.

For MECHANICAL ADJUSTMENTS, refer to the 16 mm Video **MECHANICAL ADJUSTMENT MANUAL**, 2nd EDITION (9-870-100-17).

SPECIFICATIONS

System

Video recording system
Two rotary heads, tilted scanning
30 frames

Audio recording system
Two rotary heads, 30 frames

Video signal NTSC video, 60 frames/sec
Audio signal 4 non video linear channels
stereophonic 4 sec

Frame speed 30 frames/seconds, 29.97 frames
/sec (PAL mode)
25 frames/seconds, 24.98 frames
/sec (PAL mode)

Recording time 30 minutes (Power 30-60)
Playback time 30 minutes (Power 30-60)

LT mode 30 minutes (PA-60)
LT mode 30 minutes (PA-60)

Self-transported time
Approx. 4 sec (10 min. 30 sec)
CCD Charge-Coupled Device
Electronic Shutter (electronic transport)
Conditioned to a Power save time
1 = 10 to 1.5 sec
0.5 sec (auto)

Image frame
Resolution
Line
7.62 to 29.26 lines (vertical video
direction) to 48 lines (all channels)
Video standard: 1.47 inches (37 mm)
TV, reference picture frame from
video source system

Color temperature

Auto
Minimum (Shutter)
1/16 to 1/2

Resolution range
1/16 to 1/2000 sec

Recommended Shutter
Match that rate to

Input and output sensitivity

Video output 100mV, 100 Ω , 100 Hz
characteristic impedance

Audio output 100mV, 100 Ω , 100 Hz
impedance (100 Ω impedance for
line out)

RMS DC ONLY 100mV, 100 Ω , 100 Hz
impedance for line out
100mV, 100 Ω , 100 Hz

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VIDEO CAMERA RECORDER
SONY.

General

Power requirements

On battery mounting surface
6.0 V (battery pack)
7.5 V (AC power adaptor)

Average power consumption

5.3 W (camera recording) including the viewfinder

Installation

Vertically, horizontally

Operating temperature

32°F to 104°F (0°C to 40°C)

Storage temperature

-4°F to +140°F
(-20°C to +60°C)

Dimensions

Approx. 4 3/8 x 4 3/8 x 7 1/8 inches
(w/h/d) (109 x 109 x 178 mm)

Mass

Approx. 1 lb 10 oz (750 g) excluding the battery pack, lithium battery, cassette and shoulder strap
Approx. 2 lb 2 oz (970 g) including the battery pack NP-55, lithium battery CR2025, cassette P6-120 and shoulder strap

Microphone

Electric condenser microphone, monaural type

AC power adaptor

Power requirements

110-240 V AC*, 50/60 Hz

Power consumption

15 W (AC-V25) / 17 W (AC-V25A)

Output voltage

DC OUT: 7.5 V, 1.2 A (AC-V25)
7.5 V, 1.5 A (AC-V25A)
in operating mode

Application

Battery charge terminal:
10 V, 1.1 A in charge mode
Sony battery packs NP-55/55H, NP-60D, NP-66H, NP-77H, NP-80/80D

Operating temperature

32°F to 104°F (0°C to 40°C)

Storage temperature

-4°F to +140°F
(-20°C to +60°C)

Dimensions

Approx. 4 1/8 x 1 15/16 x 2 1/2 inches
(w/h/d) (103 x 49 x 63 mm) including projecting parts and controls

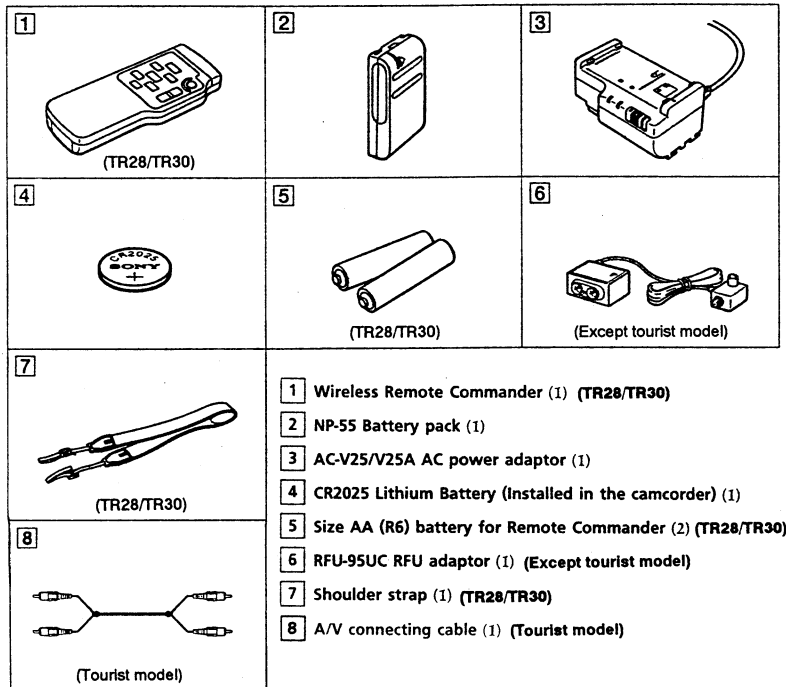
Mass

Approx. 10 oz (290 g) (AC-V25)
Approx. 11 oz (320 g) (AC-V25A)

* Canadian Standard Association (CSA) certifies 120 V AC only.

Design and specifications are subject to change without notice.

Supplied accessories





CCD-TR350PK is a model that soft carrying case is added in CCD-TR350. CCD-TR350PK is different from CCD-TR350 only in accessory and packing materials.

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.
6. Flexible Circuit board Repairing
 - Keep the temperature of the soldering iron around 270°C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

General

Power requirements

- On battery operating surface
- 1.5 V (battery pack)
- 1.5 V (cell) (remote control)

Average power

- 1.5 W (battery operating) including the receiver

Installation

- Vertically (externally)

Operating temperature

- 0°C to 40°C (32°F to 104°F)

Storage temperature

- 0°C to 40°C (32°F to 104°F)

Dimensions

- Approx. 1.20 x 1.20 x 1.10 inches

Mass

- Approx. 1.0 g (0.036 oz) including the battery pack
- Approx. 1.0 g (0.036 oz) including the battery pack (RP-04, RP-05, RP-06, RP-07, RP-08, RP-09, RP-10, and RP-11) including the battery pack

Microphone

- Remote transmitter microphone

AC power adapter

Power requirements

- 100-240V AC, 50/60Hz

Power consumption

- 0.5 W (standby) / 1 W (on)

Output voltage

- DC 0.020 V (1.5 V, 1.2 V, 0.9 V)

- 1.5 V, 1.2 V, 0.9 V (0.020 V) in operating mode

- Before charge finished

- 0.5 W, 1.0 W in charge mode

Appliances

- Basic battery pack (RP-04, RP-05, RP-06, RP-07, RP-08, RP-09, RP-10, RP-11)

Operating temperature

- 0°C to 40°C (32°F to 104°F)

Storage temperature

- 4°C to 40°C (25°F to 104°F)

Dimensions

- Approx. 1.20 x 1.20 x 0.20 inches

- including connecting pins and cover

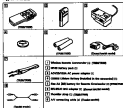
Notes

- Approx. 0.1 to 0.05 g (0.0035 to 0.0018 oz)
- Approx. 0.1 to 0.05 g (0.0035 to 0.0018 oz)

- * Charger (Standard, Accessories, OEM) includes 1.50 V AC cord.

- Design and specifications are subject to change without notice.

Supplied accessories



CD-ROM (Standard) is a remote that will carrying tone in addition to CD-ROM (Standard). CD-ROM (Standard) is different from CD-ROM (Standard) only in accessories and packing materials.

SAFETY CHECK-OUT

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

1. Check the area of your repair for installed or partly installed connections. Check for loose leads or broken solder splatters and bridges.
2. Check the installed voltage to make sure no wires are "jacked" or contact high-voltage sections.
3. Look for unauthorized replacement parts, particularly capacitors. Do not re-install during preventive repair. Refer them to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Refer them to the customer and recommend their replacement.
5. Check the line voltage to see it is the value specified.
6. Perform Circuit board Inspecting
 - Keep the components of the soldering iron around (TFT), during inspecting.
 - Do not install the soldering iron on the same conductor of the circuit board (within 1) time.
 - Be careful to supply fuses to the conductors when soldering or inspecting.

SAFETY-RELATED COMPONENT WARNING!

COMPONENTS IDENTIFIED BY MARK OR BY DOTTED LINES WITH MARK ON THE ORIGINAL CATALOG ARE IN THE PAPER LIST AND SYSTEM, TO SAVE OPERATIONS, REPLACE THESE COMPONENTS WITH ONLY PARTS WHICH BEAR NUMBER ATTACH AS MARKED ON THE MANUAL, OR IN SUPPLEMENTS PUBLISHED BY SANY.

ATTENTION AU COMPOSANT IDENTIFIÉ PAR LA MARQUE

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE OU LES POINTÉS PAR DES LIGNES POINTILLÉES SUR LA LISTE DES PIÈCES SONT ÉNUMÉRÉS DANS LA MARQUE ET LE PAPIER LISTE DES SYSTÈMES. POUR ÉVITER LES OPÉRATIONS DE RÉPARATION, REMPLACEZ CES COMPOSANTS SEULEMENT PAR DES PIÈCES PORTANT LE NUMÉRO MARQUÉ SUR LE MANUEL, LE SUPPLÉMENT PUBLIÉ PAR SANY.

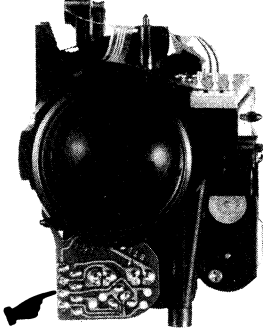
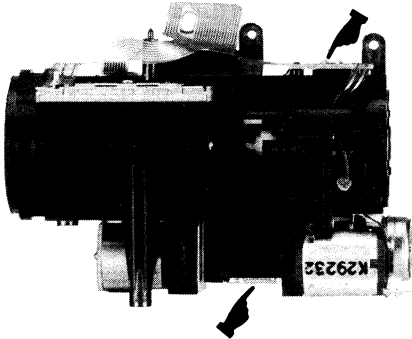
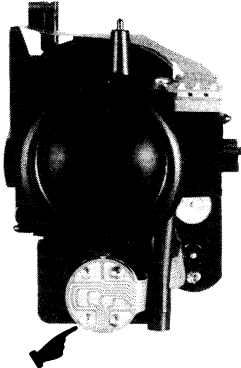
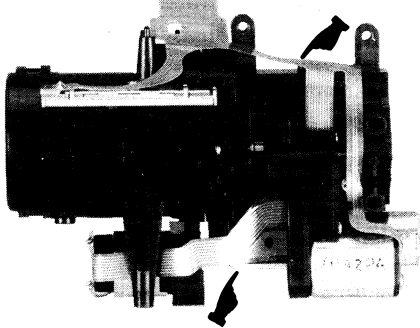
【Zoom lens】

This unit employs two types of lens.

Note that the lenses are interchangeable, however their components are not.

Differentiating the lens

 : difference point

TYPE A (VCL-6210WC)	TYPE B (VCL-6210WF)
<p>From the front of the lens</p>  <p>From the right side of the lens (as seen from the front)</p> 	<p>From the front of the lens</p>  <p>From the right side of the lens (as seen from the front)</p> 

[Zoom lens]

This unit employs two types of lens.

Note that the lenses are interchangeable, however their components are not.

Differentiating the lens

▶▶▶ Difference point





TYPE A (pre-assembly)	TYPE B (post-assembly)
<p>From the front of the lens</p>  <p>From the right side of the lens (as seen from the front)</p> 	<p>From the front of the lens</p>  <p>From the right side of the lens (as seen from the front)</p> 

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There is no value reproduction standard issue of the book of the book.

SERVICE NOTE

[SEMICONDUCTOR FOR CORRECTION LIST DISPLAY]

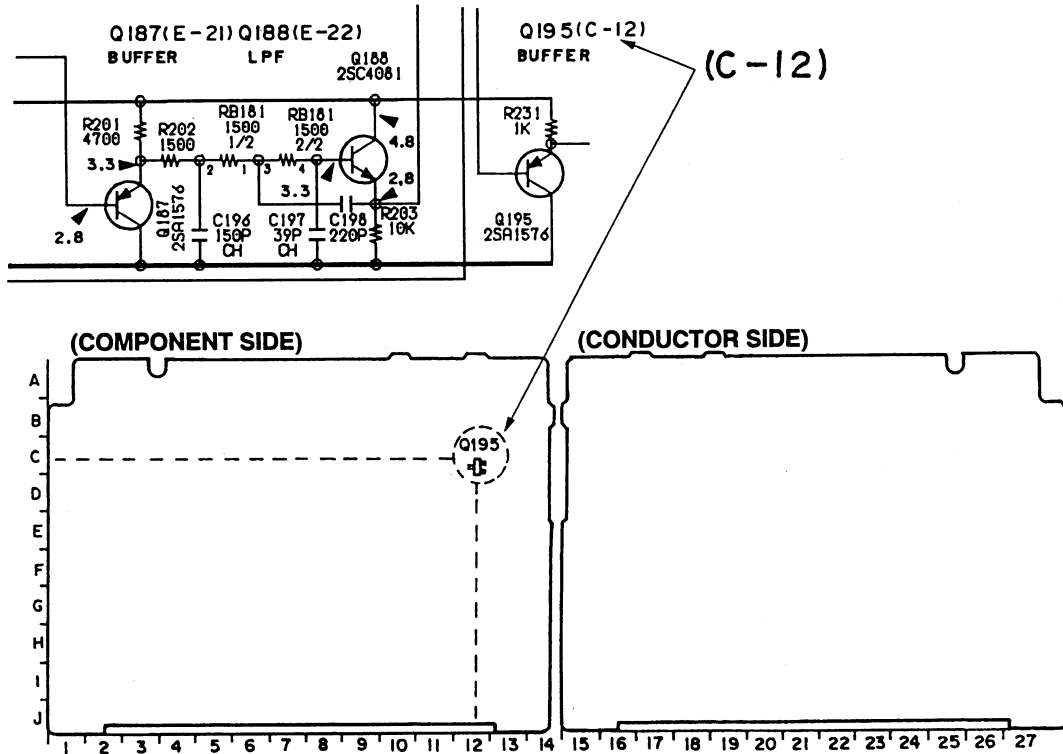
Part code and part name of the semiconductor for correction of the print board is described in the space of each print figure. Use this list when ordering parts.

[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 94, 95 104, 106, 129 and 131.) 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 in schematic diagrams. 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 [⊗] 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.)

SERVICE NOTE

[SEMICONDUCTOR CONNECTION LIST DISPLAY]

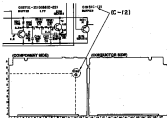
This table will point users of the semiconductor for connection of the point board is described in the space of each point figure. Use this for value including parts.

[FAULTS LOCATION DIAGRAM RELATED TO POWER SUPPLY]

This point location diagram for the power supply which are often checked and replaced when searching for the fault of this unit is on. (See page 14, 15, 16, 17 and 18.) This diagram is useful for repair.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted location of the semiconductor (IC, transistor, diode) are indicated in set in schematic diagram. This enables to find the location on the board easily when working.



[HEAD CLEANING]

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

Check for Head (Stop) during Recording

- 1 Use a clean tape, record a short section, then press the stop button to stop.
- 2 Set to recording mode again.
- 3 If the () mark is fluctuating 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.)

SECTION 1
GENERAL

This section is extracted from
CCD-TR28/TR30 instruction manual.

Charging and Installing the Battery Pack

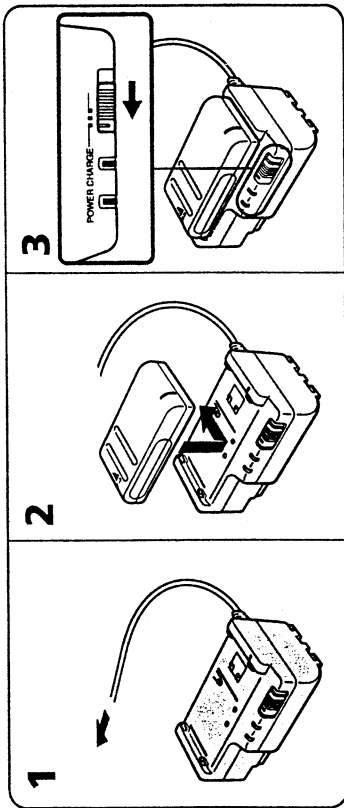
Getting Started
Charging and Installing the Battery Pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC-V25/V25A 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 line on the AC power adaptor, then slide the battery pack in the direction of the arrow. (3) Set the selector to CHARGE. 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.



Important!

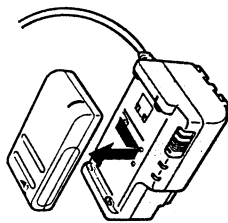
Use the battery completely before re-charging!

Before you recharge the battery, 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 set the POWER switch to CAMERA with the battery attached, and leave the camcorder until the indicator and the red lamp flash in the viewfinder.

Removing 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.
- If the POWER lamp does not light, set the selector to the center position and disconnect the power cord. After about one minute, reconnect the power cord and set the selector to CHARGE again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.

Charging Time and Battery Life

Battery pack	NP-55 (supplied)	NP-80	NP-80D	NP-77H	NP-66H	NP-60D	NP-55H
Charging time*	70	180	180	160	120	90	80
Typical recording time**	30	80	80	75	55	40	35
Continuous recording time***	60	160	160	150	110	80	70

* Approximate minutes to charge an empty battery pack using the AC-V25/V25A (Lower temperatures require a longer charging time.)
 ** Approximate minutes when recording while you repeat recording start/stop and turning the power on/off. The actual battery life may be shorter.
 *** Approximate continuous recording time indoors.

**SECTION 1
GENERAL**

This section is extracted from
000-0000/000-0000 manual.

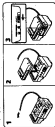
Charging Method

Charging and Testing the Battery Pack

Always use the supplied AC adapter and avoid the battery with the charger.

Charging the Battery Pack

Check the battery level in the display before charging. Charge the battery pack in a dry, well-ventilated area. Do not charge the battery pack with the camera. Do not charge the battery pack with the AC adapter. Do not charge the battery pack with the camera. Do not charge the battery pack with the camera. Do not charge the battery pack with the camera.



Charging Time and Battery Life

Item	Full Charge	Partial Charge	Partial Charge	Partial Charge	Partial Charge	Partial Charge
Charging Time	10	10	10	10	10	10
Shooting Time	10	10	10	10	10	10
Standby Time	10	10	10	10	10	10
Recording Time	10	10	10	10	10	10

Charging time and battery life are affected by the temperature and the usage of the camera. The actual charging time and battery life may vary from the values shown in the table. The actual charging time and battery life may vary from the values shown in the table.

Preparation

Use the battery charging method as follows. Do not charge the battery pack with the camera. Do not charge the battery pack with the camera. Do not charge the battery pack with the camera.

Do not charge the battery pack with the camera. Do not charge the battery pack with the camera. Do not charge the battery pack with the camera.

Inserting the Battery Pack

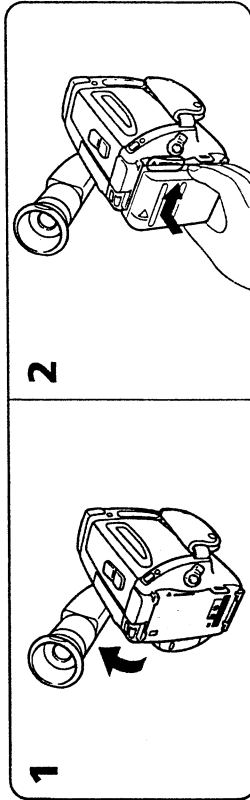


Do not charge the battery pack with the camera. Do not charge the battery pack with the camera. Do not charge the battery pack with the camera.

Charging and Installing the Battery Pack

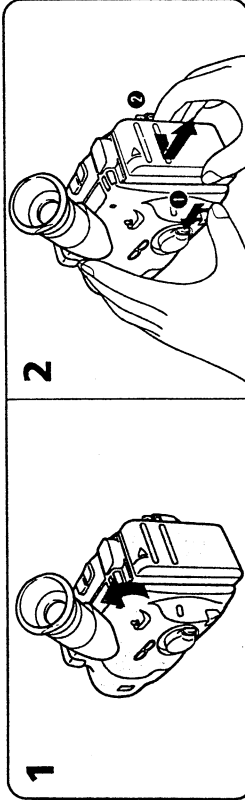
Installing the Battery Pack

(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) Lift up the viewfinder. (2) While pressing B.A.T.T., 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

Always Carry Additional Batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

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. **[a]** A smooth transition between scenes can be made even if recording is stopped and started again. While 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 indicator decreases gradually as battery power is used up.



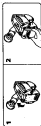
When the remaining battery indicator reaches the lowest point, the indicator appears and starts flashing in the viewfinder. **[b]** When the indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, set the **POWER** switch to **OFF** on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain 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 battery pack with its own indicator (not supplied). The indicator of the battery pack is more accurate.

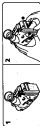
Charging and Inserting the Battery Pack

WARNING: Do not charge the battery pack in a fire or near an open flame. Do not charge the battery pack in a confined space. Do not charge the battery pack in a plastic bag.



Insert the battery pack.

Do not touch the battery pack terminals.



Tips for Using the Battery Pack

Do not use the battery pack in a fire or near an open flame.

WARNING: Do not charge the battery pack in a fire or near an open flame.

Do not charge the battery pack in a plastic bag.

Do not use the battery pack in a confined space.

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Tips for Using the Battery Pack

Note on the Rechargeable Battery Pack

The Battery 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 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 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. 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). [c]

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 50°F to 86°F (from 10°C to 30°C). Lower temperatures require a longer charging time.

Note on Charging

A Brand-new Battery

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, set 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, the DC-S10 car battery charger or BC-S10 portable battery charger, you can use the discharging function.
- **Charging the usable battery causes a lowering of battery capacity. Battery capacity can be recovered if you fully discharge and charge the battery again.**

After Long Storage

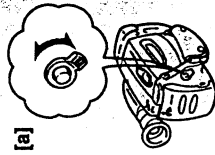
Recharge the battery pack after a long period of storage. If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged. Charge it again, but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery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

Note on the Terminals

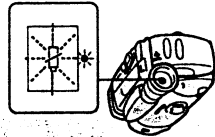
If the terminals (metal parts on the back) are not clean, the battery duration will be shortened. When the terminals are not clean or when the battery pack has not been used for a long time, repeat installing and removing the battery pack. This improves the contact condition. Also, wipe the + and - terminals with a soft cloth or paper.

Be Sure to Observe the Following

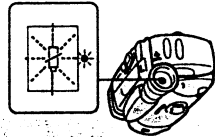
- **To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals. Carry the battery pack attaching to the terminal cover. [d]**
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor convert the battery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



[a]



[b]



[c]



[d]

How to Buy the Best Quality Tanning Bed

The tanning bed is a popular way to get a tan. It is a machine that uses ultraviolet light to tan your skin. There are many different types of tanning beds available, and it is important to choose the best one for your needs.

When buying a tanning bed, there are several factors to consider. First, you should look for a bed that has a good reputation. You can find reviews and ratings for different models online. Second, you should look for a bed that has a good warranty. A warranty of at least one year is recommended.

Third, you should look for a bed that has a good price. Tanning beds can range in price from a few hundred dollars to over a thousand dollars. You should compare prices from different retailers to get the best deal. Finally, you should look for a bed that has a good design. A bed that is easy to use and clean is a good choice.

By following these tips, you can buy the best quality tanning bed for your needs. Remember to always use the bed safely and to avoid over-tanning.

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When buying a tanning bed, there are several factors to consider. First, you should look for a bed that has a good reputation. You can find reviews and ratings for different models online. Second, you should look for a bed that has a good warranty. A warranty of at least one year is recommended.

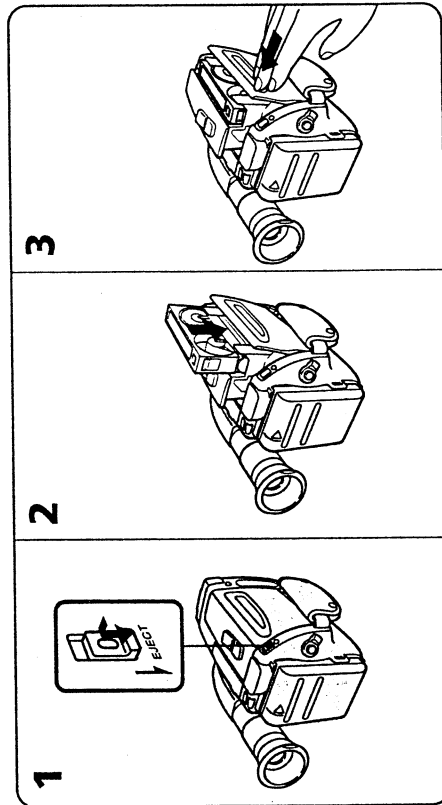
Third, you should look for a bed that has a good price. Tanning beds can range in price from a few hundred dollars to over a thousand dollars. You should compare prices from different retailers to get the best deal. Finally, you should look for a bed that has a good design. A bed that is easy to use and clean is a good choice.



Inserting a Cassette

Make sure that the power source is installed.

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



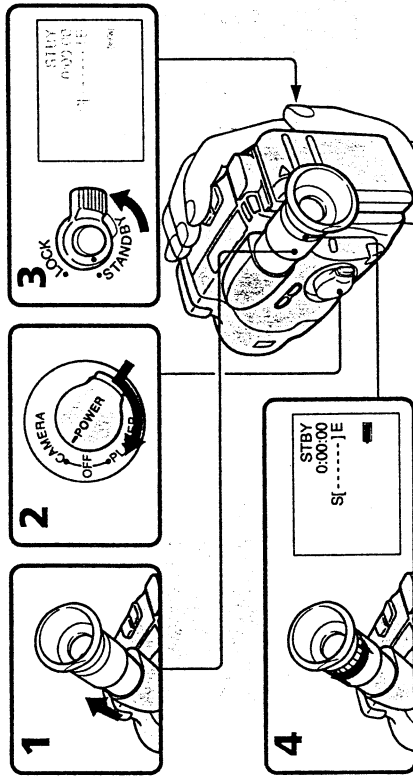
To Eject the Cassette

While pressing the small blue button on the EJECT knob, slide it down.

Adjusting the Viewfinder Lens

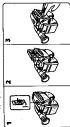
Before you use the camcorder for the first time or after someone else has used it, focus the viewfinder lens. Make sure that the power source is attached to the camcorder.

(1) Pull out the viewfinder until it clicks. (2) While pressing the green button of the POWER switch, turn 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.



Inserting a Cassette

Slide the tape into the cassette. The tape should be held in place by the spring. The tape should be inserted with the label side facing the left. The tape should be inserted with the label side facing the left.



To play the cassette, press the play button on the right side of the deck.

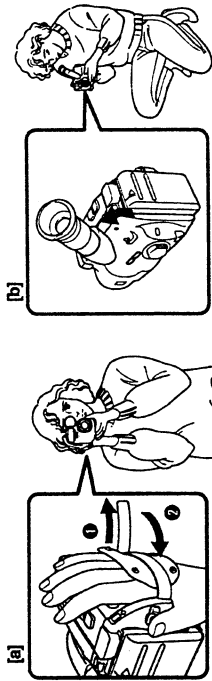
Adjusting the Headstock Arm

Slide the arm to the right to the stop. The arm should be held in place by the spring. The arm should be adjusted so that the tape is held in place by the spring. The arm should be adjusted so that the tape is held in place by the spring.



Hints for Better Shooting

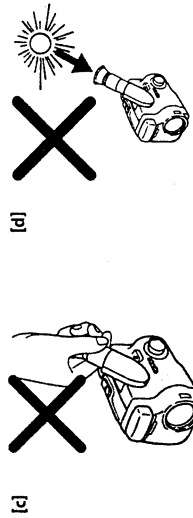
For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:



- 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. Turn the viewfinder up for recording from a low position. [b]

Cautions on the Viewfinder

- Do not pick up the camcorder by the viewfinder. [c]
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder heats up and may be damaged. [d]



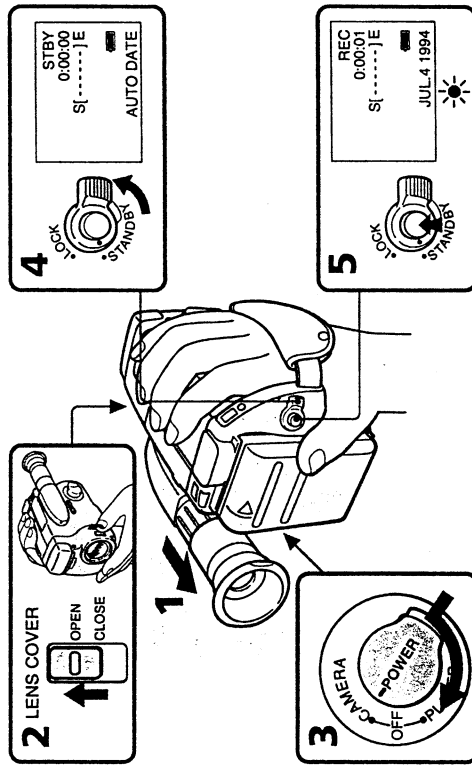
Place the camcorder on a flat surface or use a tripod

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. 33). Make sure the tripod screw is shorter than 9/32 in (6.5 mm).

Basic Operations Camera Recording

Make sure that the power source is installed and a cassette is inserted. When you start recording, the date is automatically recorded for 10 seconds (AUTO DATE feature). This feature works only once a day. You can use the Remote Commander to record yourself with your friends or family. When you use the Remote Commander, make sure that the REMOTE COMMANDER switch on the camcorder is set to ON (p. 37).

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) Slide the LENS COVER switch to OPEN. (3) While pressing the green button of the POWER switch, turn it to CAMERA. (4) Turn STANDBY up. Adjust the viewfinder lens so that the indicators in the viewfinder come into sharp focus (p. 13). (5) Press START/STOP. As the camcorder starts recording, the red lamp in the viewfinder and the camera recording/battery lamp on the camcorder light up.



To Stop Recording Momentarily

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

To Finish Recording

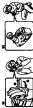
Turn STANDBY down and turn the POWER switch to OFF. Slide the LENS COVER switch to CLOSE and eject the tape (p. 12).

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.

Hints for Euthanizing

Use hand-held forceps to remove needles by cutting the suture line nearby to the following locations:



Use the following steps for removing needles and clips in order from the inside completely to the outside:

1. Cut the suture line near the needle.
2. Cut the suture line near the needle.
3. Cut the suture line near the needle.
4. Cut the suture line near the needle.

Use the following steps for removing needles and clips in order from the inside completely to the outside:

Contraindications for Euthanasia

Do not use the following methods for euthanasia:

- Do not use the following methods for euthanasia.
- Do not use the following methods for euthanasia.



Do not use the following methods for euthanasia:

- Do not use the following methods for euthanasia.
- Do not use the following methods for euthanasia.

Final Observations Carnivore Euthanasia

After the final observation is completed, the animal should be placed in a container for disposal. The container should be labeled with the animal's name and the date of euthanasia. The container should be sealed and disposed of according to the local health department's regulations.

After the final observation is completed, the animal should be placed in a container for disposal. The container should be labeled with the animal's name and the date of euthanasia. The container should be sealed and disposed of according to the local health department's regulations.



After the final observation is completed, the animal should be placed in a container for disposal. The container should be labeled with the animal's name and the date of euthanasia. The container should be sealed and disposed of according to the local health department's regulations.

Camera Recording

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 COUNTER RESET.

Note on the AUTO DATE feature

- 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.
- 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.

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.

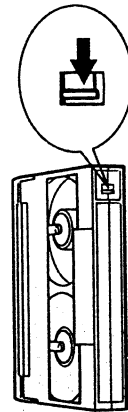
Note on recording

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 playback the tape. You can record tapes in SP (standard play) mode only.

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.



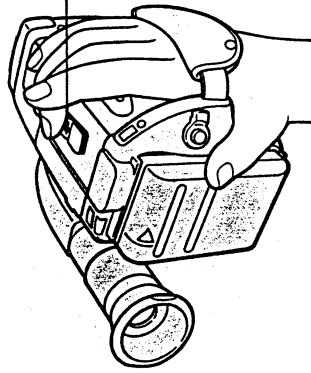
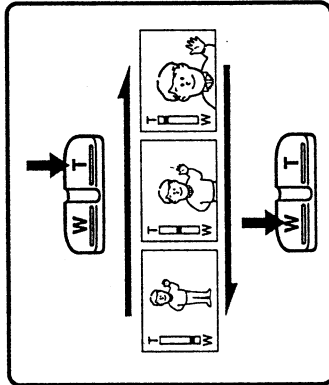
Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene. You can also use the zoom to 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 about 31 1/2 inches (80 cm) away from the lens surface in the telephoto position, or about 1/2 inches (1 cm) in the wide-angle position.

Customer Responsibility

It is the customer's responsibility to ensure that the correct information is provided to the correct person. The customer is responsible for ensuring that the correct information is provided to the correct person.

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Responsible Additional Services

The customer is responsible for ensuring that the correct information is provided to the correct person. The customer is responsible for ensuring that the correct information is provided to the correct person.



Customer Responsibility

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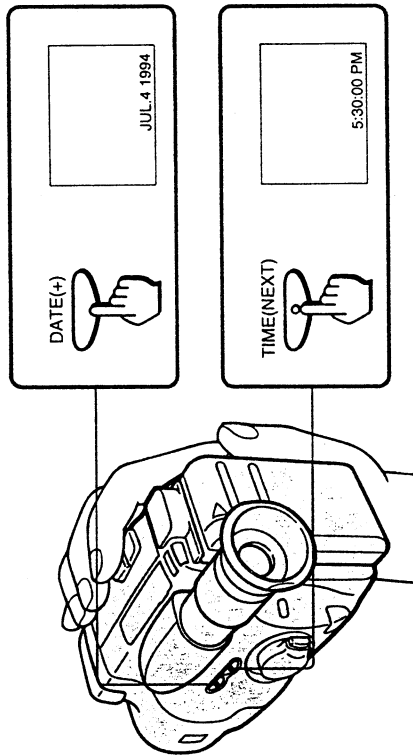


The customer is responsible for ensuring that the correct information is provided to the correct person. The customer is responsible for ensuring that the correct information is provided to the correct person.

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

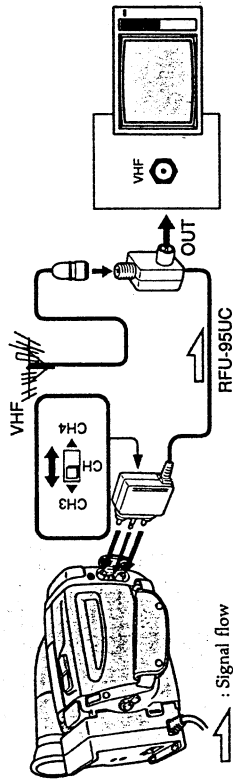
Press DATE (+) or TIME (NEXT) again. The date or time indicator disappears. The recording continues.

Connections for Playback

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

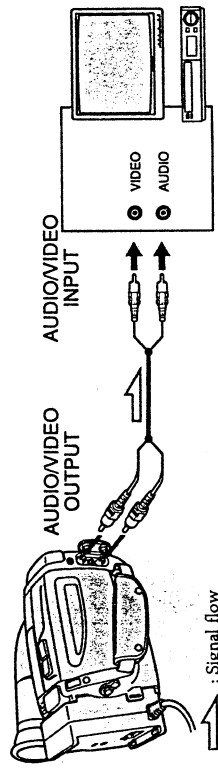
Connecting to a TV without Audio/Video Input Jacks

Connect the camcorder to the TV using the supplied RFU adaptor. Make sure that the TV is turned off to prevent speaker damage before hooking up your camcorder. Set the channel selector on the RFU adaptor and your TV to VHF CH3 or CH4, whichever is not active in your area.



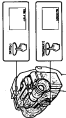
Connecting to a TV or VCR with Audio/Video Input Jacks

Connect the camcorder to the TV using an A/V connecting cable (not supplied). Set the TV/VCR selector on the TV to VCR.



Connect to the Internet

Connect the computer to the Internet. The computer should be connected to the Internet. The computer should be connected to the Internet. The computer should be connected to the Internet.



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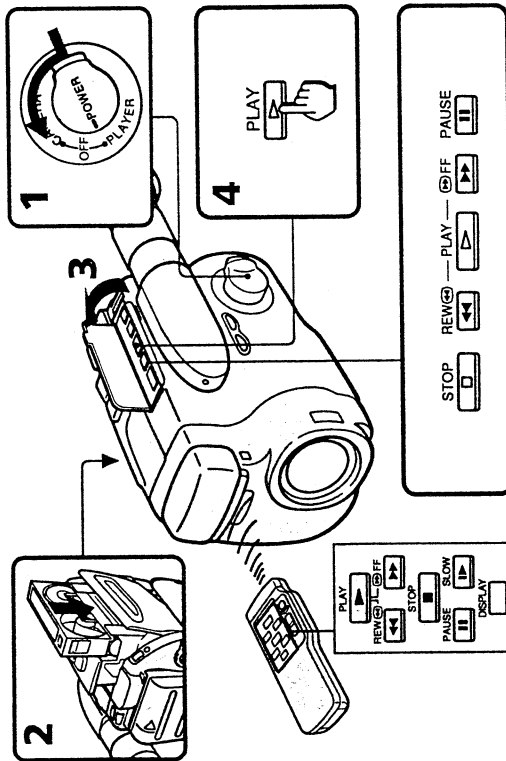
Connect the computer to the Internet. The computer should be connected to the Internet. The computer should be connected to the Internet.



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. 19). You can use the supplied Remote Commander to control playback, if you want. Before using the Remote Commander, make sure that the REMOTE COMMANDER switch on the camcorder is set to ON (p. 37).

(1) While pressing the green button of the POWER switch, turn it to **PLAYER**. (2) Insert the recorded tape with the window facing out. (3) Open the lid of the control panel. (4) Press **▷**. Playback starts.



To stop playback, press **□**.
 To rewind the tape, press **◀**.
 To fastforward the tape, press **▶▶**.

Various Playback Modes

To view a still picture
 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 fastforward or rewind (Skip scan)
 Keep pressing **◀◀** while rewinding or **▶▶** while advancing the tape. To resume normal playback, press **▷**.

To view the picture at 1/5 speed (Slow Playback) (only with the Remote Commander)
 Press **▶** on the Remote Commander during playback. To resume normal playback, press **▶**. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

Note on playback

- Streaks appear and the sound is muted in the various playback modes.
- When still picture 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.

Advanced Operations Using Alternate Power Sources

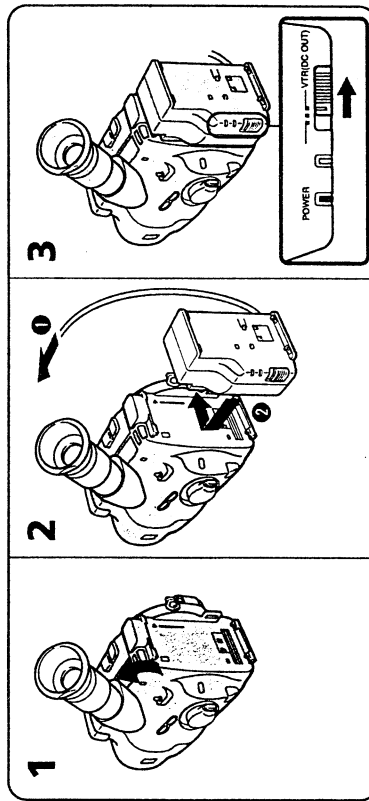
You can choose any of the following power sources for your camcorder: battery pack (p. 6), house current, and 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	House current	AC-V25/V25A AC power adaptor (supplied), AC-S10, AC-V55
Outdoors	Battery pack	NP-55 Battery pack (supplied), NP-60/80D, NP-77H, NP-66H, NP-60D, NP-55H
In the car	12 V or 24 V car battery	DCP-77 DC pack

Using House Current

To use the supplied AC-V25/V25A AC power adaptor:

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



Note on the POWER lamp

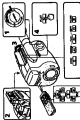
- The POWER lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the POWER lamp does not light, set the selector to the center position and disconnect the power cord. After about one minute, reconnect the power cord and set the selector to VTR (DC OUT) again.

To remove the adaptor

The adaptor is removed in the same way as the battery pack. (p. 8)

Mapping Made a Paper

Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided.



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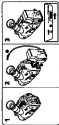
Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided.

Using Alternative Power Sources

Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided.

Word	Image	Definition
Electricity	[Image of a plug]	Energy that can be used to power machines.
Gasoline	[Image of a gas pump]	Fuel used to power machines.
Solar	[Image of a sun]	Energy from the sun.

Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided. Use the words in the word bank to complete the map. Write the letter of the word in the space provided.



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Using Alternate Power Sources

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. 8)

Options for Charging the Battery Pack

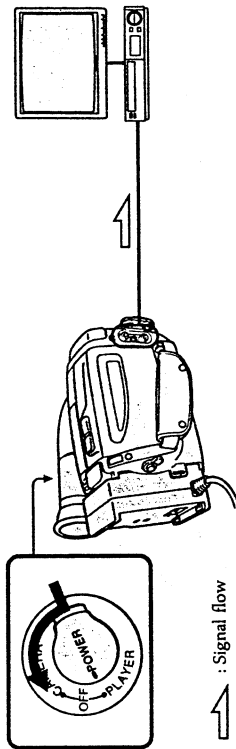
- AC-S10 AC power adaptor:
You can charge a battery pack whether it is used up or not with this adaptor because it has a discharging function.
- BC-S10 portable battery charger (ideal for travel):
You can charge a battery pack on 100-240 V AC current.

Editing onto Another Tape

You can create your own video program by editing with any other **Hi8** Hi8, **VHS** VHS, **S-VHS**, **S-VHS**, **VHS** VHS, **S-VHSC**, **S-VHSC**, **Hi8** Hi8, **Hi8** Hi8, **VHS** VHS, **S-VHS**, **S-VHS**, **S-VHSC**, **S-VHSC**, **ED Beta** ED Betamax or **ED Beta** ED Betamax VCR that has audio/video inputs.

Before Editing

Connect the camcorder to the VCR using an A/V connecting cable (not supplied). (p. 19)
Set the input selector on the VCR to LINE, if available. Set the POWER switch to PLAYER.



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 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.

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.

Editing a Document in Microsoft Word

Working in the Editing Window

You can edit a document in the editing window of the MS Word by clicking the **View** tab on the ribbon and clicking the **Editing** button in the **View** group.

See Figure 1.10.

The MS Word editing window has the following parts:

Options for Changing the Editing View

- **Normal** view: The default view for editing a document.
- **Web** view: The view for editing a document that will be published on the Internet.
- **Print** view: The view for editing a document that will be printed.

Editing into Another Page

You can edit a document in the editing window of the MS Word by clicking the **View** tab on the ribbon and clicking the **Editing** button in the **View** group.

Editing into Another Page

You can edit a document in the MS Word editing window by clicking the **View** tab on the ribbon and clicking the **Editing** button in the **View** group.



Figure 1.10

Editing into Another Page

You can edit a document in the MS Word editing window by clicking the **View** tab on the ribbon and clicking the **Editing** button in the **View** group.

Figure 1.10

Figure 1.10


Figure 1.10

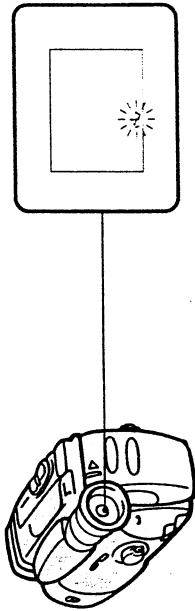
Figure 1.10

Figure 1.10

Figure 1.10

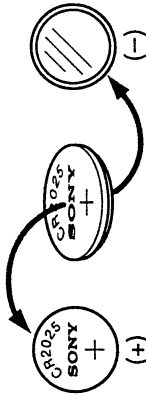
Additional Information Changing the Lithium Battery

Your camcorder is supplied with the lithium battery installed. The lithium battery lasts for about 1 year under normal operation. When the battery becomes weak or dead, the  indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of another battery may present a risk of fire or explosion.



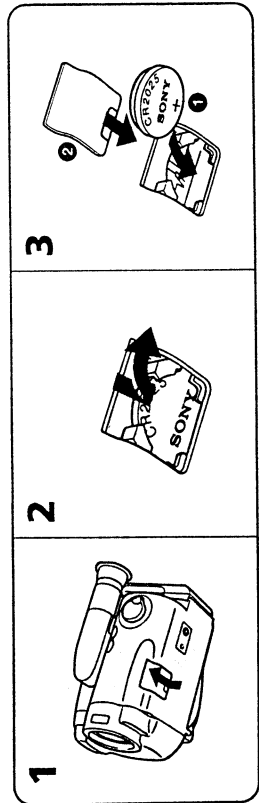
Note on Lithium Battery

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.



Changing the Lithium Battery

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date and time. (1) Detach the lid of the lithium battery compartment on the bottom of the camcorder. (2) Push the battery down once and pull it out from the holder. (3) Install the lithium battery with the positive (+) side facing out. Replace the lid.



WARNING

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

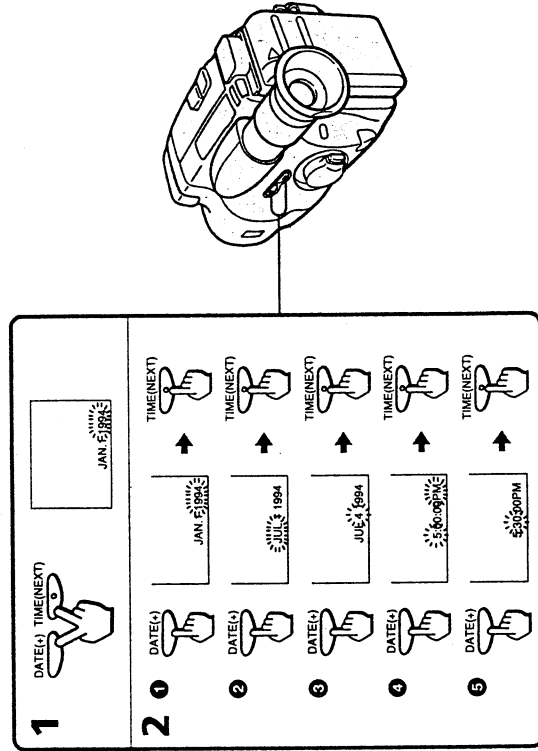
Caution

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

Resetting the Date and Time

Your camcorder's clock is set to East Standard Time at the factory, but you can reset the date and time. Set the POWER switch to CAMERA and turn STANDBY up. Adjust the digits in the viewfinder.

(1) Press DATE (+) and TIME (NEXT) simultaneously until the date appears in the viewfinder. (2) Adjust the digits of the year, month, day, hour and minutes by pressing DATE (+) and TIME (NEXT). To set the year to 1994, there is no need to press DATE (+) in 2-1. Note that when you keep DATE (+) pressed, the digits advance faster.



Professional Instruction

Changing the Lithium Battery

The procedure is described in the following steps. The steps are numbered in the order they should be performed. The steps are numbered in the order they should be performed. The steps are numbered in the order they should be performed.



How an Lithium Battery

The three steps for changing a lithium battery are:



Changing the Lithium Battery

The following steps describe the procedure for changing the lithium battery. The steps are numbered in the order they should be performed. The steps are numbered in the order they should be performed.

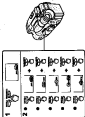


Warning

The battery is highly flammable. Do not charge, heat, or expose it to fire. Do not short-circuit the battery. Do not dispose of the battery in fire. Do not dispose of the battery in fire.

Replacing the Data card

The data card is used to store data. It is located inside the device. To replace the data card, follow the following steps. The steps are numbered in the order they should be performed. The steps are numbered in the order they should be performed.



Maintenance Information and Precautions

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] ← [b]

[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

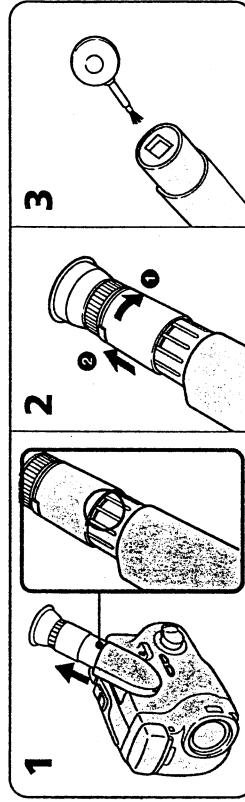
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

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.



Resetting the Date and Time

To Correct the Date and Time Settings

Press TIME (NEXT) repeatedly until the minute digits stop flashing. Then repeat steps 1 and 2.

To Check the Preset Date and Time

Press DATE (+) or TIME (NEXT). 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.



Note on the time indicator

The internal clock of this camcorder operates on a 12-hour cycle.
12:00 AM stands for midnight.
12:00 PM stands for noon.

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.

LP (long play) mode

When you playback a tape recorded in LP mode, the LP indicator lights up in the viewfinder. This camcorder cannot record a tape in LP mode.

Foreign 8 mm video

You cannot playback software recorded on a different TV color system. Because the TV color systems differ from country to country, you may not be able to playback foreign pre-recorded software. Refer to page 31 to check the TV color system of foreign countries.

Boosting the Body and Brain

To boost the body and brain building the brain circuitry normally with the senses. Ageing may hinder this speed up it with the brain like things like and things

Research has shown that people who have spent a lifetime spent at the end of the year

There are all the jobs and the program called on the right things in brain



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Physiath Models

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Advanced Information and Presentations

There are all the jobs and the program called on the right things in brain



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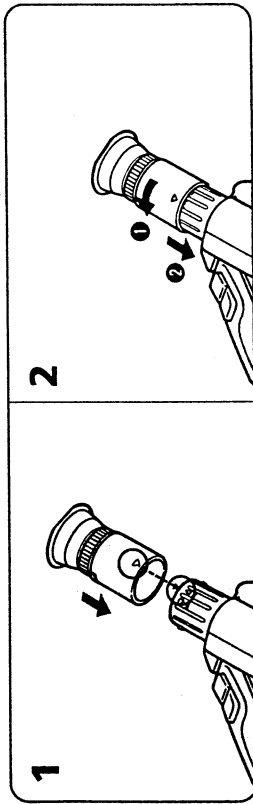
There are all the jobs and the program called on the right things in brain



Maintenance Information and Precautions

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.



Moisture Condensation

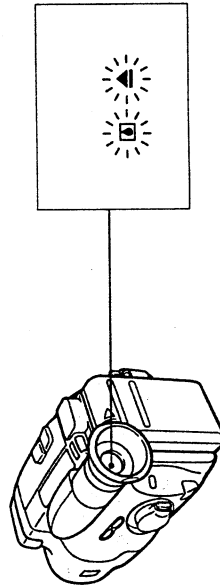
If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under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



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 cassette, 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 one hour).

Precautions

Camcorder Operation

- Operate the camcorder on 6.0 V (battery pack) or 7.5 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the LENS COVER switch set to CLOSE when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- Do not drop the camcorder.

On Handling Tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type, thickness of tape, or if the tab is out or in, etc.

Camcorder Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

to the bottom of the hole. When the hole is drilled to the depth of 1/2 inch, stop the drill and pull it out. Then, drill the hole to the depth of 1 inch.



Finishing Operations

The workpiece is now ready to be finished. The first operation is to grind the end of the hole to a chamfer. This is done by holding the workpiece in a lathe and grinding the end of the hole with a grinding wheel. The second operation is to polish the workpiece. This is done by holding the workpiece in a lathe and polishing it with a polishing cloth.

The workpiece is now ready to be assembled. The first operation is to insert the workpiece into the housing. This is done by holding the workpiece in one hand and the housing in the other hand, and pushing the workpiece into the housing. The second operation is to tighten the nut. This is done by holding the nut in one hand and the workpiece in the other hand, and turning the nut clockwise.



The workpiece is now ready to be used. The first operation is to insert the workpiece into the housing. This is done by holding the workpiece in one hand and the housing in the other hand, and pushing the workpiece into the housing. The second operation is to tighten the nut. This is done by holding the nut in one hand and the workpiece in the other hand, and turning the nut clockwise.

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Assembly Operations

The workpiece is now ready to be assembled. The first operation is to insert the workpiece into the housing. This is done by holding the workpiece in one hand and the housing in the other hand, and pushing the workpiece into the housing. The second operation is to tighten the nut. This is done by holding the nut in one hand and the workpiece in the other hand, and turning the nut clockwise.

The workpiece is now ready to be used. The first operation is to insert the workpiece into the housing. This is done by holding the workpiece in one hand and the housing in the other hand, and pushing the workpiece into the housing. The second operation is to tighten the nut. This is done by holding the nut in one hand and the workpiece in the other hand, and turning the nut clockwise.

Maintenance Information and Precautions

AC Power Adaptor

Charging

- 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.
- Charge the battery on a flat place without vibration.
- The battery will get hot during charging. But this is normal.
- Do not continuously recharge a charged battery pack as that will cause the battery pack efficiency to deteriorate.

Charging temperature

The temperature range for charging is 41°F to 95°F (5°C to 35°C). However, to provide maximum battery efficiency, the recommended temperature range when charging is 50°F to 86°F (10°C to 30°C).

Others

- The model for USA or Canada: One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.
- Unplug the unit from the wall outlet when not in use for a long time. To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if it has been dropped or damaged.
- Do not bend the AC power cord forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or an electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If it does, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- While the unit is in use, it gets hot. But this is normal.
 - Extremely hot or cold
 - Dusty or dirty
 - Very humid
 - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Using Your Camcorder Abroad

Each country has its own electricity and TV color system. Before using your camcorder abroad, check the following points.

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz. Use a commercially available AC plug adaptor [a], if necessary, depending on the design of the wall outlet [b].



Difference in Color System

This camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV or a PAL-M system based TV with an NTSC/PAL-M transcoder.

Check the following list.

NTSC system countries

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system countries

Australia, Austria, Belgium, China, Denmark, Finland, former West Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country

Brazil

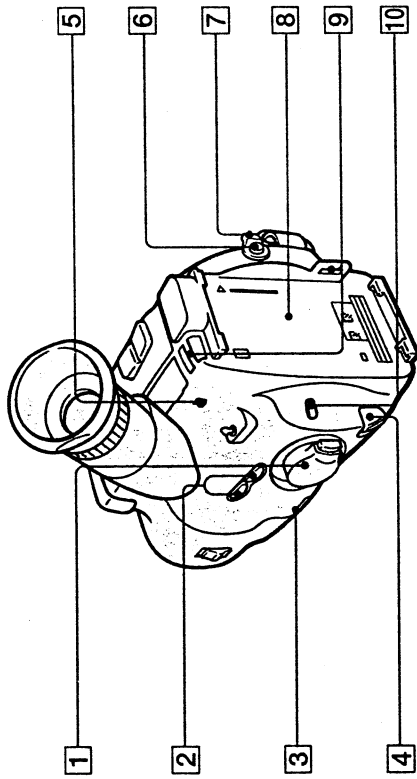
PAL-N system countries

Argentina, Paraguay, Uruguay

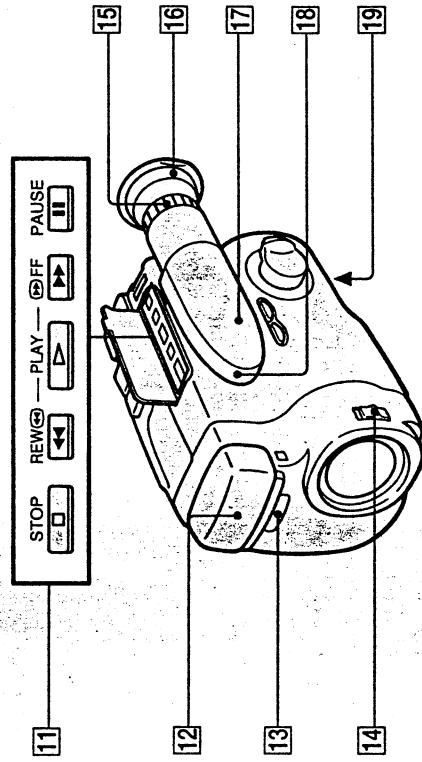
SECAM system countries

Bulgaria, France, Guinea, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, etc.

Identifying the Parts



- 1 POWER switch (p. 15, 20)
- 2 DATE (+) and TIME (NEXT) buttons (p. 25)
- 3 Lithium battery compartment (bottom of the camcorder) (p. 24)
- 4 BATT (battery eject) knob (p. 8)
- 5 REMOTE COMMANDER switch (p. 37)
- 6 START/STOP button (p. 15)
- 7 STANDBY switch (p. 15)
- 8 Battery mounting surface (p. 8)
- 9 Hooks for shoulder strap (p. 38)
- 10 COUNTER RESET button (p. 16)



- 11 Tape transport buttons (p. 20)
 - STOP
 - ◀◀ REW (rewind)
 - ▶ PLAY (playback)
 - ▶▶ FF (advancing the tape)
 - || PAUSE
- 12 Built-in microphone
- 13 Remote sensor (p. 37)
Aim the Remote Commander here for remote control.
- 14 LENS COVER switch
- 15 Viewfinder lens adjustment ring (p. 13)
- 16 Eyecup
- 17 Viewfinder (p. 13)
- 18 Camera recording/battery lamp
- 19 Tripod receptacle (p. 14)

Identifying the Parts

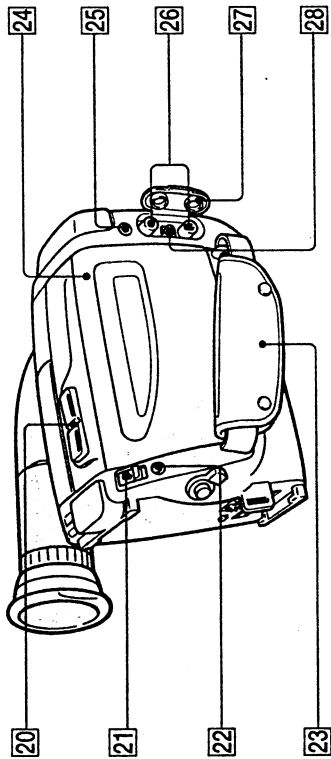


1. vent cap (1, 2, 3)
 2. top cover (4, 5)
 3. top cover latch (6)
 4. top cover hinge (7)
 5. top cover latch (8)
 6. top cover hinge (9)



1. vent cap (1, 2, 3)
 2. top cover (4, 5)
 3. top cover latch (6)
 4. top cover hinge (7)
 5. top cover latch (8)
 6. top cover hinge (9)

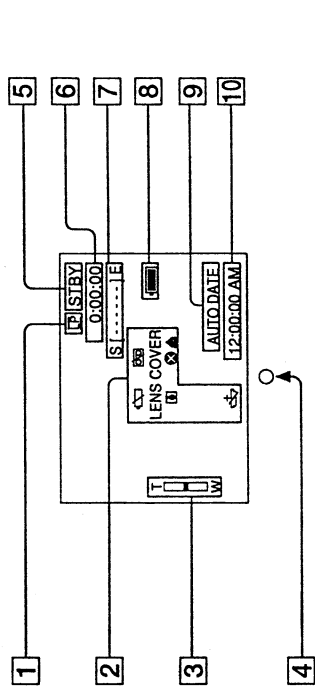
Identifying the Parts



- 20 Power zoom button (p. 17)
- 21 EJECT knob (p. 12)
- 22 REMOTE (LANC) control jack
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.
- 23 Grip strap (p. 14)
- 24 Cassette holder (p. 12)
- 25 MIC jack (PLUG IN POWER)
Connect an optional external microphone (stereo or monaural). This jack also accepts a "plug-in-power" microphone.
- 26 Audio/Video output jacks (p. 19)
- 27 Jack cover
- 28 RFU DC OUT (RFU adaptor DC output) jack (p. 19)

Operation Indicators

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



- 1 Lights up when playing back a tape recorded in LP mode.
- 2 Warning indicators (p. 43)
- 3 Power zoom indicator (p. 17)
- 4 Recording lamp/Battery lamp
- 5 Tape transport mode (p. 15)
- 6 Tape counter (p. 16)
- 7 Remaining tape length indicator
- 8 Remaining battery indicator (p. 9)
- 9 AUTO DATE indicator (p. 15)
- 10 Date or Time (p. 25)



- 1) Headlight
- 2) Bumper
- 3) Grille
- 4) Headlight
- 5) Hood

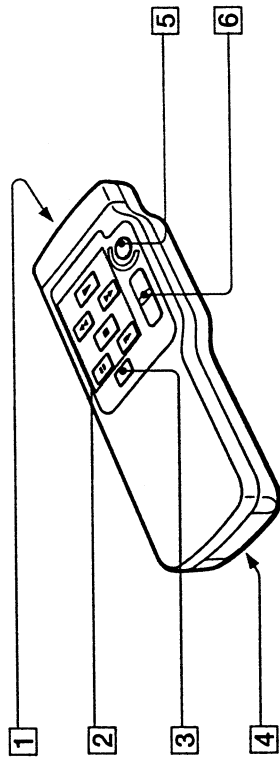


- 1) Battery
- 2) Alternator
- 3) Water pump
- 4) Timing belt
- 5) Spark plug

Identifying the Parts

Remote Commander

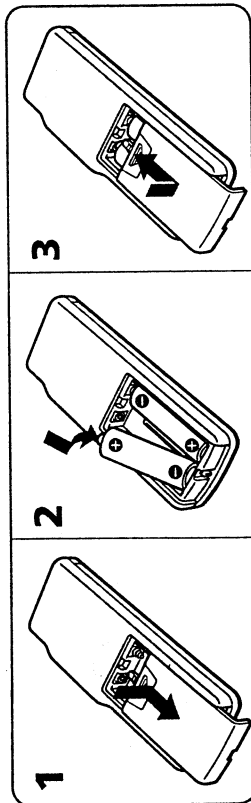
The buttons that have the same name on the Remote Commander and on the camcorder function identically.



- 1** Transmitter
Point toward the remote sensor to control the camcorder after turning on the POWER switch on the camcorder.
- 2** Tape transport buttons
- 3** DISPLAY button
- 4** Size AA (R6) battery holder
- 5** START/STOP button
- 6** Power zoom button
The zooming speed is unchangeable in the Remote Commander.

Preparing the Remote Commander

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



Battery Life

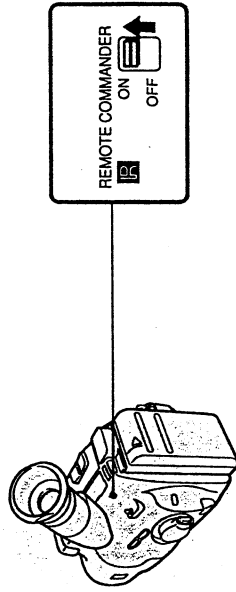
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage

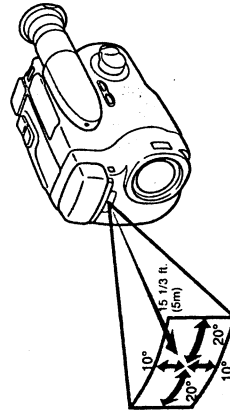
Remove the batteries when you will not use the Remote Commander for a long time.

Using the Remote Commander

Make sure that the REMOTE COMMANDER switch on the camcorder is set to ON.



Remote Control Direction



Note 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.

Montieren des Falls

Einbau des Falls

Das Gehäuse des Falls ist in drei Teile zu zerlegen. Die Teile sind wie folgt beschriftet:



- 1) Gehäuse
- 2) Gehäuse, obere Hälfte
- 3) Gehäuse, untere Hälfte
- 4) Gehäuse, untere Hälfte

Einbau des Falls

Das Gehäuse des Falls ist in drei Teile zu zerlegen. Die Teile sind wie folgt beschriftet:



Einbau des Falls

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1) Gehäuse
2) Gehäuse, obere Hälfte
3) Gehäuse, untere Hälfte



Einbau des Falls



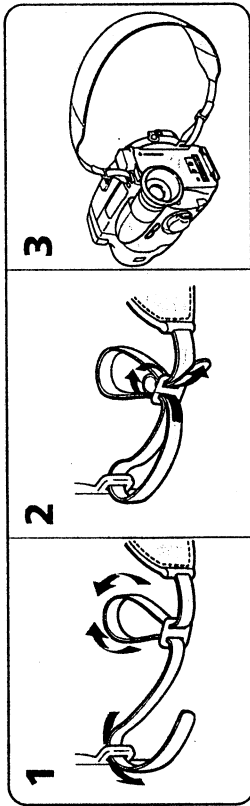
Einbau des Falls

Das Gehäuse des Falls ist in drei Teile zu zerlegen. Die Teile sind wie folgt beschriftet:

Identifying the Parts

Attaching the Shoulder Strap

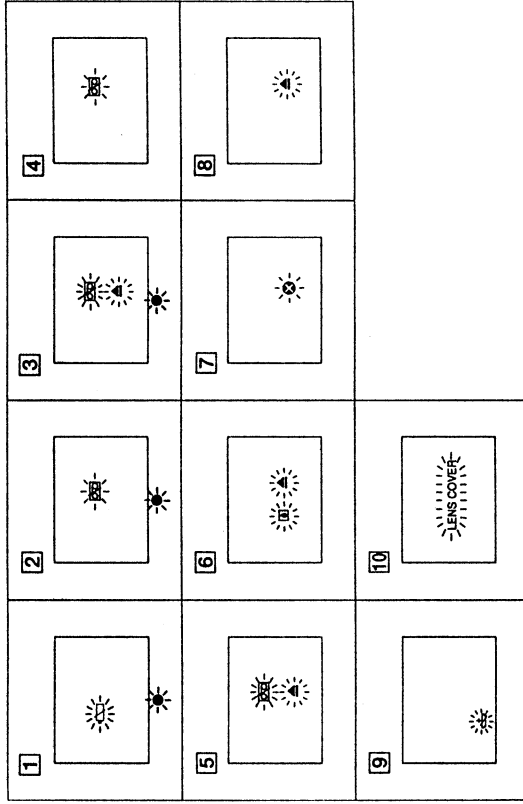
Attach the supplied shoulder strap to the hooks for the shoulder strap (p. 32).



Indicators in the Viewfinder

Warning Indicators

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



- 1 The battery is weak or dead.
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.
- 2 The tape is near the end.
The flashing is slow.
- 3 The tape has run out.
The flashing becomes rapid.
- 4 No tape has been inserted.
- 5 The tab on the tape is out (red).
- 6 Moisture condensation has occurred. (p. 28)
- 7 The video heads may be contaminated. (p. 27)
- 8 Some other trouble has occurred.
Disconnect the power source and contact your Sony dealer or local authorized facility.
- 9 The lithium battery is weak or is not installed. (p. 24)
- 10 The LENS COVER switch is set to CLOSE.

Identifying the Photo

Identifying the following things:

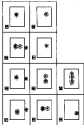
Draw the optical indicator on the back of the document strip to fit.



Indicators in the Window

Identifying the following things:

Draw a circle that fits the window on the indicator plates, with the following

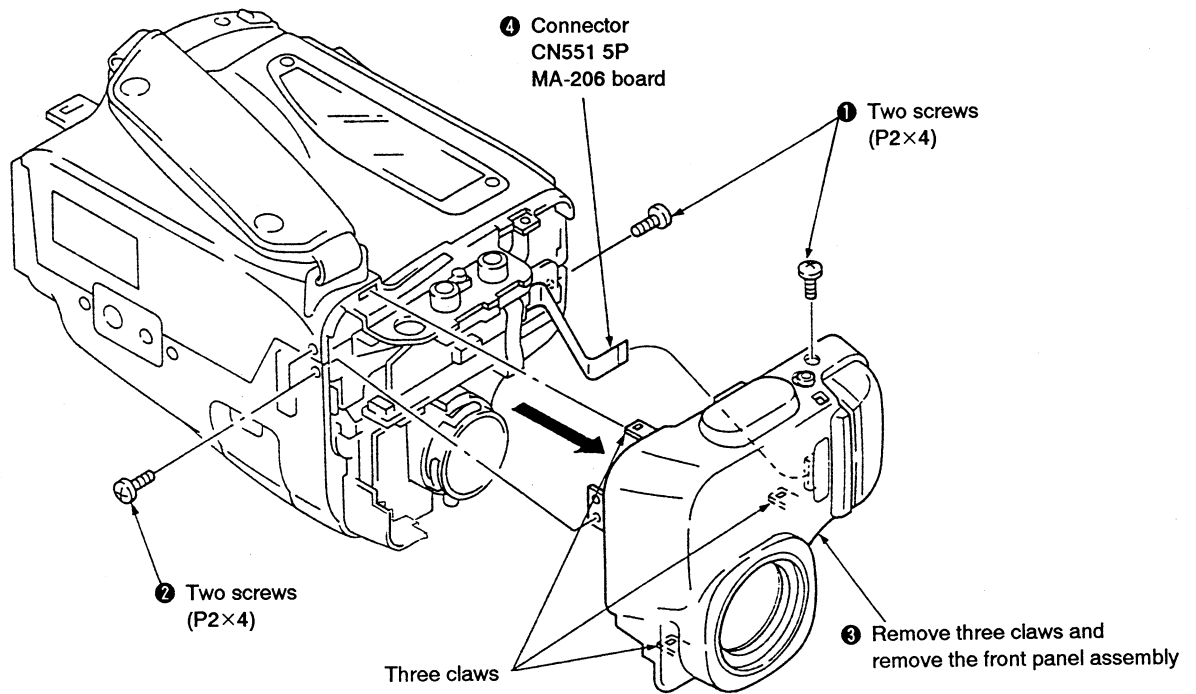


- The dot is black or red.
- The dot is black or red.
- The dot is black or red.
- The dot is black or red.
- The dot is black or red.
- The dot is black or red.
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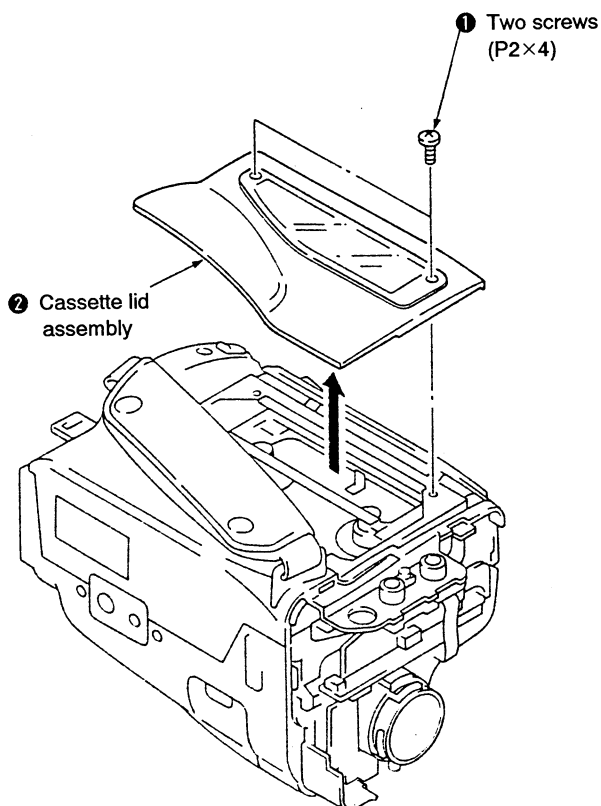
- The dot is black or red.
- The dot is black or red.
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- The dot is black or red.
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- The dot is black or red.

SECTION 2 DISASSEMBLY

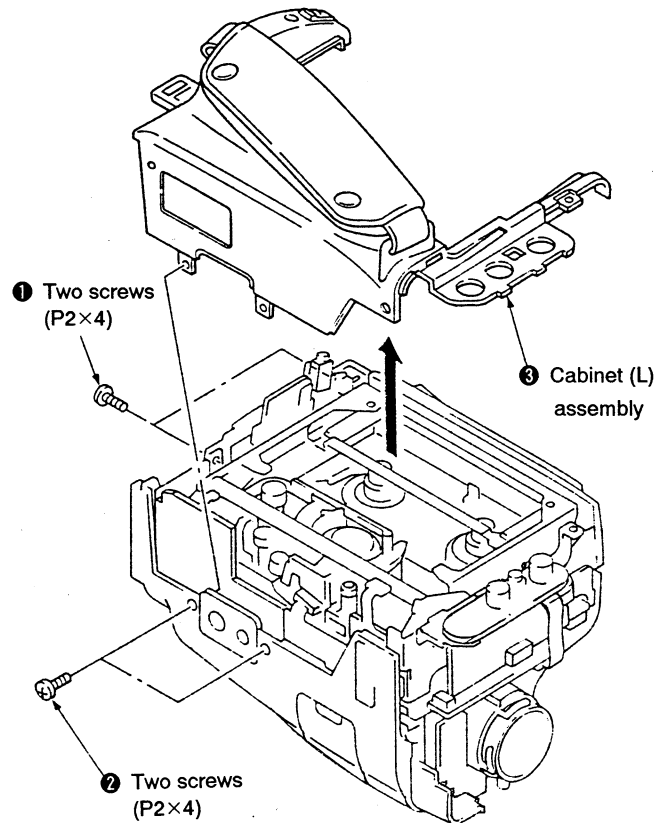
2-1. REMOVAL OF FRONT PANEL ASSEMBLY



2-2. REMOVAL OF CASSETTE LID ASSEMBLY

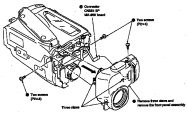


2-3. REMOVAL OF CABINET (L) ASSEMBLY

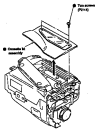


**SECTION 3
DISASSEMBLY**

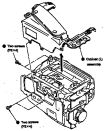
3.1. REMOVAL OF FRONT PANEL ASSEMBLY



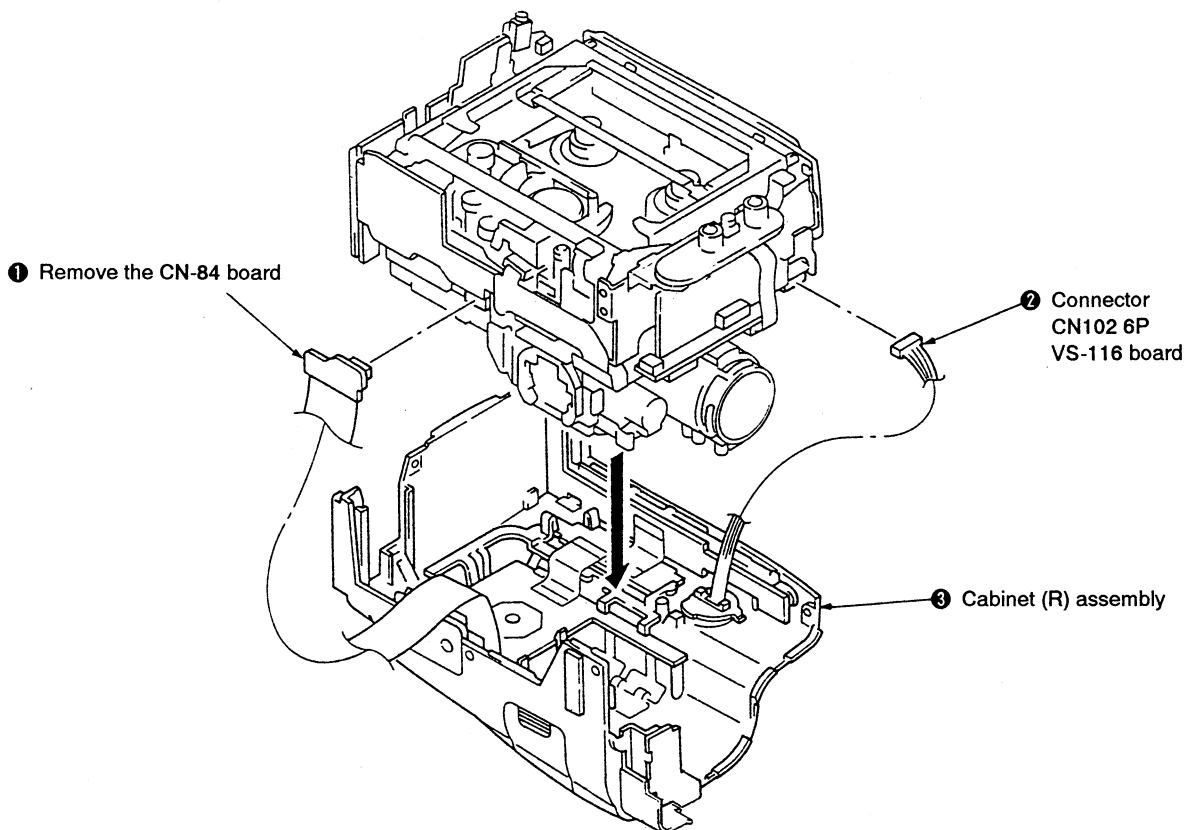
3.2. REMOVAL OF CASSETTE LID ASSEMBLY



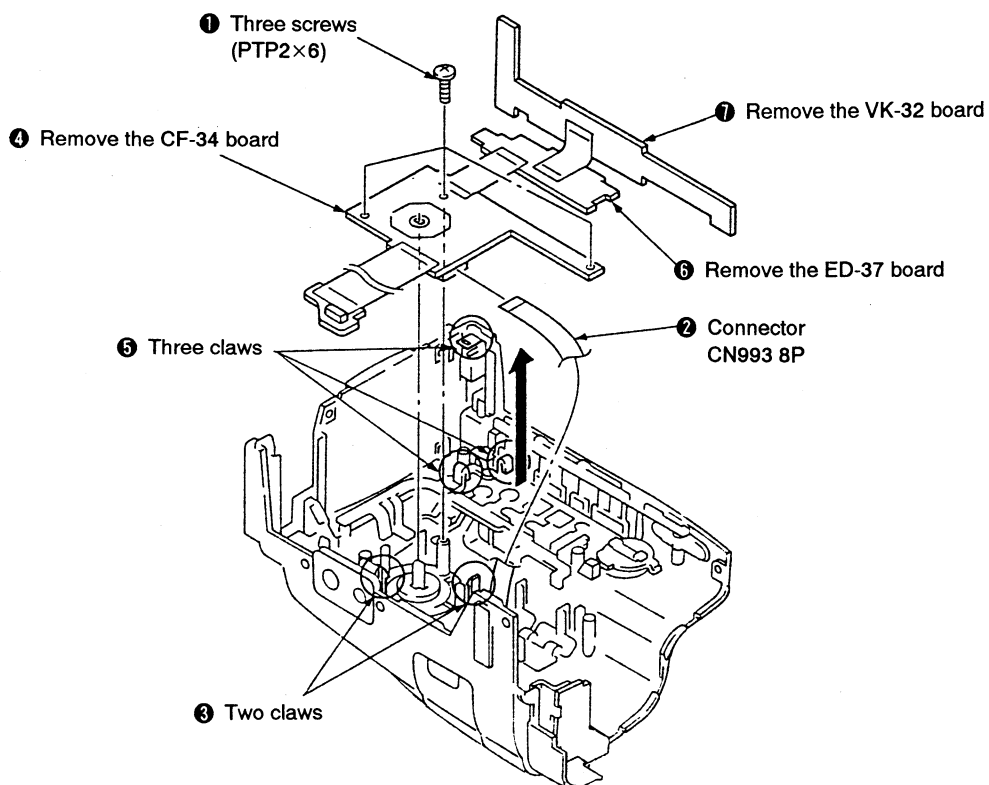
3.3. REMOVAL OF CASSETTE (L) ASSEMBLY



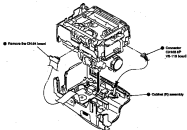
2-4. REMOVAL OF CABINET (R) ASSEMBLY



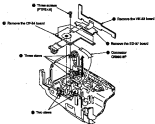
2-5. REMOVAL OF CF-34, ED-37 AND VK-32 BOARDS



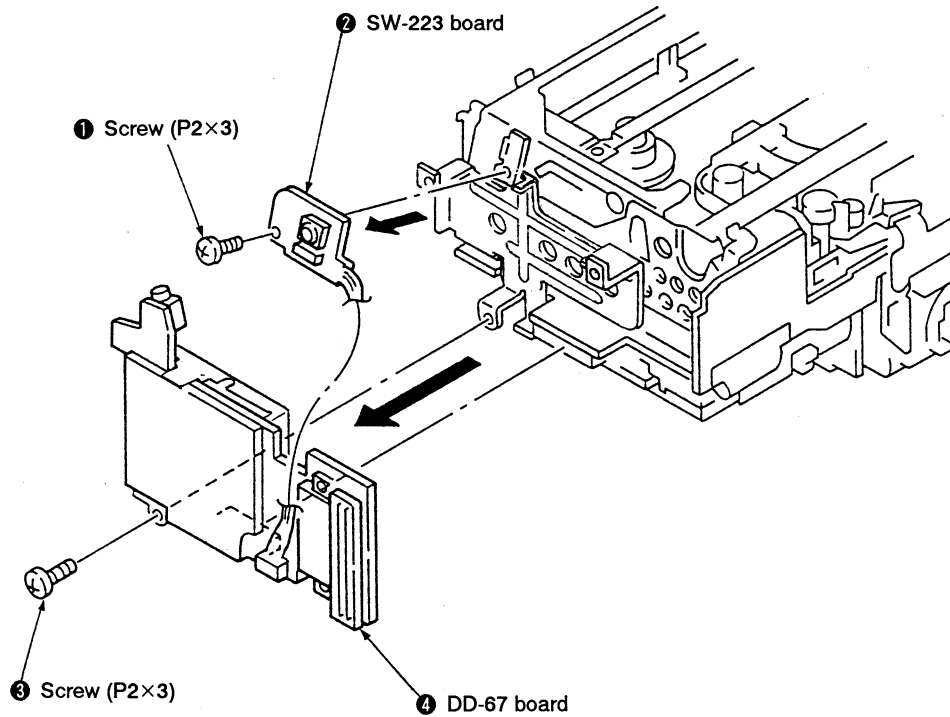
3-4. REMOVAL OF CABINET PC ASSEMBLY



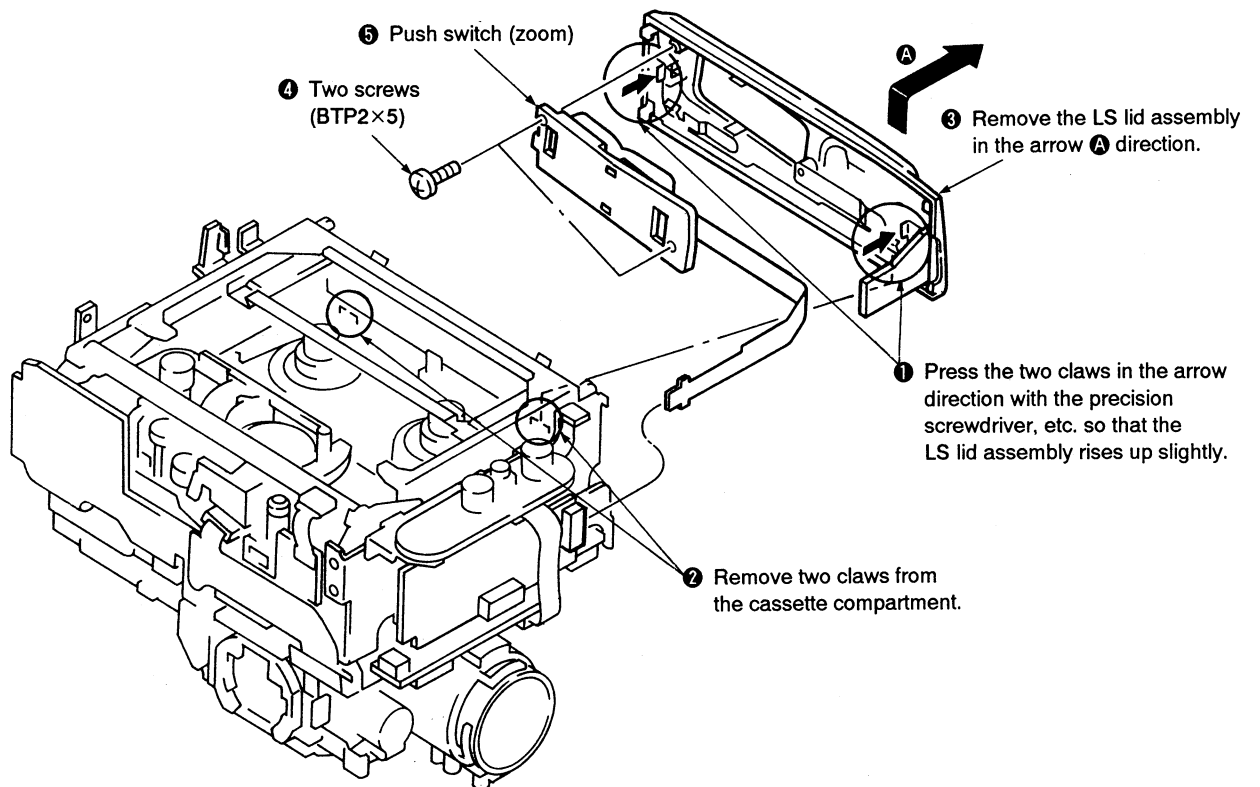
3-5. REMOVAL OF CP-04, ED-07 AND YK-20 BOARDS



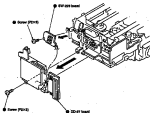
2-6. REMOVAL OF DD-67 AND SW-223 BOARDS



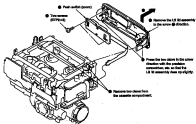
2-7. REMOVAL OF LS LID ASSEMBLY



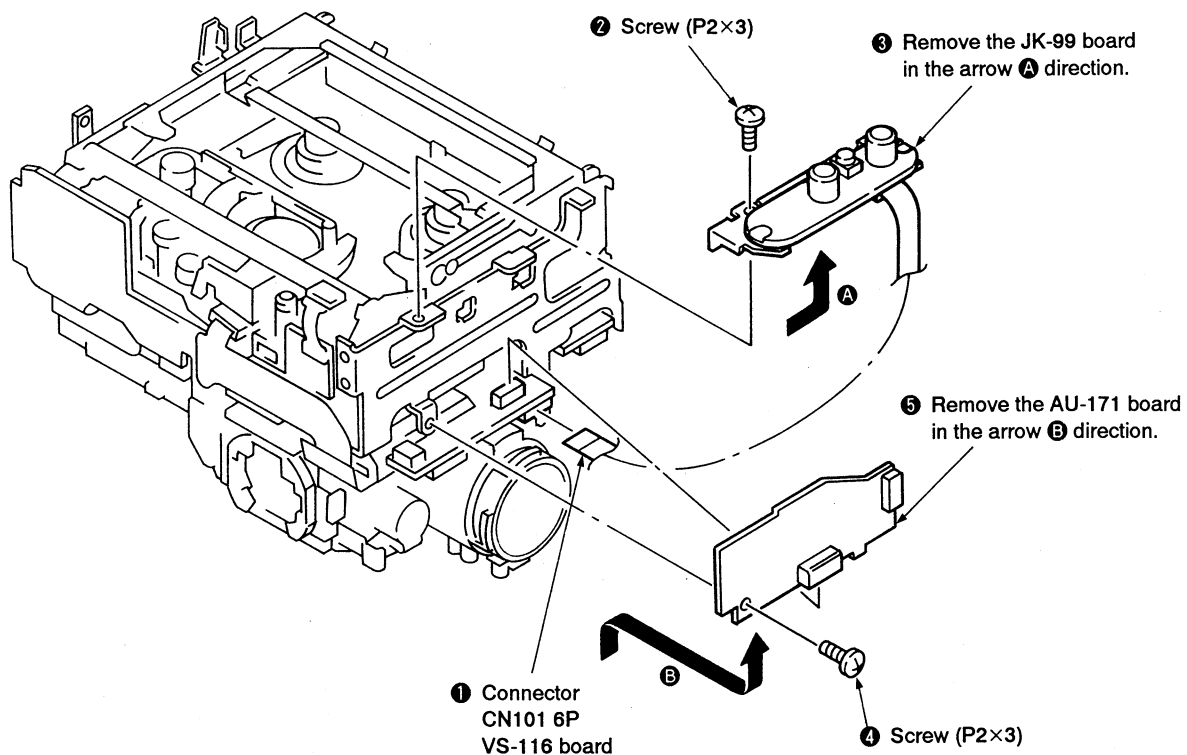
2-4. REMOVAL OF DO-RT AND SW-CCD SCARDS



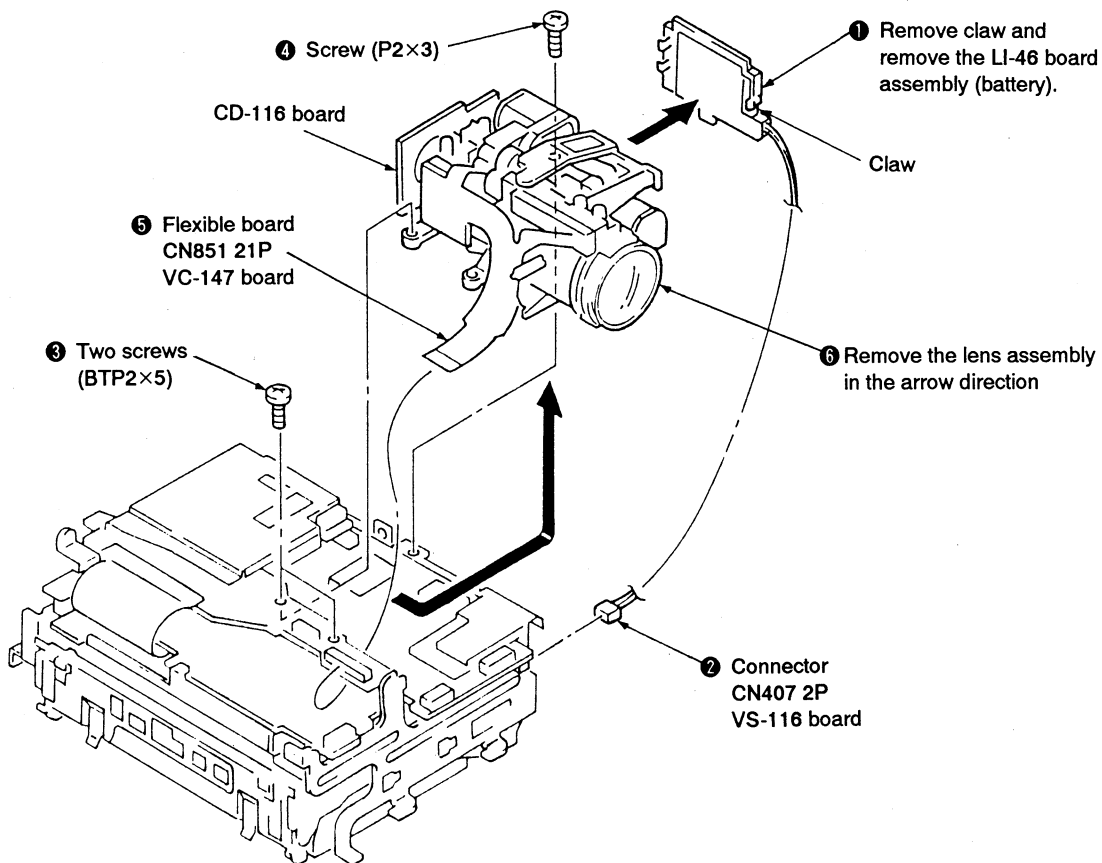
2-5. REMOVAL OF LE-LEO ASSEMBLY



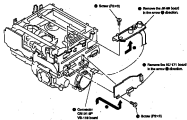
2-8. REMOVAL OF JK-99 AND AU-171 BOARDS



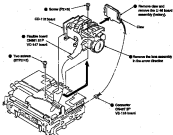
2-9. REMOVAL OF LENS ASSEMBLY (CD-116 BOARD)



2-8. REMOVAL OF JK-66 AND AJ-171 BOARDS

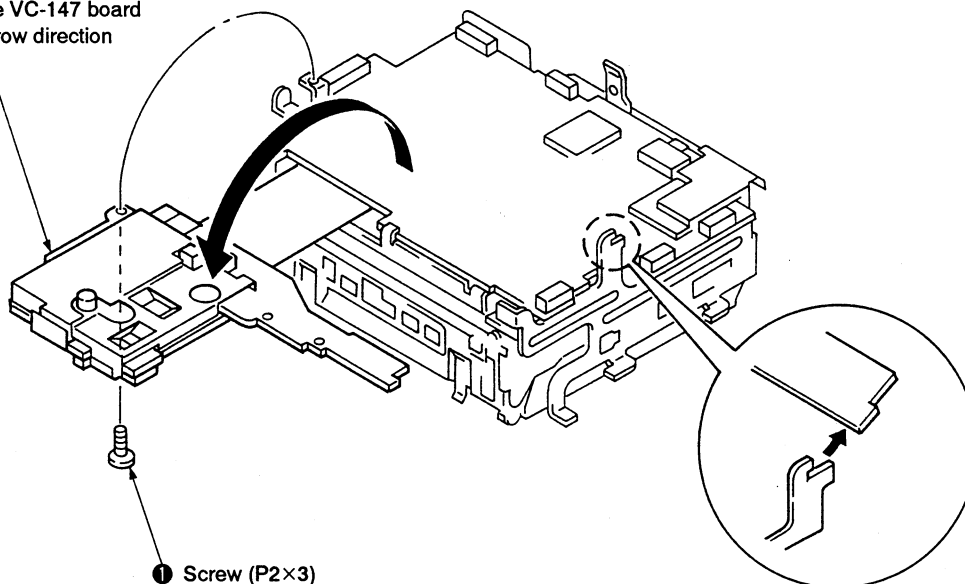


2-9. REMOVAL OF LINE ASSEMBLY (CS-116 BOARD)



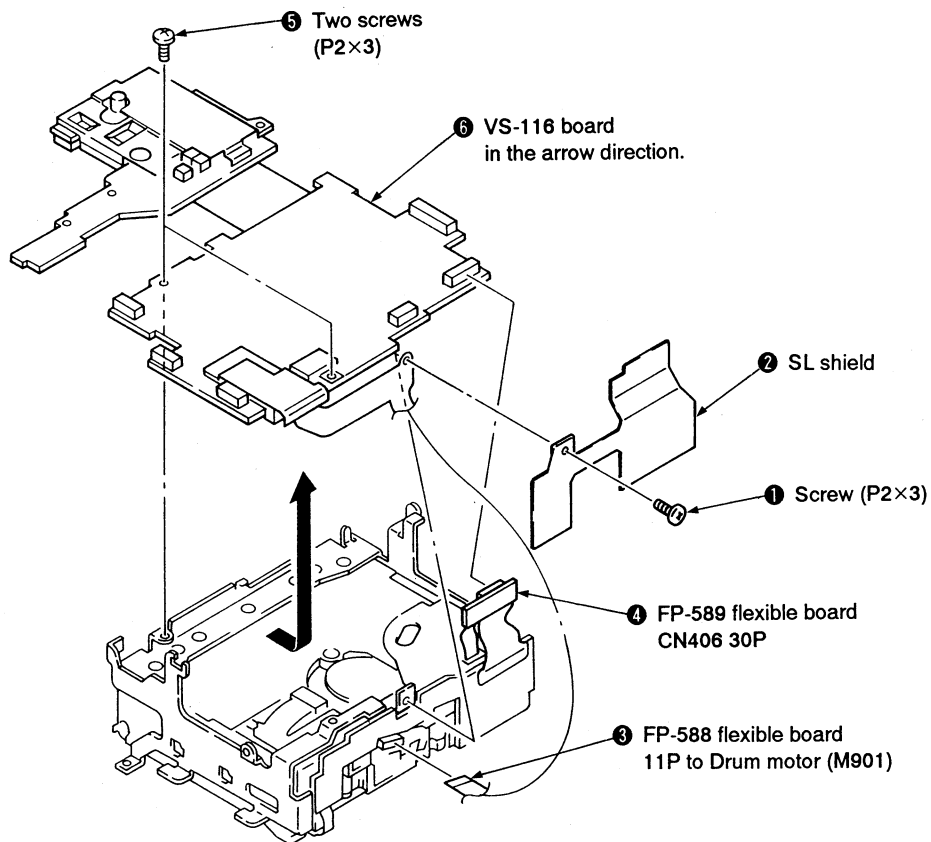
2-10. OPENING OF VC-147 BOARD

③ Open the VC-147 board in the arrow direction

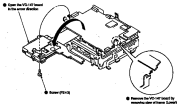


② Remove the VC-147 board by removing claw of frame (Lower)

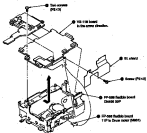
2-11. REMOVAL OF VS-116 BOARD



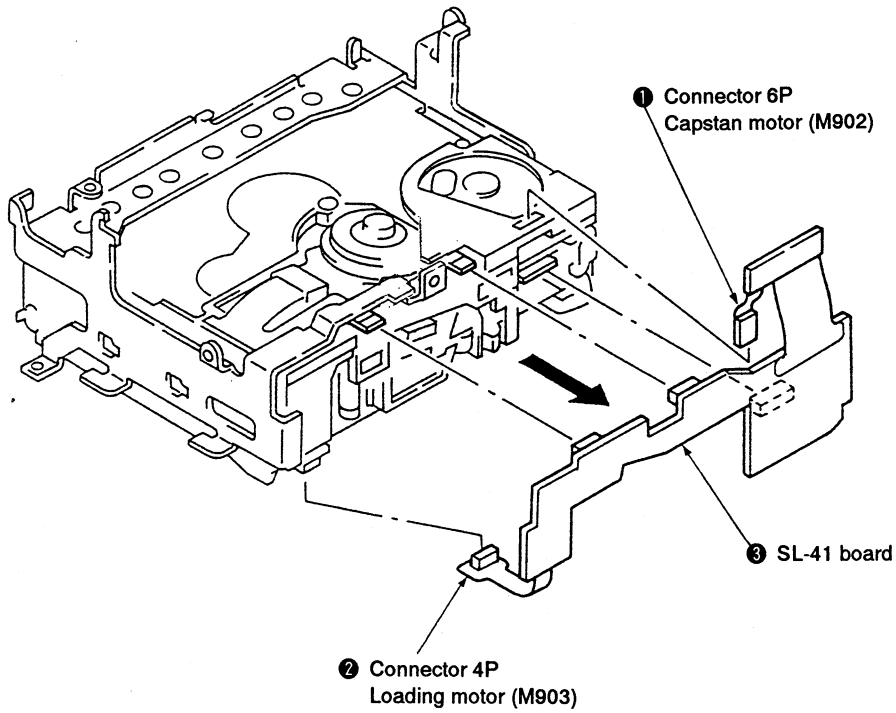
2-10. OPENING OF VD-HF BOARD



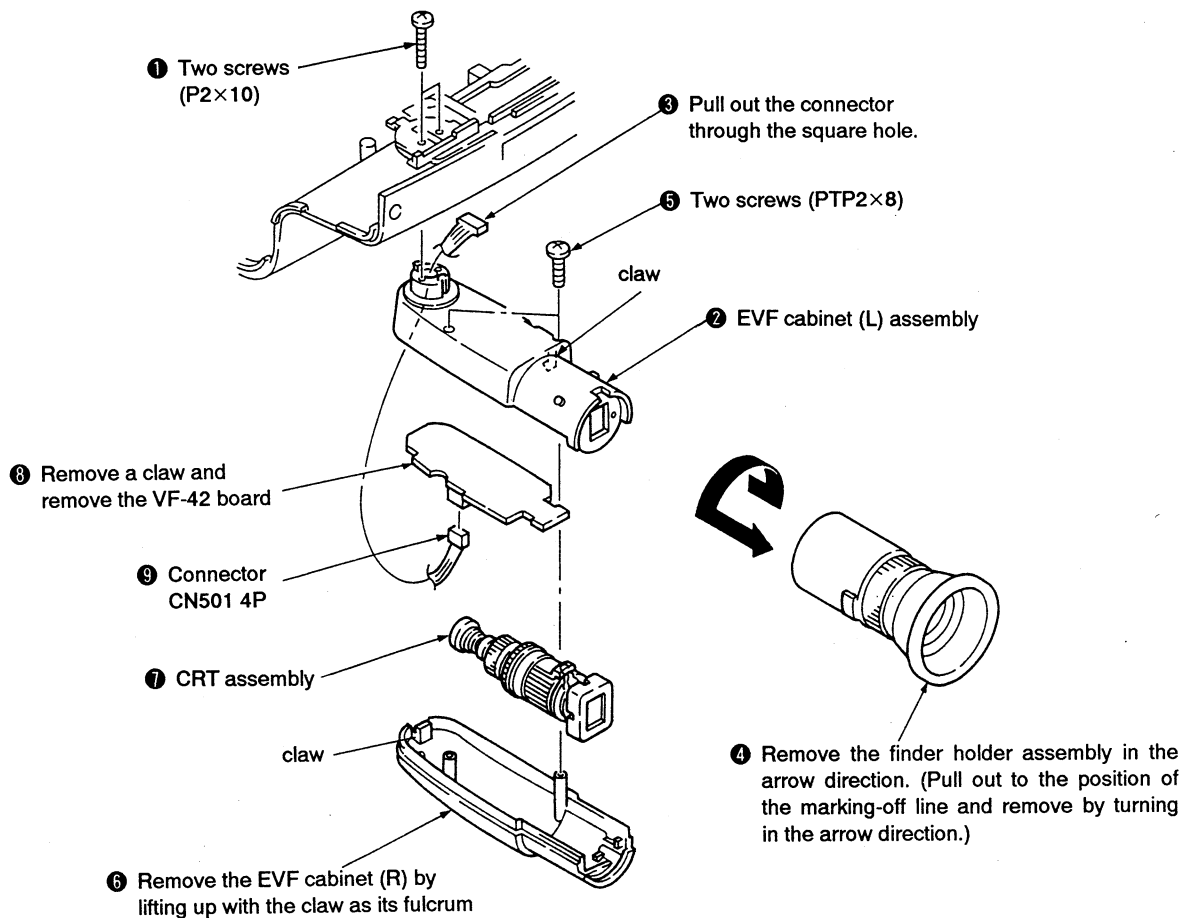
2-11. REMOVAL OF VL-HF BOARD



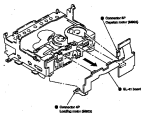
2-12. REMOVAL OF SL-41 BOARD



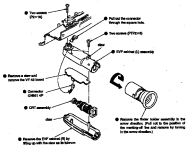
2-13. REMOVAL OF EVF ASSEMBLY (VF-42 BOARD)



3-11. REMOVAL OF EL-41 BOARD

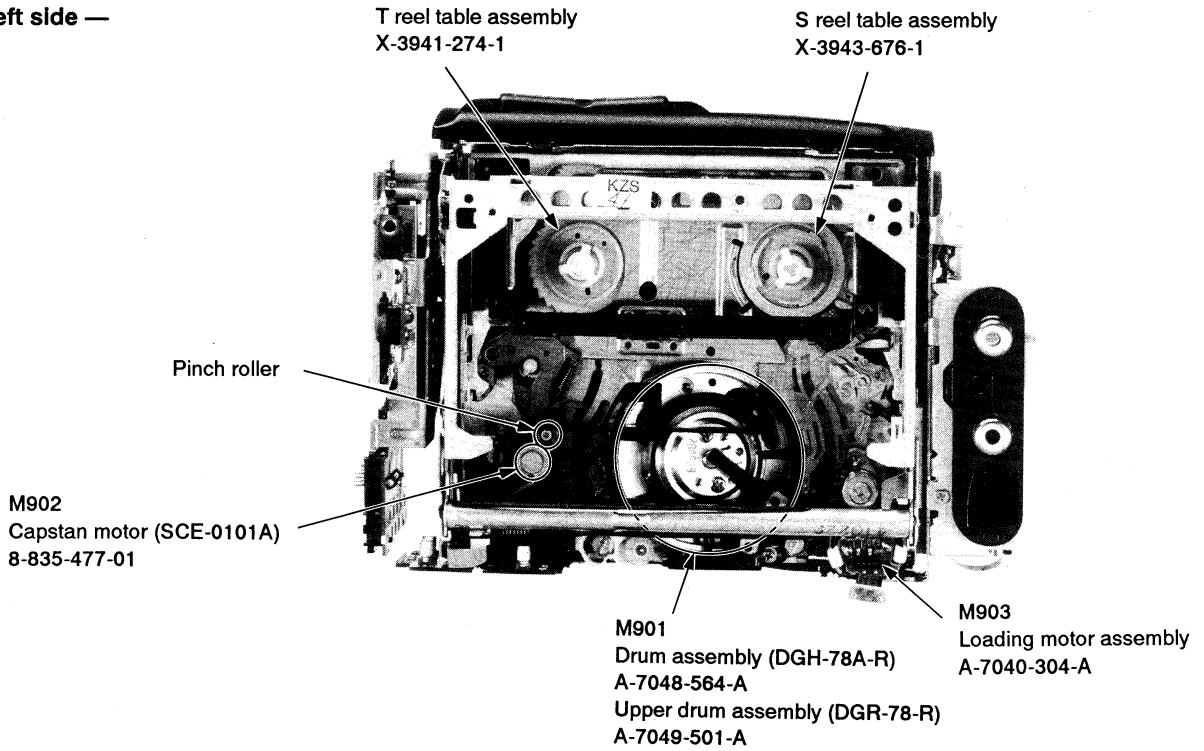


3-12. REMOVAL OF BVP ASSEMBLY (VF-42 BOARD)



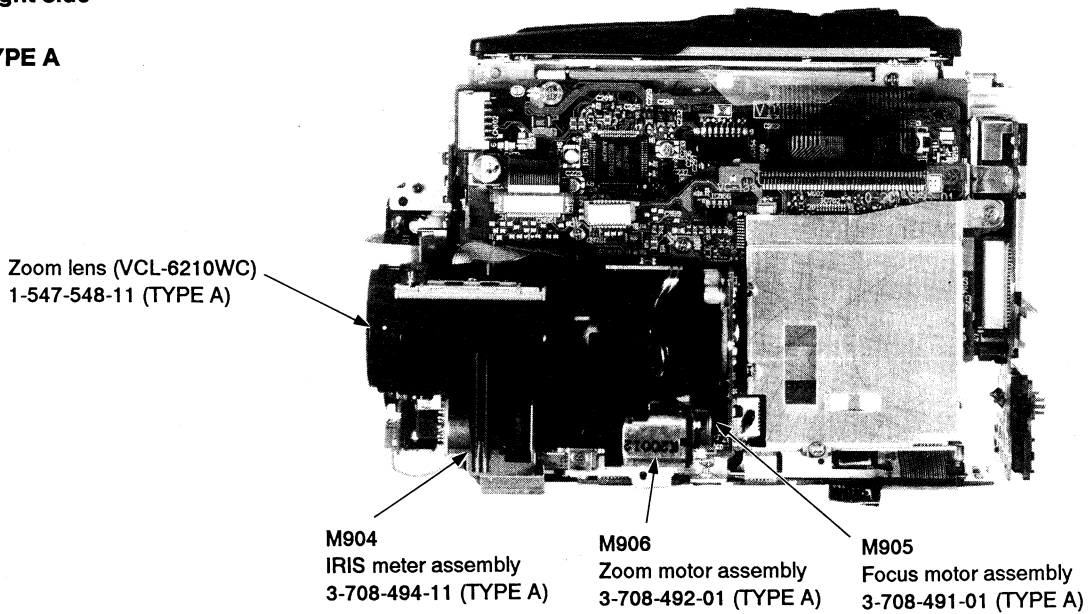
2-14. INTERNAL VIEWS

— Left side —

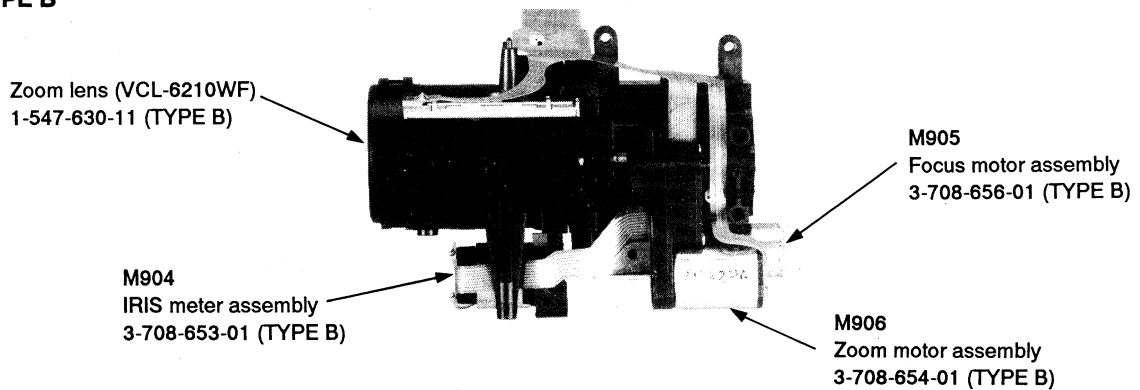


— Right side —

TYPE A

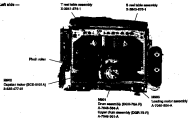


TYPE B



3-14. INTERNAL VIEWS

— Left side —



— Right side —

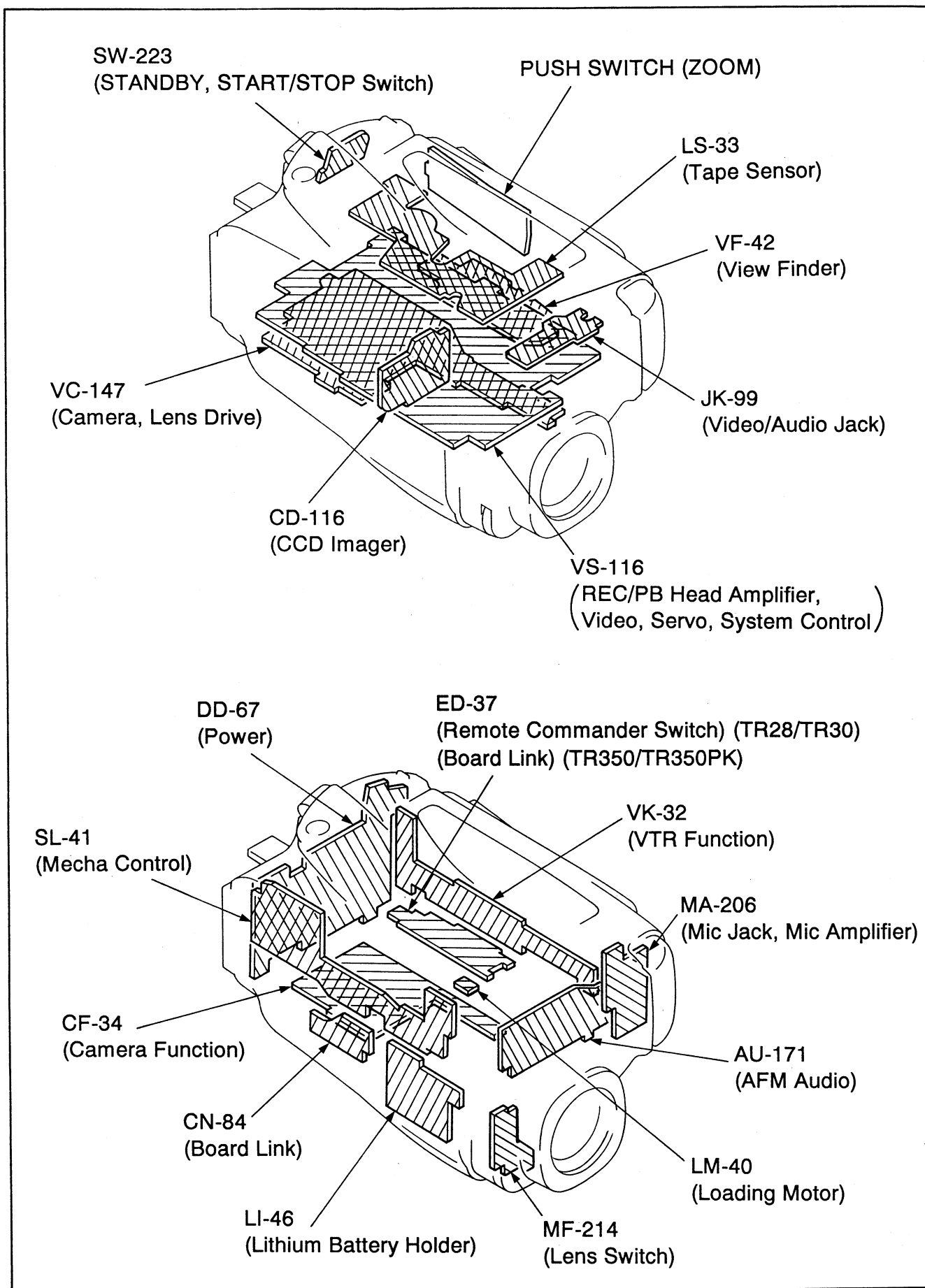
TYPE A



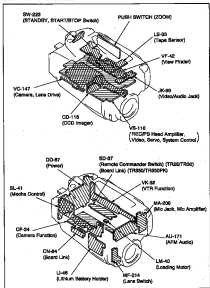
TYPE B



2-15. CIRCUIT BOARDS LOCATION



3-16. CIRCUIT BOARDS LOCATION



**3-11. CAMERA MICROPROCESSOR PIN FUNCTION
(IC709 ON VC-147 BOARD: CXP80624-434R)**

Pin No.	Signal	I/O	Function
1	ZOOM M REV	O	Zoom motor control signal. Normally "L". 15.7 msec period PWM signal when rotating to WIDE. "H" when rotating to TELE.
2	ZOOM M FWD	O	Zoom motor control signal. Normally "L". 15.7 msec period PWM signal when rotating to TELE. "H" when rotating to WIDE.
3			
4			Not used.
5			
6	FOC END LED	O	Focus end sensor LED control signal. Normally "L".
7	RT05/D5		Not used.
8	CORE RESET	O	Camera core (IC707 on VC-147 board) reset signal. Normally "H". "L" when reset.
9	PDR RESET	O	Focus predriver (IC706 on VC-147 board) reset signal. Normally "H". "L" when reset.
10			Not used.
11	TG STBY0		
12	OPD RESET	O	OPD (IC705 on VC-147 board) reset signal. "H": camera mode. "L": VTR mode.
13			
14			
15			
16			
17			Not used.
18			
19			
20			
21	EPROM DO	O	Connected to +5V.
22	EPROM BUSY	I	BUSY signal from EEPROM. Normally "H". "L" pulse when data reading/writing.
23			Not used.
24			
25			Connected to +5V.
26			
27	WIDE END		Focus Zone sensor input. Normally "L".
28	FOC END FAR	I	Focus edge sensor input. Normally "L".
29	CAM ON	O	Power supply control signal. Normally "L".
30			
31			
32			
33			Not used.
34			
35			
36			
37	MP		Connected to GND.
38	CAM RESET	I	Reset signal input. Normally "H". "L" when reset.
39	VSS		GND
40	XTAL	O	12 MHz clock oscillation circuit.
41	EXTAL	I	
42	CS CAM	I	Chip select signal from mode control microprocessor. (IC403 on VS-116 board)
43	VTR SI	I	Serial data input from mode control microprocessor.
44	VTR SO	O	Serial data output from mode control microprocessor.
45	VTR SCK	I	Serial data transfer clock.
46			
47			Not used.
48			

Pin No.	Signal	I/O	Function
49			Not used.
50	AVSS		GND
51	AVREF		Analog input port reference voltage (5V).
52	AVDD		Analog input port voltage (5V).
53			Connected to GND.
54			
55	MAN FOCUS (2)	I	Not used.
56	MAN FOCUS (1)	I	Zoom key input. 0.4V: F-TELE, 1.4V: TELE and 3.7V: F. WIDE, 2.5V: WIDE and 5V: no input.
57	ZOOM SW	I	Zoom position voltage. approx. 0.4V (WIDE end) to approx. 2.8V (TELE end).
58	ZOOM POS X4	I	Hall voltage. approx. 1V (iris open) to approx. 3V (iris close).
59	HALL A/D	I	Zoom position voltage. approx. 0.2V (WIDE end) to approx. 2.4V (TELE end).
60	ZOOM POS	I	Connected to 5V.
61			VD signal input from mecha controller (IC402 on VS-116 board).
62	PB V	I	
63	PG5/SYNC1		
64	VTR SYNC		
65	PB CTL		Connected to +5V.
66	DPG		
67			
68	AF BUSY	I	AF busy signal.
69			
70			Not used.
71			
72			
73	IRIS PWM	O	Iris control signal. 21 μsec period PWM signal.
74	ZM PWM	O	Zoom position detection voltage output. 21 μsec period PWM signal.
75			Not used.
76			
77	CAM SI	I	Serial data input.
78	CAM SO	O	Serial data output.
79	CAM SCK	O	Serial data transfer clock.
80	AJST	I	Adjustment timing pulse input. Normally "H".
81	PI/TO		Not used.
82	PI/PWM		
83	PI/PO		
84	PI O		Connected to +5V.
85	PKO		
86	GND		GND
87	VDD		+5V power supply.
88	VPP		
89			Not used.
90	CS PDR	O	Chip select signal to focus predriver (IC706 on VC-147 board).
91	CS CAM D/A	O	Chip select signal to camera EVR (IC702 on VC-147 board).
92	CS ROM	O	Chip select signal to EEPROM (IC712 on VC-147 board).
93	CS OPD	O	Chip select signal to OPD (IC705 on VC-147 board).
94	NTSC	O	NTSC: "L". PAL: "H".
95	CS CORE	O	Chip select signal to camera core (IC707 on VC-147 board).
96	CS TG	O	Chip select signal to timing generator (IC801 on VC-147 board).
97			Not used.
98	CS A/D	O	Chip select signal to Zoom position A/D converter. Not used.
99			Not used.
100			

3-71. CAMERA MICROPROJECTION INSPECTION
 (FORM OF NO-TAR BOARD; COMPLETED)

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NO.	DESCRIPTION	DATE	BY	REMARKS
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3-12. MECHANISM CONTROL MICROPROCESSOR PIN FUNCTION (IC402 ON VS-116 BOARD; CXP80624-416R)

Pin No.	Port Name	Signal	I/O	Connection	Function
1	PB3/PP011	RP PB MODE	O	RP	REC/PB select signal of REC/PB amplifier. (IC001 on VS-116 board) and ATF servo IC. (IC404 on VS-116 board). "H": PB.
2	PB2/PP010	FE ON	O	RP	Flying erase oscillation ON/OFF control signal. "L": oscillation.
3	PB1/PP09	JOG VD	O	VA	False VD signal to be inserted into playback video signal during variable speed playback.
4	PB0/PP08	JOG	O	VA	Variable speed/normal speed playback select signal of video circuit. "H" when variable speed playback.
5	PC7/RT07	JACK IN/OUT	I	VA	Not used. Connected to +5V.
6	PC6/RT06	1.7M DET	I	VA	Not used.
7	PC3/RT05	JACK MONOSTE DET	I	VA	Not used.
8	PC4/RT04	INT VD	I		
9	PC9/RT03	PB V (SYSTEM SYNC)	O	MODE CON	V sync for mode controller.
10	PC2/RT018	SYNC DET OUT	O	VA	Sync detect output. "L" when Sync is detected.
11	PC1/RT017	E/L DET	I	VA	Not used.
12	PC0/RT016	MIC MONOST DET	I	AU	Not used.
13	P17	M SW 0	I	MD	Mode switch input.
14	P16	M SW 1	I	MD	Mode switch input.
15	P15	M SW 2	I	MD	Mode switch input.
16	P14	CC DOWN	I	MD	Cassette compartment down switch input. "L": down.
17	P13	REC PROOF	I	MD	Erase protection switch input. "L" when REC prohibit.
18	P12	MEM/P	I	MD	MEM/P switch input. "L": MP. "H": ME.
19	P11	HG/NOR	I	MD	Connected to GND.
20	P10	VIDEO MUTE	O	VA	Video output mute signal. "H": mute.
21	PD7	LINE MIX	I	VA	
22	PD6	MAT SEL 1	I	VA	
23	PD5	MAT SEL 2	I	VA	
24	PD4	MAT ON/OFF	O	VA	
25	PD3	E MODE	O	VA	
26	PD2	CAM/LINE	O	VA	Camera input/line input select signal. "H" when camera input.
27	PD1	DS ON	O	VA	Data screen ON/OFF signal. "H": ON.
28	PD0	EDIT	O	VA	Video circuit EDIT/NORMAL switch signal. "L": EDIT.
29	PH7	UNLOAD	O	SS	Loading motor control signal. "H" or "H" pulse when unloading.
30	PH6	LOAD	O	SS	Loading motor control signal. "H" or "H" pulse when loading.
31	PH5	LM LIM COM	O	SS	Loading motor limiter control signal. Temporary "H" when loading.
32	PH4	COMP REC	O	VA	Not used.
33	PH3	DRUM REV	O	SS	Drum rotating control signal. Normally "L".
34	PH2		O		
35	PH1		O		N.C.
36	PH0	REEL HALL CONT	O	SS	Reel FG sensor (HALL element) power supply control signal.
37	MP				Connected to GND.
38	RST	RESET	I	MODE CON	Reset signal from mode control microprocessor. "L" when reset.
39	VSS				GND
40	XTAL	XTAL	I	SS	11.89 MHz clock oscillation circuit.
41	EXTAL	EXTAL	O	SS	
42	CSO	VTR COSMOS CS	I	MODE CON	Chip select signal from mode control microprocessor (VS-116 board IC403)
43	S10	DATA TO SLVE	I	MODE CON	Serial data input from mode control microprocessor.
44	S00	DATA TO MSTR	O	MODE CON	Serial data output to mode control microprocessor.
45	SCK0	SCK	I	MODE CON	Serial clock input from mode control microprocessor.

Not used.

100

Pin No.	Port Name	Signal	I/O	Connection	Function
46	PF7/ANI1	AUDIO MUTE	O	VA	Audio output mute signal. "H": mute.
47	PF6/ANI0	1.7M OFF	O	VA	Not used.
48	PF5/AN9	GND	I		GND
49	PF4/AN8	GND	I		Analog port GND.
50	AVSS	AVSS			Analog port reference voltage. Connected to +5V.
51	AVREF	AVREF			Analog port power supply (5V).
52	AVDD	VDD			Connected to GND.
53	PF3/AN7	N.C.			Tape end detection signal. Normally "L". "H" pulse: tape end.
54	PF2/AN6	END SENS	I	SS	Tape top detection signal. Normally "L". "H" pulse: tape top.
55	PF1/AN5	TOP SENS	I	SS	Dew condensation detection signal. "L" when dew condensation.
56	PF0/AN4	DEW	I	SS	Battery voltage input for battery end detection. 1/2 divided by RB401.
57	AN3	BATT SENSE	I	SS	ATF error. ATF lock error input.
58	AN2	ATF ERROR	I	SS	S reel FG signal input.
59	AN1	S REEL FG	I	SS	T reel FG signal input.
60	AN0	T REEL FG	I	SS	Connected to GND.
61	PG7/EX11	PG7 (N.C.)			VD signal from camera circuit sync generator. V period pulse.
62	PG6/EX10	CAM VD	I	CAM SG	FIELD signal from camera circuit sync generator. 2V period pulse.
63	PG5/SYNC1	FLD	I	CAM SG	Composite sync signal separated from REC/PB Y signal.
64	PG4/SYNC0	VTR SYNC	I	VA	Discriminates PB tape REC mode when CUE/REVIEW/FF and REW. "L": LP.
65	PG3/PBCTL	PB SP/LP DET	I	SS	Drum FG signal input. For drum phase servo 33.3 msec period "H"
66	PG2/DPG	DRUM PG	I	SS	Drum FG signal input. For drum speed servo 2.8 msec period pulse.
67	PG1/DFG	DRUM FG	I	SS	Capstan FG signal input. For capstan speed servo. Approx. 994 Hz when REC/PB (SP).
68	PG0/CFG	CAP FG	I	MD	N.C.
69	PE7/DAB0	N.C.	O	SS	Tape LED ON/OFF signal. 100 msec period "H" pulse when REC/PB.
70	PE6/DAB0	T/E LED ON	O	SS	N.C.
71	PE5/DA1	N.C.	O		N.C.
72	PE4/DA0	N.C.	O		Capstan error signal output 20.15 μ sec PWM signal.
73	PE3/PWM1	CAP PWM	O	SS	Drum error signal output 20.15 μ sec PWM signal.
74	PE2/PWM0	DRUM PWM	O	SS	Capstan FG signal input. For tape counter.
75	PE1/EC/INT2	C FG	I	MD	Not used, connected to +5V.
76	PE0/INT0	S JACK IN	I	SS	Control L serial data input.
77	P17/ST1	LANC IN	I	SS	Control L serial data output.
78	P16/SO1	LANC OUT	O	SS	Loading motor limiter ON detection signal. Normally "H". "L" when limiter ON.
79	P15/SCK1	LM LIMIT DET	I	SS	Not used.
80	P14/INT1	AGC SLOW			Drum driver ON/OFF control signal. "H" when drum ON.
81	P13/TO	DRUM ON	O	SS	Head clog detection signal. "L" when no trouble.
82	P12/PWM	CLOG	O	SS	ATF servo reference pilot signal. Synchronized when drum rotation to output by selecting four frequencies. f1=102.52 kHz, f2=118.95 kHz, f3=165.21 kHz and f4=148.69 kHz.
83	P11/PO	REF PILOT	O	SS	Connected to +5V.
84	P10/PCK				Not used.
85	PKO	13/10 SW	I	MD	GND
86	VSS	VSS			VDD
87	VDD	VDD			Connected to +5V.
88	N.C.	(VPP)			Drum motor acceleration signal. Not used.
89	PA7/PP07	DRUM ACC	O	SS	

Pin No.	Port Name	Signal	I/O	Connection	Function
90	PA6/PP06	DRUM BRK	O	SS	Drum motor brake signal. Normally "L".
91	PA3/PP05	SP/LP	O	VA	SP/LP select signal. "L": LP.
92	PA4/PP04	AJ IN/OUT	O		Not used.
93	PA3/PP03	VIDEO O SW	O	VA	VIDEO OUT inhibit signal. "H": inhibit.
94	PA2/PP02	VIDEO I SW	O	VA	VIDEO IN/OUT select signal. Not used.
95	PA1/PP01	VA PB MODE	O	ALL	Video/audio circuit REC/PB select signal. "H": PB.
96	PA0/PP00	VI SWP	O	VA	RF switching pulse signal for video circuit. 30 Hz, 50% duty pulse.
97	PB7/PP015	RF SWP	O	ALL	RF switching pulse signal for REC/PB amp and Audio circuit. 30 Hz, 50% duty pulse.
98	0	H CHG	O	VA	Not used.
99	11	CAP ON	O	MD	Capstan driver ON/OFF control signal. "H" when capstan ON.
100	PB4/PP012	CAP FWD/RVS	O	MD	Capstan rotating direction control signal. "H": FWD, "L": RVS.

Sl. No.	Particulars	Amount	Remarks
1	Salaries		
2	Wages		
3	Grants		
4	Subsidies		
5	Income Tax		
6	Gifts		
7	Dividends		
8	Interest		
9	Other Income		
10	Depreciation		
11	Amortisation		
12	Provision for Doubtful Debts		
13	Provision for Contingent Liabilities		
14	Provision for Income Tax		
15	Provision for Corporation Tax		
16	Provision for Dividend Tax		
17	Provision for Gift Tax		
18	Provision for Interest Tax		
19	Provision for Other Taxes		
20	Provision for Income Tax		
21	Provision for Corporation Tax		
22	Provision for Dividend Tax		
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64	Provision for Dividend Tax		
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69	Provision for Corporation Tax		
70	Provision for Dividend Tax		
71	Provision for Gift Tax		
72	Provision for Interest Tax		
73	Provision for Other Taxes		
74	Provision for Income Tax		
75	Provision for Corporation Tax		
76	Provision for Dividend Tax		
77	Provision for Gift Tax		
78	Provision for Interest Tax		
79	Provision for Other Taxes		
80	Provision for Income Tax		
81	Provision for Corporation Tax		
82	Provision for Dividend Tax		
83	Provision for Gift Tax		
84	Provision for Interest Tax		
85	Provision for Other Taxes		
86	Provision for Income Tax		
87	Provision for Corporation Tax		
88	Provision for Dividend Tax		
89	Provision for Gift Tax		
90	Provision for Interest Tax		
91	Provision for Other Taxes		
92	Provision for Income Tax		
93	Provision for Corporation Tax		
94	Provision for Dividend Tax		
95	Provision for Gift Tax		
96	Provision for Interest Tax		
97	Provision for Other Taxes		
98	Provision for Income Tax		
99	Provision for Corporation Tax		
100	Provision for Dividend Tax		

3-13. MODE CONTROL MICROPROCESSOR PIN FUNCTION (IC403 ON VS-116 BOARD: μ PD75316GF-463-3B9)

Pin No.	Port Name	Signal	I/O	Connection	Function
1	S12	S12	O		
2	S13	S13	O		
3	S14	S14	O		
4	S15	S15	O		
5	S16	S16	O		
6	S17	S17	O		Segment terminal drive signal to LCD. (Four value output of 0, 1.7, 3.3, 5V) Not used.
7	S18	S18	O		
8	S19	S19	O		
9	S20	S20	O		
10	S21	S21	O		
11	S22	S22	O		
12	S23	S23	O		
13	S24/BP0	EEPROM CS	O		Chip select signal to EEPROM (IC406 on VS-116 board). 1/2V period "L" pulse.
14	S25/BP1	N.C.	O		Not used.
15	S26/BP2	TO STBY 1	O	CAM	Power save control signal to timing generator (IC801 on VC-147 board). Normally "L".
16	S27/BP3	N.C.	O		N.C.
17	S28/BP4	CS TITLE	O	CAM	Not used.
18	S29/BP5	REMO CS	O		Chip select signal to sirco remote controller (IC907 on VS-116 board). 1V period "L" pulse.
19	S30/BP6	S RAM CS	O		Not used.
20	S31/BP7	CAM COSM CS	O	CAM	Chip select signal to camera controller (IC709 on VC-147 board). 1V period "L" pulse.
21	COM0	COM 0	O		
22	COM1	COM 1	O		Common terminal drive signal to LCD. (Four value output of 0, 1.7, 3.3, 5V) Not used.
23	COM2	COM 2	O		
24	COM3	COM 3	O		
25	BIAS	BIAS	O		Bias voltage output for voltage dividing resistor. Not used.
26	VLC0	VCC 0	I		Power source 0 input
27	VLC1	VCC 1	I		Power source 1 input Power source for LCD drive. Not used.
28	VLC2	VCC 2	I		Power source 2 input
29	P40	K OUT 4	O	all	KEY matrix output. 1V period "L" pulse output when corresponding key is pressed. "L" when other cases.
30	P41	K OUT 5	O	all	
31	P42	SVS RESET	O	all	Output signal to reset each IC when power is turned on. Normally "H".
32	P43	TALLY	O	EVF	Tally LED ON/OFF signal. "L": ON.
33	VSS	VSS			GND
34	P50	K OUT 0	O	all	
35	P51	K OUT 1	O	all	KEY matrix output.
36	P52	K OUT 2	O	all	1V period "L" pulse output when corresponding key is pressed. "L" when other cases.
37	P53	K OUT 3	O	all	
38	P00/INT4	BATT IN	I		Clock select to 32 kHz when "L" and to 4.19 MHz with "H" when Battery is turned on. "L" is select.
39	P01/SCK	SCK	O	all	Serial clock output terminal. Serial clock (2 μ S) communication.
40	P02/SO/SB0	DATA TO SLVE	O	all	Serial bus output terminal. Serial clock (2 μ S) communication.
41	P03/SI/SB1	DATA TO MSTR	I	all	Serial bus input terminal. Serial clock (2 μ S) communication.
42	P10/INT0	SYSTEM SYNC	I	all	(Edge detection vector interruption). System synchronization input port from CXP80624 (IC402 on VS-116 board).

Pin No.	Port Name	Signal	I/O	Connection	Function
43	P11/INT1	LI PRE END	I		(Edge detection vector interruption). Lithium PRE END is selected with "L".
44	P12/INT2	LANC PWR ON	I		Power on signal input from wired remote control. "L" when power switch pressed.
45	P13/TIO	TITLE BUSY	I	CAM	Not used.
46	P20/PT00	VTR DD ON	O	PS	VTR power source (VIDEO 5V, RP 5V, AUDIO 5V, EVF 5V, DSV, (SSV), D4V, CORE 4V) control signal. "H" when power switch is in "PLAYER" or "CAMERA" position.
47	P21	CAM DD ON	O	PS	CAMERA power source (CAM 5V, +15V, -9V) control signal. "H" when power switch is in "CAMERA" position.
48	P22/PCL	VIDEO D/A CS	O	VA	Serial data load signal to video circuit EVR (IC156, 158 on VS-116 board). 1V period "H" pulse.
49	P23/BUZ	BEEP	O		Not used.
50	P30/LCDCL	VIDEO CS	O	VA	Chip select signal to Y process IC (IC151 on VS-116 board). 1V period "L" pulse.
51	P31/SYNC	VTR COSM CS	O		Chip select signal to mechanism controller (IC402 on VS-116 board). 1V period "L" pulse.
52	P32	SG CS	O	CAM	Chip select signal to sync generator (IC704 on VC-147 board). 1V period "L" pulse.
53	P33	CRTC CS	O	CAM	Strobe signal for character generator (IC406 on VS-116 board). 1V period "H" pulse.
54	VDD	VDD			VDD
55	XT1	XT1	I		SUB system clock. 32 kHz oscillation terminal.
56	XT2	XT2			
57	N.C.	N.C.			N.C.
58	X1	X1	I		Main system clock. 4.19 MHz oscillation terminal.
59	X2	X2	I		
60	P60/KK0	K IN 0	I	all	
61	P61/KR1	K IN 1	I	all	
62	P62/KR2	K IN 2	I	all	
63	P63/KR3	K IN 3	I	all	
64	P70/KR4	K IN 4	I	all	
65	P71/KP5	K IN 5	I	all	
66	P72/KP6	K IN 6	I	all	
67	P73/KP7	CC DOWN	I	MD	Cassette compartment lock switch input. "L": Lock.
68	RESET	RESET	I		System reset input. "L": Reset. Normally: "H".
69	S0	CLK CHK	O		N.C.
70	S1	S1	O		
71	S2	S2	O		
72	S3	S3	O		
73	S4	S4	O		
74	S5	S5	O		
75	S6	S6	O		
76	S7	S7	O		
77	S8	S8	O		
78	S9	S9	O		
79	S10	S10	O		
80	S11	S11	O		

3-11. MODS CONTROL, MICROCOMMISSIONER FOR PLANTATION (FORM ON FILE IN RECORD #P000002-400-000)

DATE	DESCRIPTION	AMOUNT	DEBIT	CREDIT	BALANCE	REMARKS
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3-14. INTERFACE

3-14-1. System Control – Video/Audio Block Interface (VS-116 BOARD)

NAME	I/O	No.	VTR MODE										CAMERA MODE										
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB. PAUSE	FRAME	SLOW	X2	SHUTTLE EDIT *3		REC *4 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW					FWD	REV				FWD	RVS	FWD	RVS
SP/LP	O	IC402 ⑥1	*1	H	H	*2	*2	*2	*2	*2	*2	*1	*1	*2	*2	H	H	H	*2	*2	H	H	
VA PB MODE	O	IC402 ⑥5	L	L	L	H	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H	
AUDIO MUTE *13	O	IC402 ⑥6	L	L	L	H	H	L	H	H	H	H	L	L	L	L	L	L	H	H	H	H	
VIDEO MUTE	O	IC402 ②0	*14	*14	*14	*15	*15	*15	*15	*15	*15	*15	*15	*15	*14	*14	*14	L	L	*15	*15	*15	
CAM/LINE	O	IC402 ②5	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	
JOG VD	O	IC402 ③	L	L	L	*5	*5	L	*5	*5	*5	*5	*5	*5	*5	L	L	L	*5	*5	*5	*5	
RP PB MODE	O	IC402 ①	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	H	H	H	H	H	
FE ON	O	IC402 ②	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	H	H	H	H	H	
RF SWP	O	IC402 ⑥7	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	L	L	*7	*7	*7	
JOG	O	IC402 ④	L	L	L	H	H	L	H	H	H	H	H	H	L	L	L	L	H	H	H	H	
VIDEO CS	O	IC403 ⑤0	V period "L" pulse																				
VIDEO DIA CS	O	IC403 ④0	V period "H" pulse																				
DATA TO MSTR	I	IC403 ④1	V period "L" pulse																				
DATA TO SLVE	O	IC403 ④0	V period pulse train																				
SGK	I	IC403 ③9	V period "H" pulse																				
PB SP/LP DET	I	IC402 ⑥5	L	*10	*10	*10	*10	L	*10	*10	*10	*10	*10	L	*10	L	H	H	L	L	L	*10	
CLOG	I	IC402 ⑥2	H	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	H	*11	H	*11	*11	
VTR SYNC	I	IC402 ⑥4	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	

- *1. Output discrimination result of the mode just before. "H": SP mode, "L": LP mode.
- *2. Output discrimination result of the playback tape. "H": SP mode, "L": LP mode.
- *3. Edit search button pressed when playback pause mode.
- *4. Mode for adjustment.
- *5. False VD signal
- *7. 30 Hz duty 50% pulse (synchronized with drum rotation)
- *10. "H": SP recording area on tape. "L": LP recording area.
- *11. "H": no recording area or drop out area on tape. Head clog detection input.
- *12. Composite sync signal input separated from line input video signal, camera video signal or playback video signal. (polarity +)
- *13. "H" during camera mode load/unload.
- *14. "L" when external input (video) present. "H" when other cases.
- *15. "H" when tape no signal. "L" when other cases.

3-14-2. System Control – Servo Block Interface

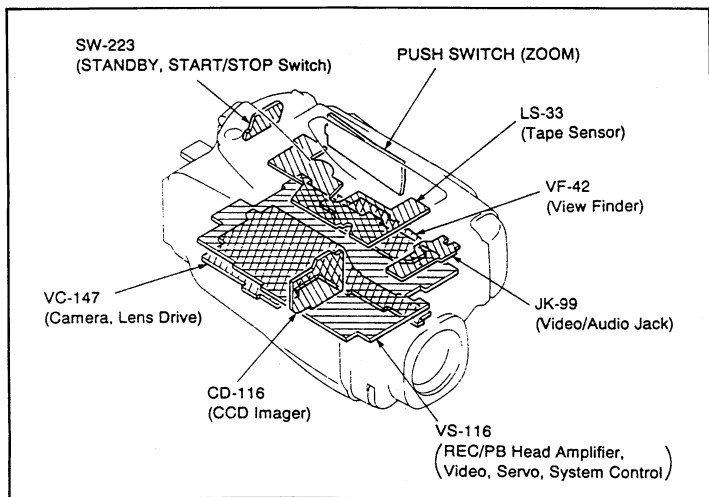
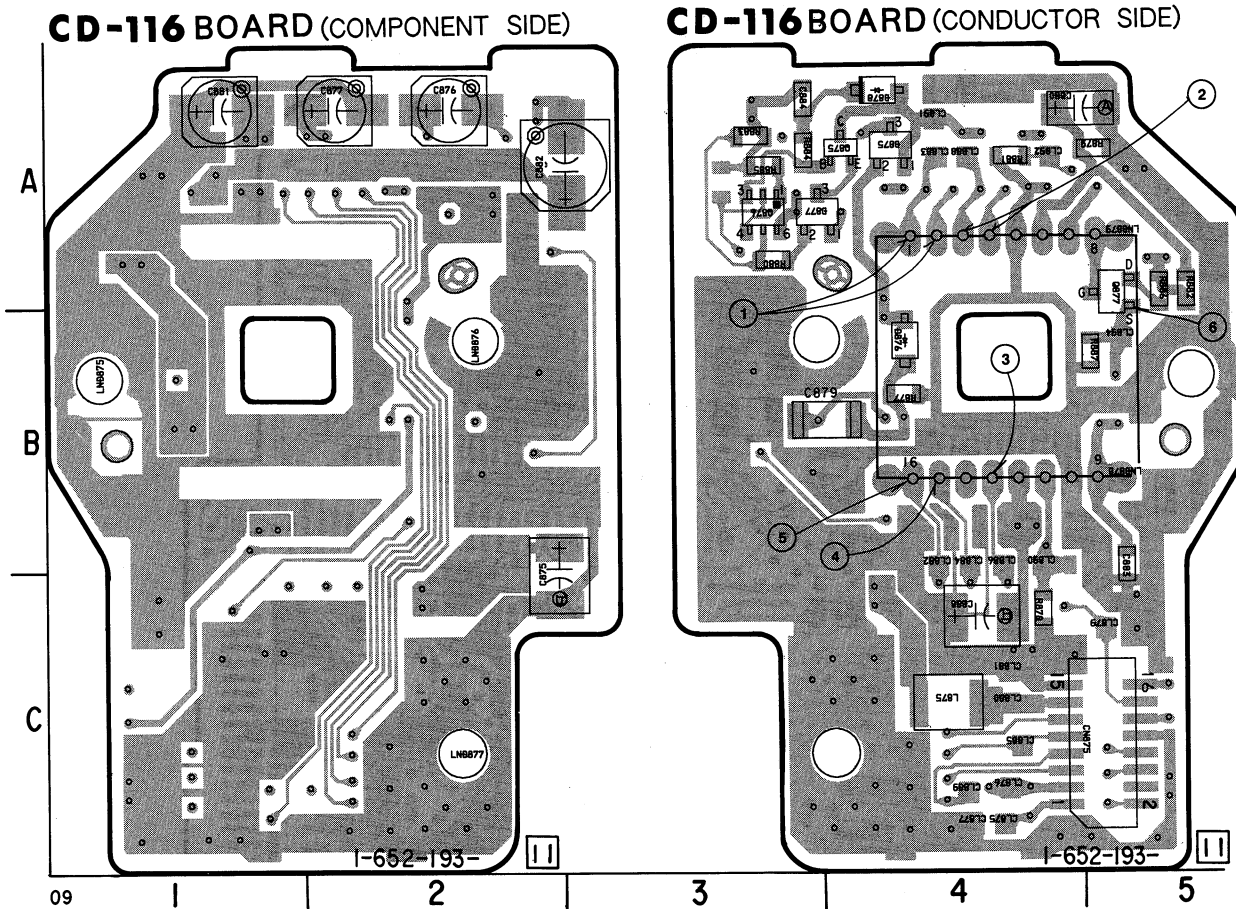
NAME	I/O	No.	VTR MODE										CAMERA MODE											
			STOP	FF	REW	FR SEARCH CUE	PB	PICTURE SEARCH CUE	REVIEW	PB- REVIEW	PAUSE	FRAME	SLOW	X2	SHUTTLE EDIT *13		REC *14 PAUSE	STAND BY	REC	EDIT SEARCH		REC-REVIEW		
															FWD	REV			FWD	RVS	FWD	RVS	FWD	RVS
T.REEL FG	I	IC402 (8)	-	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	-	-	*1	*1	*1	*1	
S.REEL FG	I	IC402 (9)	-	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	-	-	*1	*1	*1	*1	*1	
ATF ERROR	I	IC402 (3)	-	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
DRUM PG	I	IC402 (5)	-	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
DRUM FG	I	IC402 (7)	-	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP FG/ CFG HMS	I	IC402 (6), (7)	-	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
CAP ON	O	IC402 (9)	L	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	H	H	H	H	H
REF PILOT	O	IC402 (3)	*7	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RP/PB MODE	O	IC402 (1)	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H
DRUM REV	O	IC402 (3)	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD/ RVS	O	IC402 (10)	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L	L	L	H	H	L	L	L
DRUM PWM	O	IC402 (7)	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
CAP PWM	O	IC402 (7)	L	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
LW LIM CONT	O	IC402 (8)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
DRUM ON *12	O	IC402 (8)	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

- *1. Inputting waveform which is similar to sine wave according to reel rotation.
- *2. ATF error voltage input
- *3. One PG pulse input per one drum rotation, approx. 30 Hz.
- *4. 12 FG pulses input per one drum rotation, approx. 360 Hz.
- *5. 520 FG pulses input per one capstan rotation. Approx. 994 Hz when REC/PB (SP).
498 Hz when PB (LP).
- *6. Four frequencies output synchronized with drum rotation. f1=102.54 kHz, f2=118.95 kHz, f3=165.21 kHz and f4=148.69 kHz
- *7. f2 (118.95 kHz) output
- *8. "H" pulse when tape run.
- *9. 21.5 μsec period PWM signal
- *10. Normally "H". Temporary "L" when load (drum reverse rotation).
- *11. Temporary "H" when cassette loading (finger catch protection).
- *12. "H": approx. 1.3 Vdc
- *13. Edit search button pressed when playback pause mode.
- *14. Mode for adjustment.

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

CD-116 (CCD IMAGER) PRINTED WIRING BOARD

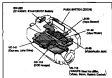
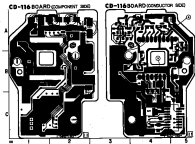
— Ref. No. CD-116 BOARD: 1000 series —



4-2. PRINTED HYBRID BOARD AND SCHEMATIC DIAGRAM

CD-116 (CCD IMAGER) PRINTED HYBRID BOARD

— See also CD-116(AS)CD-116(AS) —



THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

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









- **For printed wiring boards.**
- ○ — : 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.
- ○ or ● : Through hole.

Caution:

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

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

• For schematic diagrams.

- **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 or less unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted. pF: μ μ F.
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.
-  : internal component.
-  : adjustment for repair.
-  : B+ Line.
-  : B- Line.
-  : IN/OUT direction of (+, -) B LINE.
- Circled numbers refer to waveforms.

Note:

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

Note:

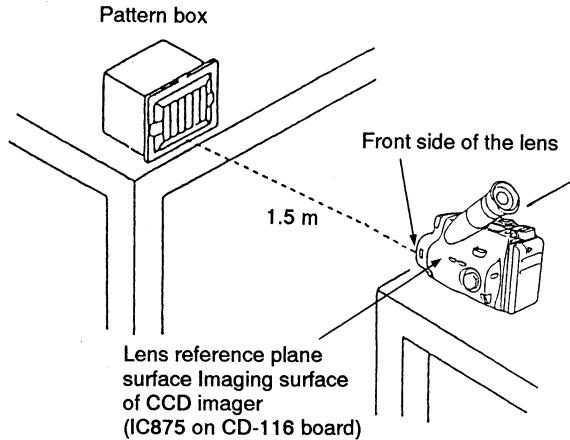
Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

• Measuring conditions voltage value and waveform. (CAMERA REC mode)

- 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 Ω).
- Voltage variations may be noted due to normal production tolerances.

1. Connection



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

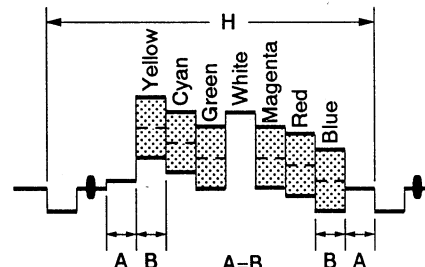


Fig. a (Video output terminal output waveform)

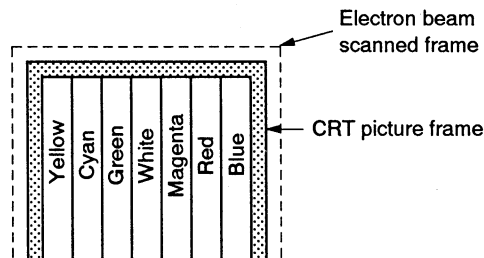


Fig. b (Picture on monitor TV)

(REC/PB mode)

- 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 Ω).
- Voltage variations may be noted due to normal production tolerances.

Note: Refer to "9-1-3. How to set the REC Mode" in VIDEO SECTION ADJUSTMENT. (See Page 205)

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

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

- For printed wiring boards.
 -  : Indicates a lead wire mounted on the component side.
 -  : Indicates a lead wire mounted on the solderable side.
 -  : Pads mounted on the solderable side.
 -  : Pads on the side which enables rework.
- (The other types/patterns are not indicated.)
-  : Circuit numbers refer to connections.
 -  : Through hole.

- Measuring conditions: voltage value and waveform. (SIAMPSA, SSC mode)
- The signal is over the start of pattern loss.
- Voltage is in between ground and measurement points. (No signal can take with a digital multimeter (DMM) L.)
- Voltage waveform may be varied due to normal production tolerances.

1. Installation



- 2. Adjust the distance so that the output waveform of Fig. 4 and the Fig. 5 are in-phase.



Fig. 4 (Wave output terminal output waveform)











Fig. 5 (Pattern on monitor TV)

(SSUPP mode)

- Voltage is in between ground and measurement points.
- No signal can take with a monitor signal head.
- No signal can take with a digital multimeter (DMM) L.
- Voltage waveform may be varied due to normal production tolerances.

(Note: Refer to "S-C-A" flow to set the "SSUPP" mode in VIDEO SECTION ADJUSTMENT. (See Page 295))

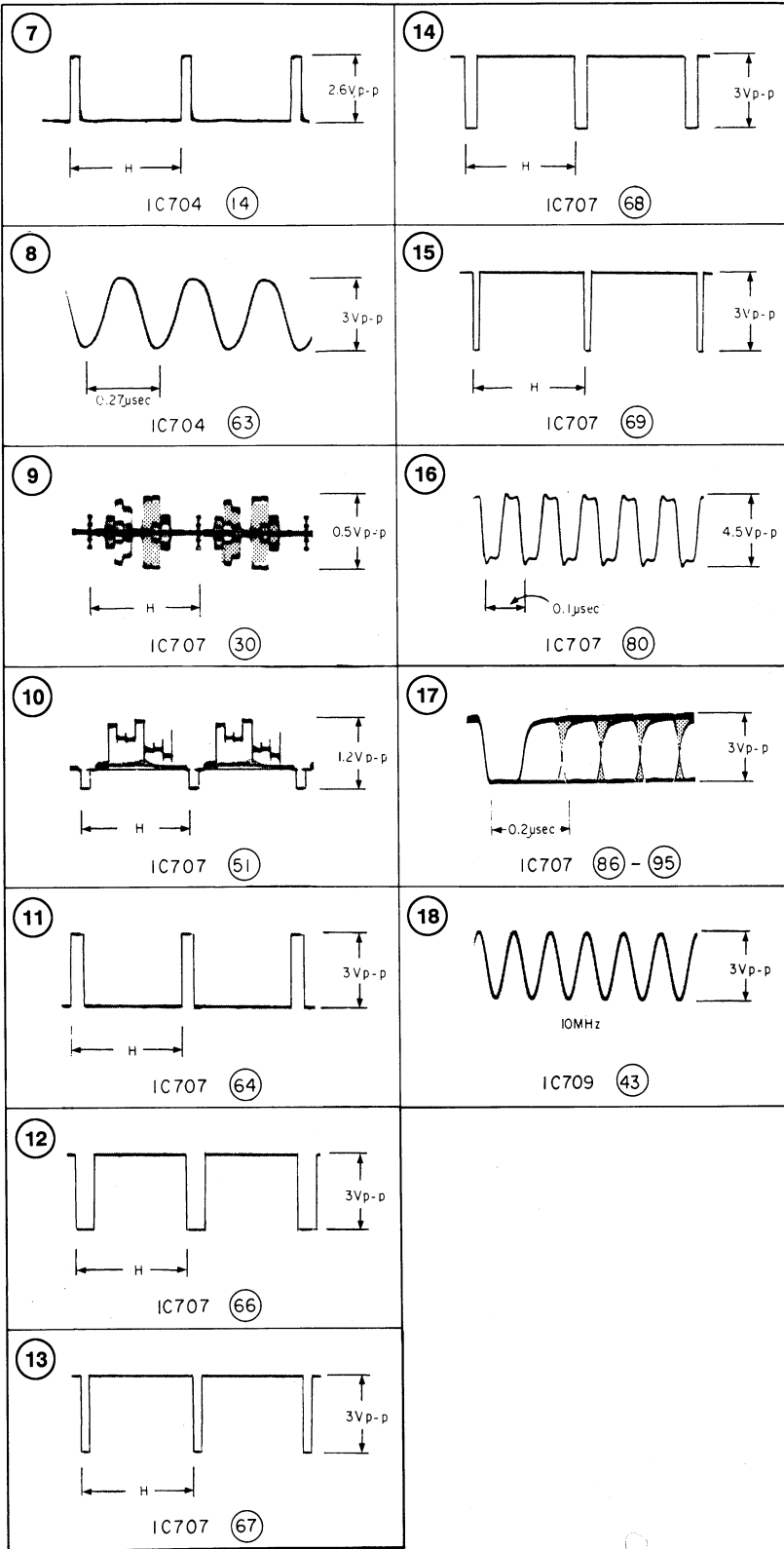
Pattern	
 : Pattern face side	Parts on the pattern face side mount from (Component Side) the pattern face side indicated.
 : Pattern face side	Parts on the parts face side mount from the (Component side) the parts face side indicated.

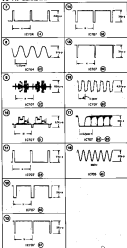
- For schematic diagrams.
- Circles whose radius is 1/2 pitch. (No parts may be obtained after removal of chip. Be careful not to lead the inside side of terminals together. Increased is damaged by the heat.)
- All values are in mm. (DIP values otherwise noted.) (Chip values are (DIP) or (SOP) values otherwise noted.) (S): miling, (M): milling.
- All operations with ϕ (P) values otherwise noted ϕ (P) ϕ (P) and ϕ (S) are not followed except for diameters and notations.
- All outside and adjustable features have characteristic curve 1, unless otherwise noted.
-  : nonfunctional feature.
-  : testable feature.
-  : panel designation.
-  : internal component.
-  : adjustment for repair.
-  : B-List.
-  : B-List.
-  : RECU? direction of \pm , \pm (B-List).
- Circled numbers refer to connections.

Note: The components identified by circled numbers and Δ are critical to safety. They are only with post-assembly inspection.	Note: The components identified by circled numbers Δ and without post-assembly inspection. The test frequency may not use power contact to measure speed-up.
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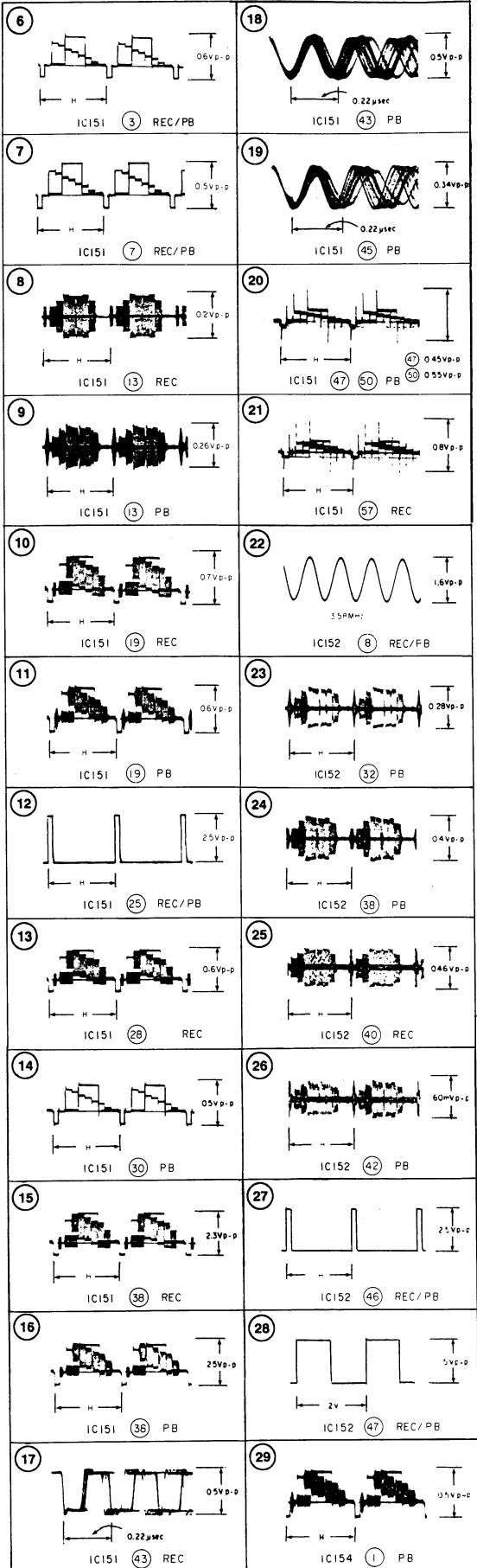
When indicating parts to replacement location, please include the board name.

VC-147 BOARD (2/3)





VS-116 BOARD (2/3)



VS-116 BOARD (3/3)

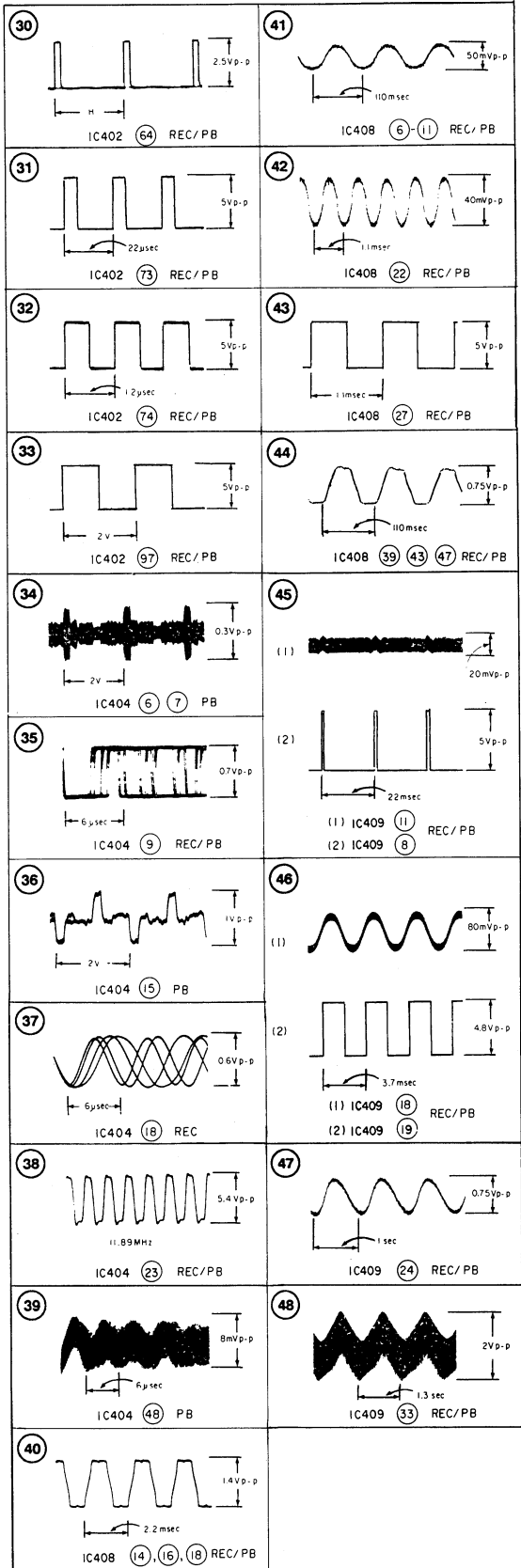


Figure 10-10

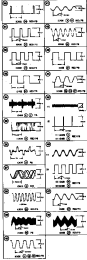
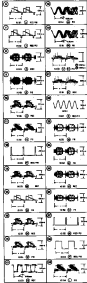
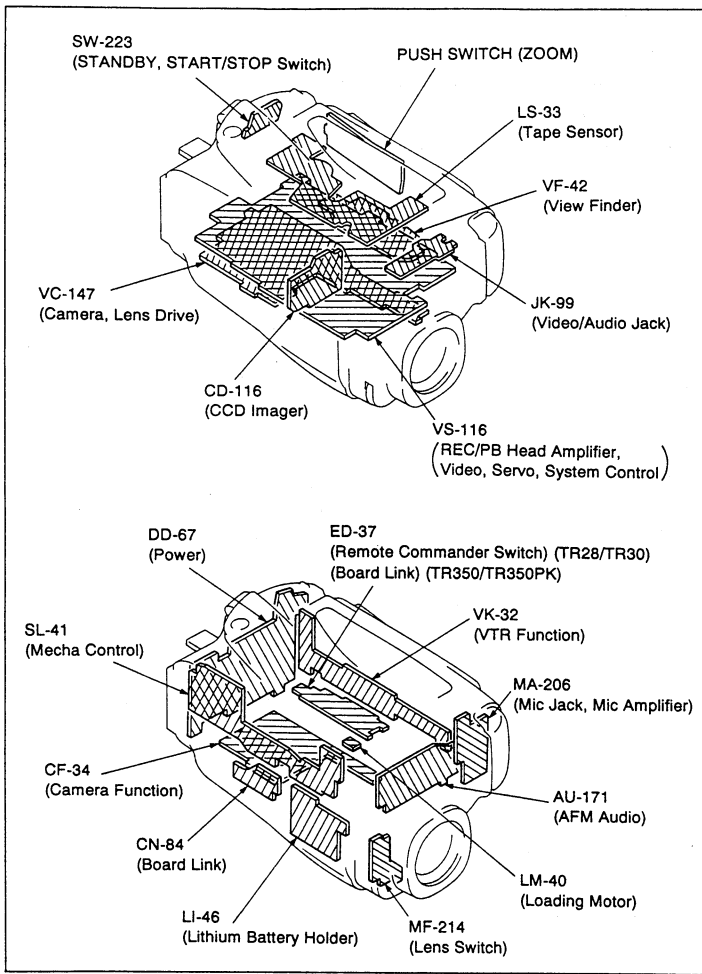
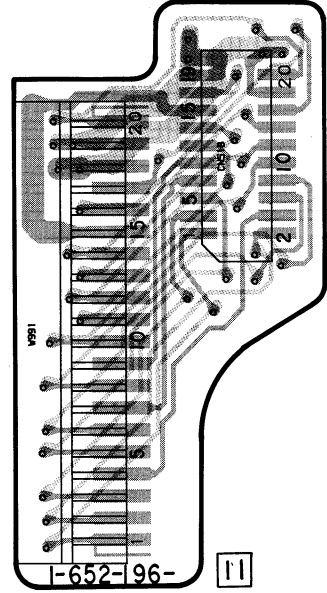


Figure 10-11

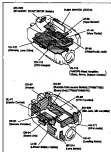




CN-84 BOARD
(CONDUCTOR SIDE)



- **For printed wiring boards.**
(CN-84, LI-46 and MF-214 boards)
 - ○ : indicated a lead wire mounted on the component side.
 - — : indicated a lead wire mounted on the conductor side.
 - ○ : Through hole.
 - ■ : Pattern from the side which enables seeing.
 - ▨ : Pattern of the rear side.
- (The other layers' patterns are not indicated.)

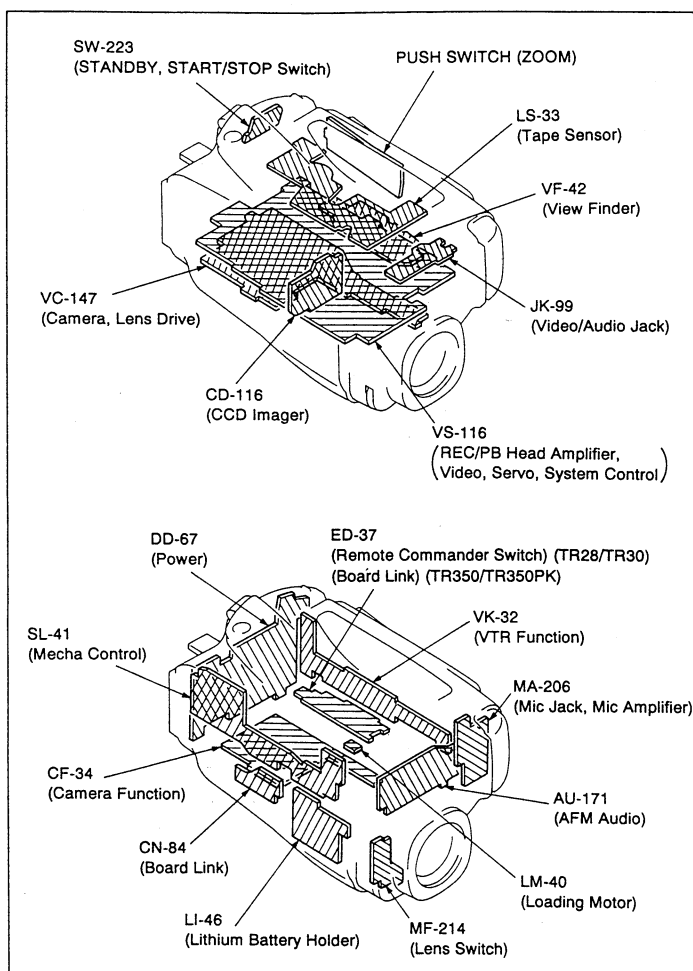


CN-84 BOARD (CONDUCTOR SIDE)

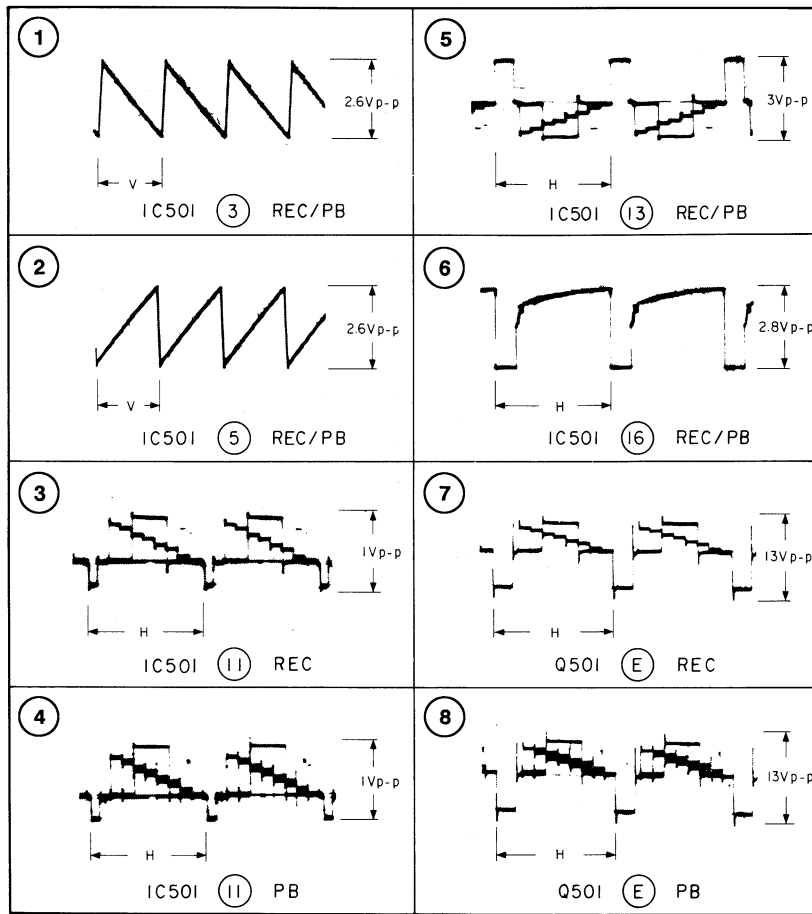


- Four printed wiring boards, (02-04, 02-05 and 02-06 boards)
 -  : Inductor is lead wire mounted on the equipment side.
 -  : Inductor is lead wire mounted on the conductor side.
 -  : Through hole.
 -  : Pad on the side which enables wiring.
 -  : Pad on the rear side.
- (The other types/patterns are not included.)

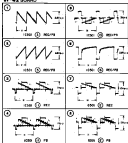
- Printed wiring boards of FP-442, LM-40 and LS-33 boards are omitted.



VF-42 BOARD



VF-42 BOARD

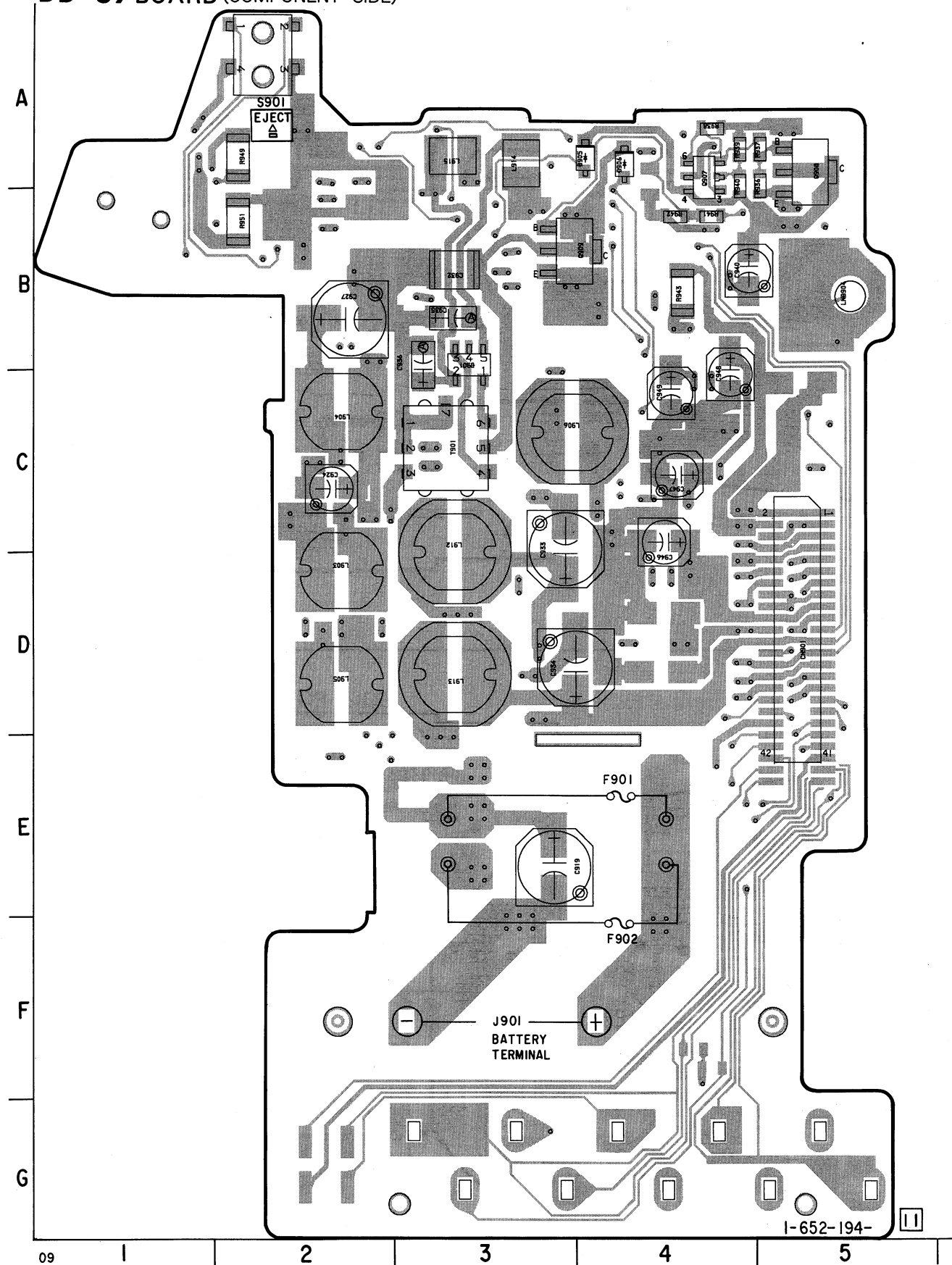


CCD-TR28/TR30/TR350/TR350PK

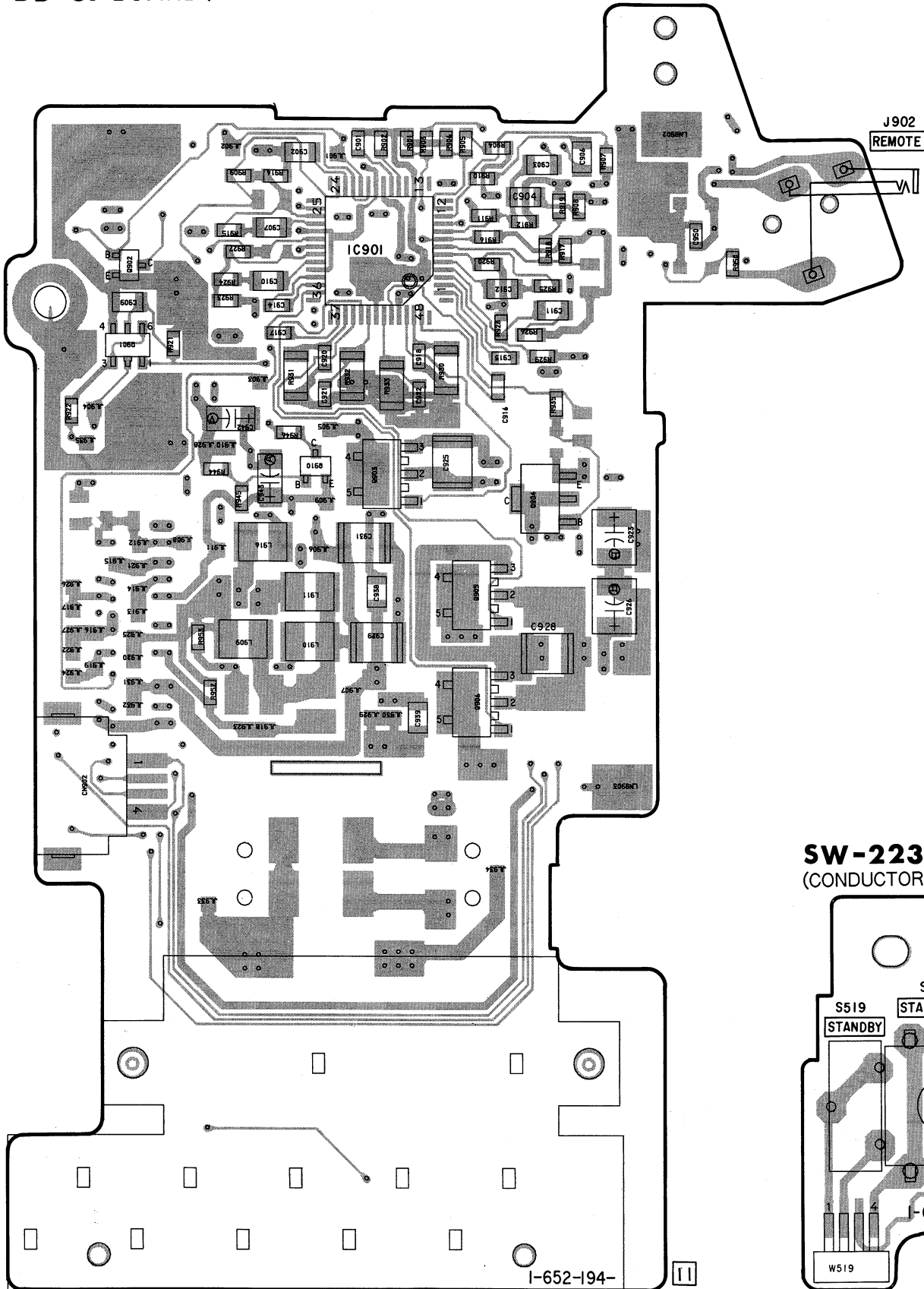
DD-67 (POWER), SW-223 (STANDBY, START/STOP SWITCH) PRINTED WIRING BOARDS

— Ref. No. DD-67 BOARD: 1000 series, SW-223 BOARD: 7000 series —

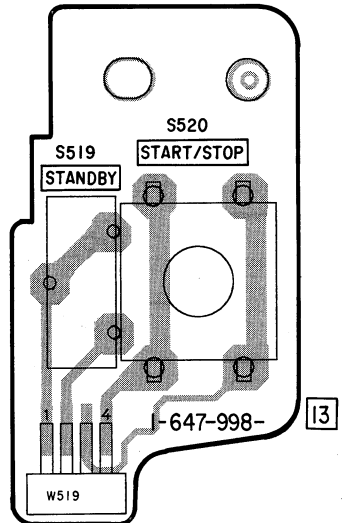
DD-67 BOARD (COMPONENT SIDE)



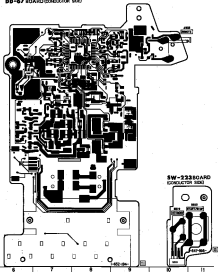
DD-67 BOARD (CONDUCTOR SIDE)



SW-223 BOARD (CONDUCTOR SIDE)



DD-67 BOARD-CONDUCTOR SIDE

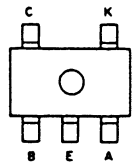


4-3. SEMICONDUCTORS

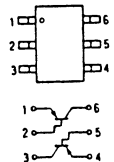
DTA114EE
DTC124EE
RN1302
RN2302
UN511E
UN5112
UN5113
UN5115
UN521E
UN5212
UN5213
UN9111
2SA1162
2SA1163-G
2SA1576-R
2SA1586
2SA1622-5.6.7
2SA1774R
2SB1202FAST
2SB1295-UL6
2SB1462Q
2SB1574
2SC1623
2SC2223-F13
2SC4178-F14
2SC4211-5.6.7
2SC4617
2SD1819A-R
2SD2216Q



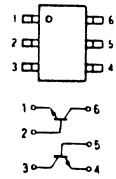
FP101
FP102



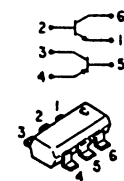
UMT1
XP4401



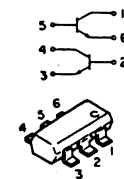
UMX1
XP4501



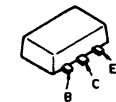
UMZ1
XN4312



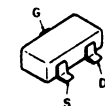
XN4213
XN4215
XN4501



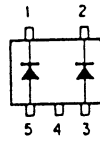
2SB1121
2SB1122-S
2SB798-DL
2SD1615A-GP



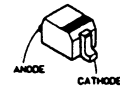
2SK1875



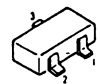
FC805



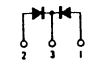
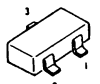
MA110
1SS332



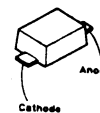
MA142WA
MA152WA
1SS181



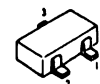
MA142WK



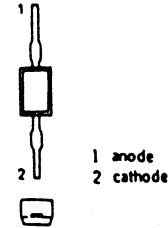
MA728
MA8082



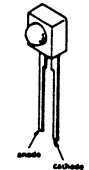
1SS123
1SS226



TLS221



BR4371F



SECTION 5 EXPLODED VIEWS

NOTE:

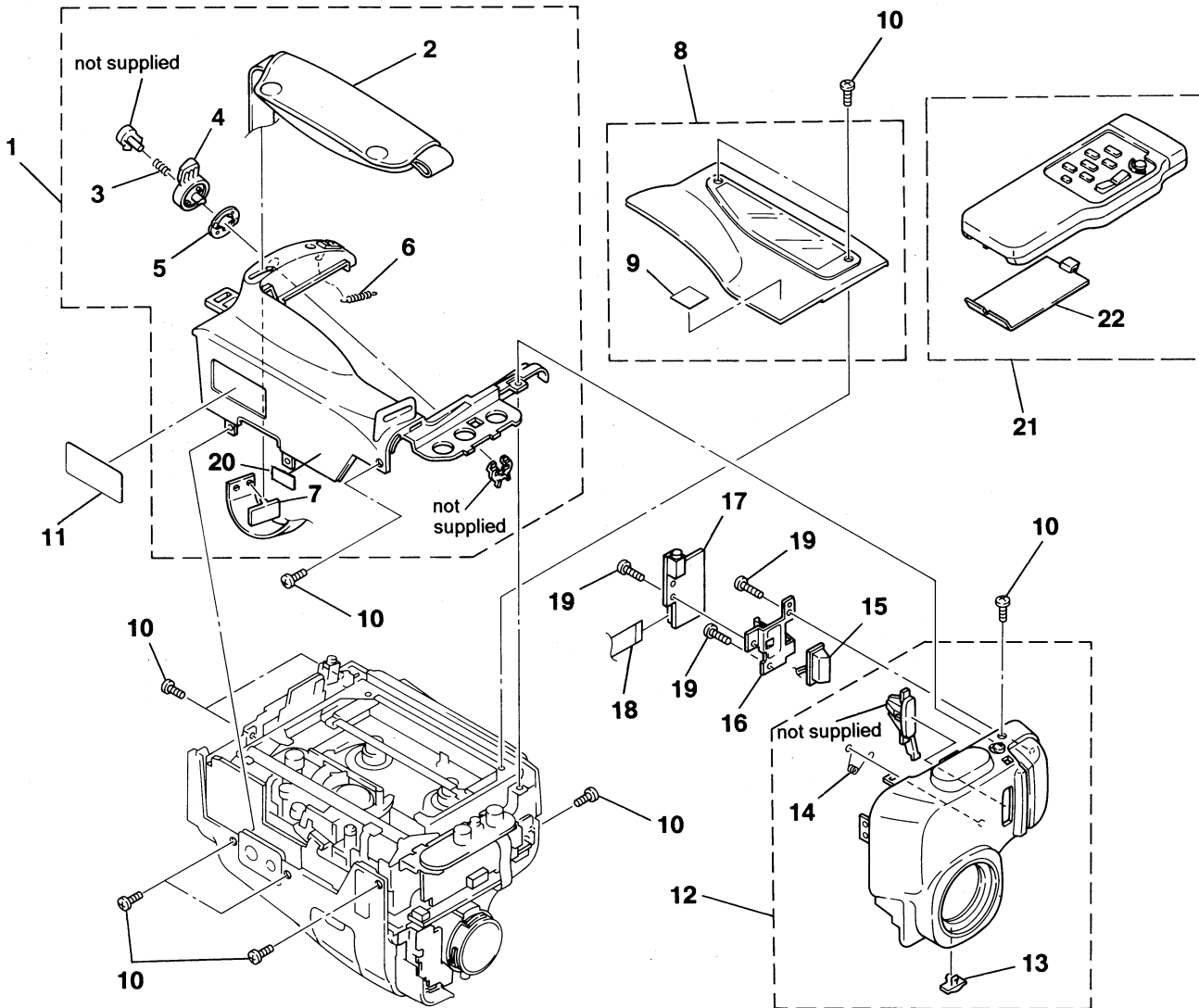
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

- Items marked “ * ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Canadian model is abbreviated as CND.

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3941-893-1	CABINET (L) ASSY (TR30:US)		* 11	3-958-105-01	LABEL, MODEL NUMBER (E) (TR350/TR350PK)	
1	X-3942-282-1	CABINET (L) ASSY (TR30:CND/TR350/TR350PK)		* 11	3-958-284-01	LABEL, MODEL NUMBER (U/C) (TR28)	
1	X-3944-046-1	CABINET (L) ASSY (TR28)		12	X-3943-990-1	PANEL ASSY, FRONT (TR350/TR350PK)	
2	3-736-807-01	BELT, GRIP		12	X-3944-047-1	PANEL ASSY, FRONT (TR28)	
3	3-578-221-00	SPRING, COMPRESSION		12	X-3944-050-1	PANEL ASSY, FRONT (TR30)	
4	3-942-985-01	KNOB, STAND-BY		13	3-942-905-01	KNOB, S	
5	3-736-364-01	SPRING		14	3-947-357-01	SPRING, TORSION	
6	4-602-490-00	SPRING, TENSION		15	A-7091-800-A	MICROPHONE UNIT	
7	3-942-895-01	STOPPER, BELT		* 16	3-949-000-01	RETAINER, MICROPHONE	
8	X-3944-041-1	LID ASSY, CASSETTE (TR350/TR350PK)		* 17	A-7063-970-A	MA-206 BOARD, COMPLETE	
8	X-3944-042-1	LID ASSY, CASSETTE (TR28)		18	1-696-487-11	CABLE, FLAT (FFC-90)	
8	X-3944-049-1	LID ASSY, CASSETTE (TR30)		19	3-713-790-21	SCREW (M2X6), TAPPING, P3	
9	3-703-710-41	STICKER, SONY SYMBOL (12)		* 20	3-704-367-01	LABEL (TR28/TR30:US)	
10	3-719-381-01	SCREW (M2X4)		21	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR28/TR30)	
* 11	3-958-102-01	LABEL, MODEL NUMBER (U/C) (TR30)		22	3-958-131-01	LID, BATTERY CASE (for RMT-708) (TR28/TR30)	

SECTION 5 EXPLODED VIEWS

NOTE:

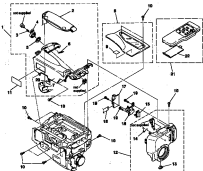
- All of these standard parts are the same size unless otherwise specified.
- The standard parts with no reference number in brackets are not supplied.
- Dimensions (if any) are given in inches at the part list.

- These screws are $1/8 \times 3/8$ inch standard size they are widely required for similar screws. These may be used to substitute when ordering these items.
- Chassis would be obtained as C/O.

On components identified by part #s in bold face will work if an exact duplicate. Reorder only with part number specified.

On components identified by part number #s and indicate how to obtain. Do not duplicate any or use other parts having similar.

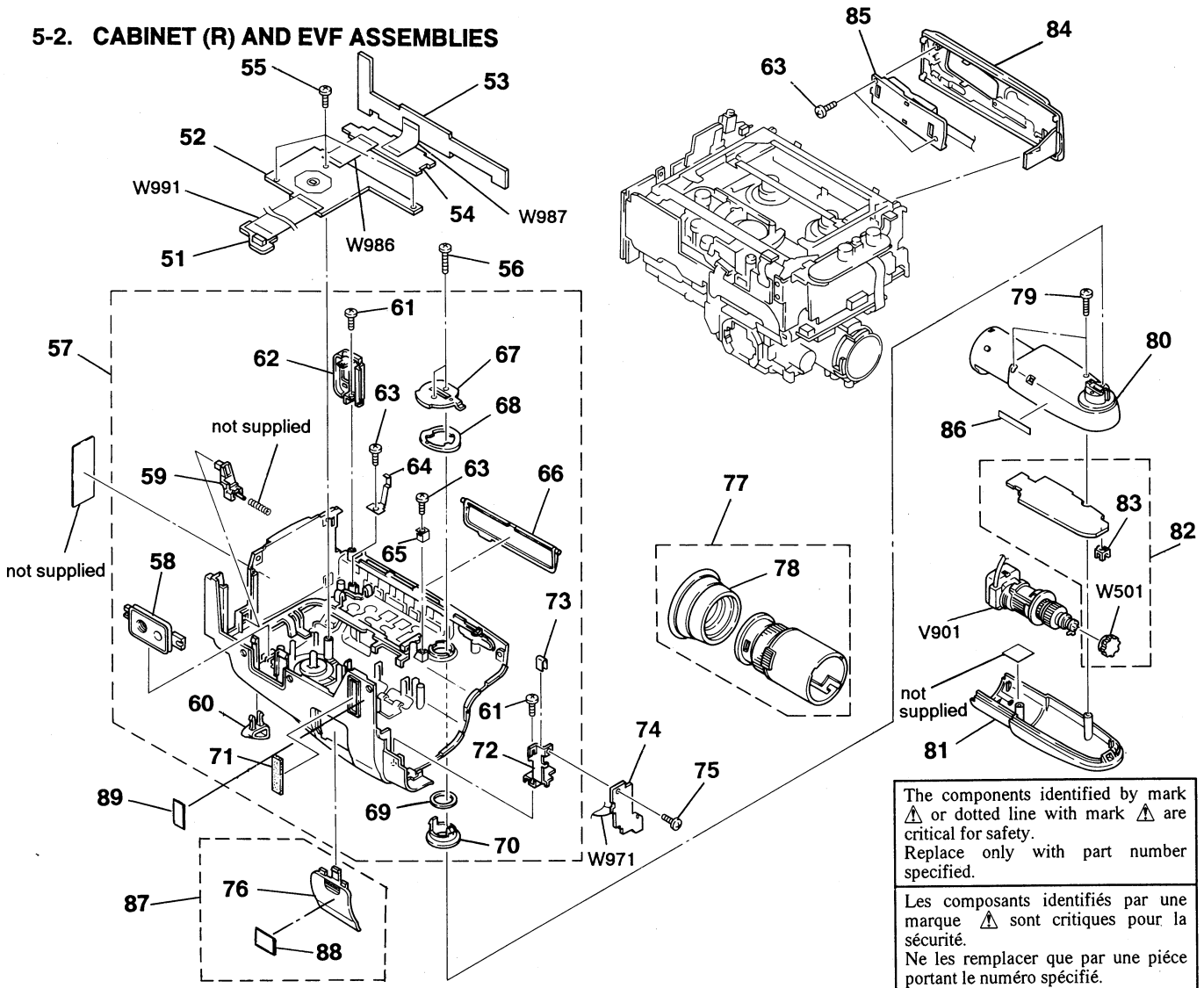
5-1. CABINET (L) AND FRONT PANEL ASSEMBLY



Qty. Req.	Part No.	Description	Notes
1	1-200-201-01	FRONT PANEL	
1	1-200-201-02	FRONT PANEL	
1	1-200-201-03	FRONT PANEL	
1	1-200-201-04	FRONT PANEL	
1	1-200-201-05	FRONT PANEL	
1	1-200-201-06	FRONT PANEL	
1	1-200-201-07	FRONT PANEL	
1	1-200-201-08	FRONT PANEL	
1	1-200-201-09	FRONT PANEL	
1	1-200-201-10	FRONT PANEL	
1	1-200-201-11	FRONT PANEL	
1	1-200-201-12	FRONT PANEL	
1	1-200-201-13	FRONT PANEL	
1	1-200-201-14	FRONT PANEL	
1	1-200-201-15	FRONT PANEL	
1	1-200-201-16	FRONT PANEL	
1	1-200-201-17	FRONT PANEL	
1	1-200-201-18	FRONT PANEL	
1	1-200-201-19	FRONT PANEL	
1	1-200-201-20	FRONT PANEL	
1	1-200-201-21	FRONT PANEL	
1	1-200-201-22	FRONT PANEL	
1	1-200-201-23	FRONT PANEL	
1	1-200-201-24	FRONT PANEL	
1	1-200-201-25	FRONT PANEL	
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1	1-200-201-98	FRONT PANEL	
1	1-200-201-99	FRONT PANEL	
1	1-200-201-100	FRONT PANEL	

Qty. Req.	Part No.	Description	Notes
1	1-200-201-1	FRONT PANEL	
1	1-200-201-2	FRONT PANEL	
1	1-200-201-3	FRONT PANEL	
1	1-200-201-4	FRONT PANEL	
1	1-200-201-5	FRONT PANEL	
1	1-200-201-6	FRONT PANEL	
1	1-200-201-7	FRONT PANEL	
1	1-200-201-8	FRONT PANEL	
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1	1-200-201-98	FRONT PANEL	
1	1-200-201-99	FRONT PANEL	
1	1-200-201-100	FRONT PANEL	

5-2. CABINET (R) AND EVF ASSEMBLIES

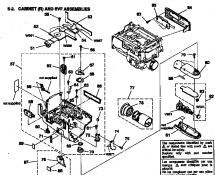


The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 51	A-7072-008-A	CN-84 BOARD, COMPLETE		73	2-532-810-00	CUSHION, 15X5X0.3	
* 52	A-7072-012-A	CF-34PLL BOARD, COMPLETE		* 74	A-7072-009-A	MF-214W BOARD, COMPLETE	
* 53	A-7072-010-A	VK-32LL BOARD, COMPLETE		75	3-713-786-51	SCREW (M2X3)	
* 54	A-7072-013-A	ED-37PLL BOARD, COMPLETE (TR350/TR350PK)		76	3-948-843-01	LID, BATTERY CASE, LITHIUM (TR30/TR350/TR350PK)	
* 54	A-7072-015-A	ED-37LL BOARD, COMPLETE (TR28/TR30)		77	X-3941-603-1	HOLDER ASSY, FINDER	
55	3-713-790-21	SCREW (M2X6), TAPPING, P3		78	3-946-426-01	EYE CUP	
56	3-740-546-41	SCREW (M2X10)		79	3-713-790-31	SCREW (M2X8), TAPPING, P3	
57	X-3943-991-1	CABINET (R) ASSY (TR350/TR350PK)		80	X-3940-706-1	CABINET (L) ASSY, EVF (TR30/TR350/TR350PK)	
57	X-3944-048-1	CABINET (R) ASSY (TR28)		80	X-3944-045-1	CABINET (L) ASSY, EVF (TR28)	
57	X-3944-051-1	CABINET (R) ASSY (TR30)		81	3-943-077-01	CABINET (R), EVF (TR30/TR350/TR350PK)	
58	3-942-911-01	SCREW, TRIPOD		81	3-952-073-31	CABINET (R), EVF (TR28)	
59	3-948-990-01	LOCK, BATTERY		* 82	A-7063-183-A	VF-42 BOARD, COMPLETE (3120)	
60	3-948-989-01	KNOB, BATTERY (TR30/TR350/TR350PK)		83	3-942-888-01	HOLDER, LED	
60	3-948-989-21	KNOB, BATTERY (TR28)		84	X-3941-894-1	LID ASSY, LS (TR30/TR350/TR350PK)	
61	4-908-792-71	SCREW (B2X6), TAPPING, P1		84	X-3944-044-1	LID ASSY, LS (TR28)	
62	3-948-975-51	BASE, POWER (TR30/TR350/TR350PK)		85	1-692-257-11	SWITCH, PUSH (ZOOM)	
62	3-948-975-61	BASE, POWER (TR28)		* 86	3-744-894-11	LABEL, EVF	
63	3-719-601-01	SCREW (B2X5), TAPPING		87	X-3942-113-1	LID ASSY, BATTERY, LITHIUM (TR30:US)	
64	3-948-988-01	SPRING, LEAF, VK		87	X-3944-043-1	LID ASSY, BATTERY, LITHIUM (TR28)	
65	3-747-178-01	REINFORCEMENT, TILT LOCK		88	3-704-256-01	LABEL, CAUTION (TR28/TR30:US)	
66	3-948-976-01	DOOR, CONTROL (TR30/TR350/TR350PK)		89	3-954-355-01	LABEL (C), NI-CD RECYCLE (TR28/TR30)	
66	3-948-976-21	DOOR, CONTROL (TR28)		△V901	1-452-565-11	CRT ASSY (M01KKD70WB)	
67	3-747-111-01	PLATE, LOCK, TILT		△W501	1-540-019-21	SOCKET ASSY, CRT	
68	3-747-110-01	SPRING, LEAF, TILT		W971	1-696-484-11	CABLE, FLAT (FFC-87)	
69	3-747-112-01	RING, TILT		W986	1-696-621-11	FP-590 FLEXIBLE BOARD	
70	3-747-109-01	SLEEVE, EVF		W987	1-696-622-11	FP-591 FLEXIBLE BOARD	
71	3-949-008-01	SHEET, FOOT		W991	1-696-483-11	CABLE, FLAT (FFC-86)	
* 72	3-948-987-01	FRAME, MF					

5.4. CABINET (P) AND PVT ASSEMBLIES

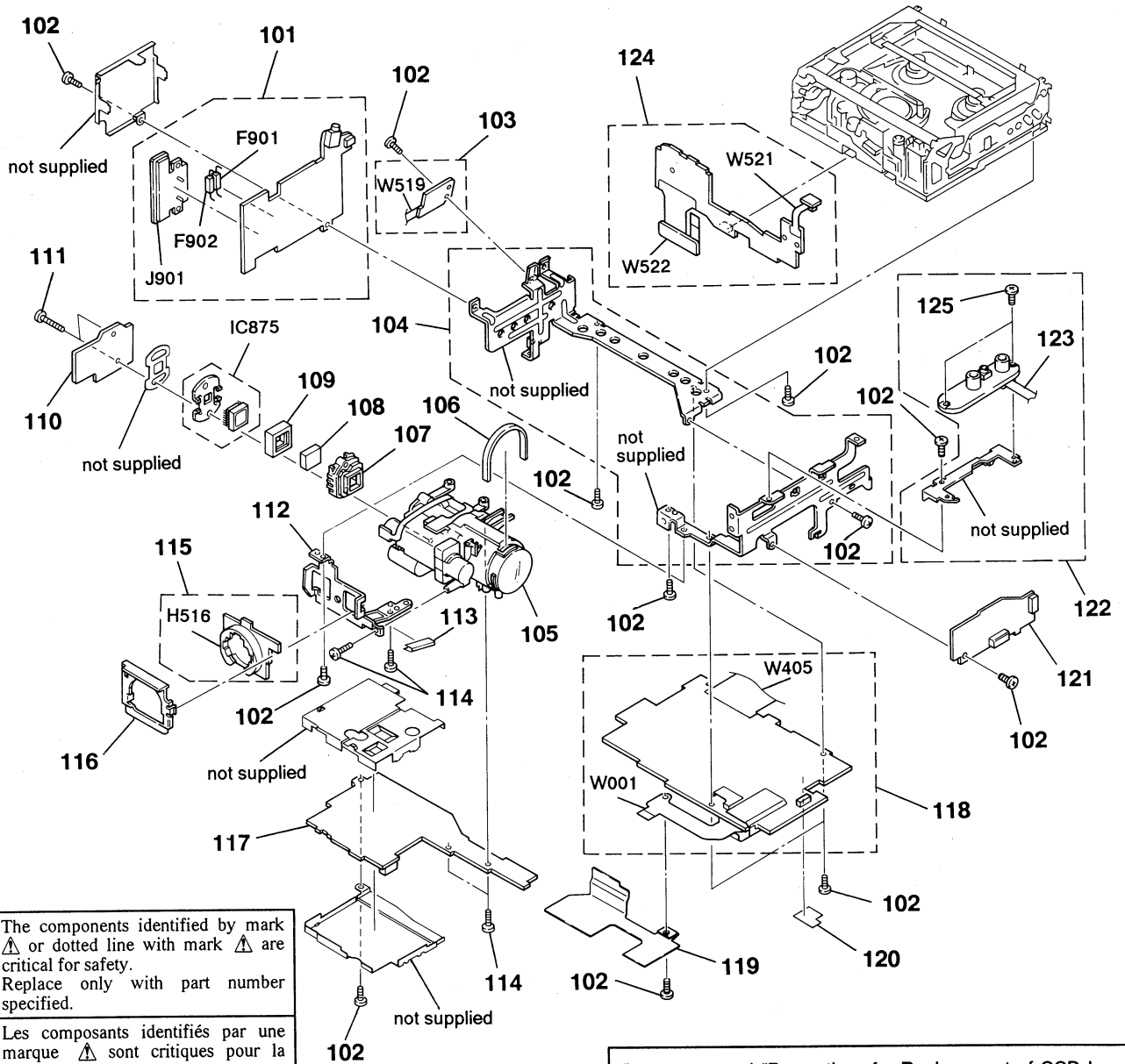


Use components identified by code A, or B, or both the code A, or B, as shown hereafter.
 Specify only when you number parts.
 Use components identified by the letters A, or B, or both parts in the list together for the same part, or both parts.

Part No.	Part No.	Description	Notes
1	10000000	COVER	
2	10000000	COVER	
3	10000000	COVER	
4	10000000	COVER	
5	10000000	COVER	
6	10000000	COVER	
7	10000000	COVER	
8	10000000	COVER	
9	10000000	COVER	
10	10000000	COVER	
11	10000000	COVER	
12	10000000	COVER	
13	10000000	COVER	
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27	10000000	COVER	
28	10000000	COVER	
29	10000000	COVER	
30	10000000	COVER	
31	10000000	COVER	
32	10000000	COVER	
33	10000000	COVER	
34	10000000	COVER	
35	10000000	COVER	
36	10000000	COVER	
37	10000000	COVER	

Part No.	Part No.	Description	Notes
1	10000000	COVER	
2	10000000	COVER	
3	10000000	COVER	
4	10000000	COVER	
5	10000000	COVER	
6	10000000	COVER	
7	10000000	COVER	
8	10000000	COVER	
9	10000000	COVER	
10	10000000	COVER	
11	10000000	COVER	
12	10000000	COVER	
13	10000000	COVER	
14	10000000	COVER	
15	10000000	COVER	
16	10000000	COVER	
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21	10000000	COVER	
22	10000000	COVER	
23	10000000	COVER	
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29	10000000	COVER	
30	10000000	COVER	
31	10000000	COVER	
32	10000000	COVER	
33	10000000	COVER	
34	10000000	COVER	
35	10000000	COVER	
36	10000000	COVER	
37	10000000	COVER	

5-3. MAIN BOARDS ASSEMBLY



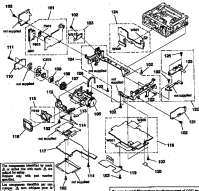
The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Be sure to read "Precautions for Replacement of CCD Imager" on page 76 when changing the CCD imager.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
▲*101	A-7063-968-A	DD-67 BOARD, COMPLETE		* 118	A-7066-020-A	VS-116NL BOARD, COMPLETE (TR350/TR350PK)	
102	3-713-786-51	SCREW (M2X3)		119	3-957-512-01	SHIELD, SL	
* 103	A-7071-828-A	SW-223 BOARD, COMPLETE		* 120	3-954-411-01	SHEET (VS/LE), INSULATING	
* 104	X-3942-209-1	FRAME (UPPER LOWER) ASSY		* 121	A-7066-004-A	AU-171NL BOARD, COMPLETE (TR350/TR350PK)	
105	1-547-548-11	LENS, ZOOM (VCL-6210WC) (TYPE A)		* 121	A-7066-013-A	AU-171LL BOARD, COMPLETE (TR28/TR30)	
105	1-547-630-11	LENS, ZOOM (VCL-6210WF) (TYPE B)		* 122	A-7066-021-A	JK-99LL BOARD, COMPLETE	
106	3-954-580-01	CUSHION, LENS		123	1-751-814-11	CABLE, FLAT (FFC-124)	
107	3-946-856-01	ADAPTOR (H), CCD FITTING		* 124	A-7063-967-A	SL-41 BOARD, COMPLETE	
108	1-547-558-21	FILTER BLOCK, OPTICAL		125	3-719-381-01	SCREW (M2X4)	
109	3-946-857-01	RUBBER (S), SEAL		H516	1-550-104-32	HOLDER, BATTERY	
* 110	A-7063-963-A	CD-116 BOARD, COMPLETE		IC875	A-7030-368-A	CCD BLOCK ASSY (054 SERVICE) (CCD IMAGER)	
111	3-947-268-01	SCREW (B TIGHT) (2), TAPPING		J901	1-537-281-41	TERMINAL BOARD	
* 112	3-949-001-01	FRAME, LENS		W001	1-696-489-11	FP-588 FLEXIBLE BOARD	
113	3-846-312-01	SPACER		W405	1-644-285-11	FP-572 FLEXIBLE BOARD	
114	3-719-601-01	SCREW (B2X5), TAPPING		W519	1-696-488-11	CABLE, FLAT (FFC-92)	
* 115	A-7071-829-A	LI-46 BOARD, COMPLETE		W521	1-642-186-11	FP-437 FLEXIBLE BOARD	
116	3-948-842-01	HOLDER, LI		W522	1-696-490-11	FP-589 FLEXIBLE BOARD	
* 117	A-7063-965-A	VC-147 BOARD, COMPLETE					
* 118	A-7066-014-A	VS-116LL BOARD, COMPLETE (TR28/TR30)					

D-5. MAIN SCAPER ASSEMBLY



The components identified by circles A, B, or C are critical for safe use. Do not replace any of these parts unless they are replaced with the correct part.

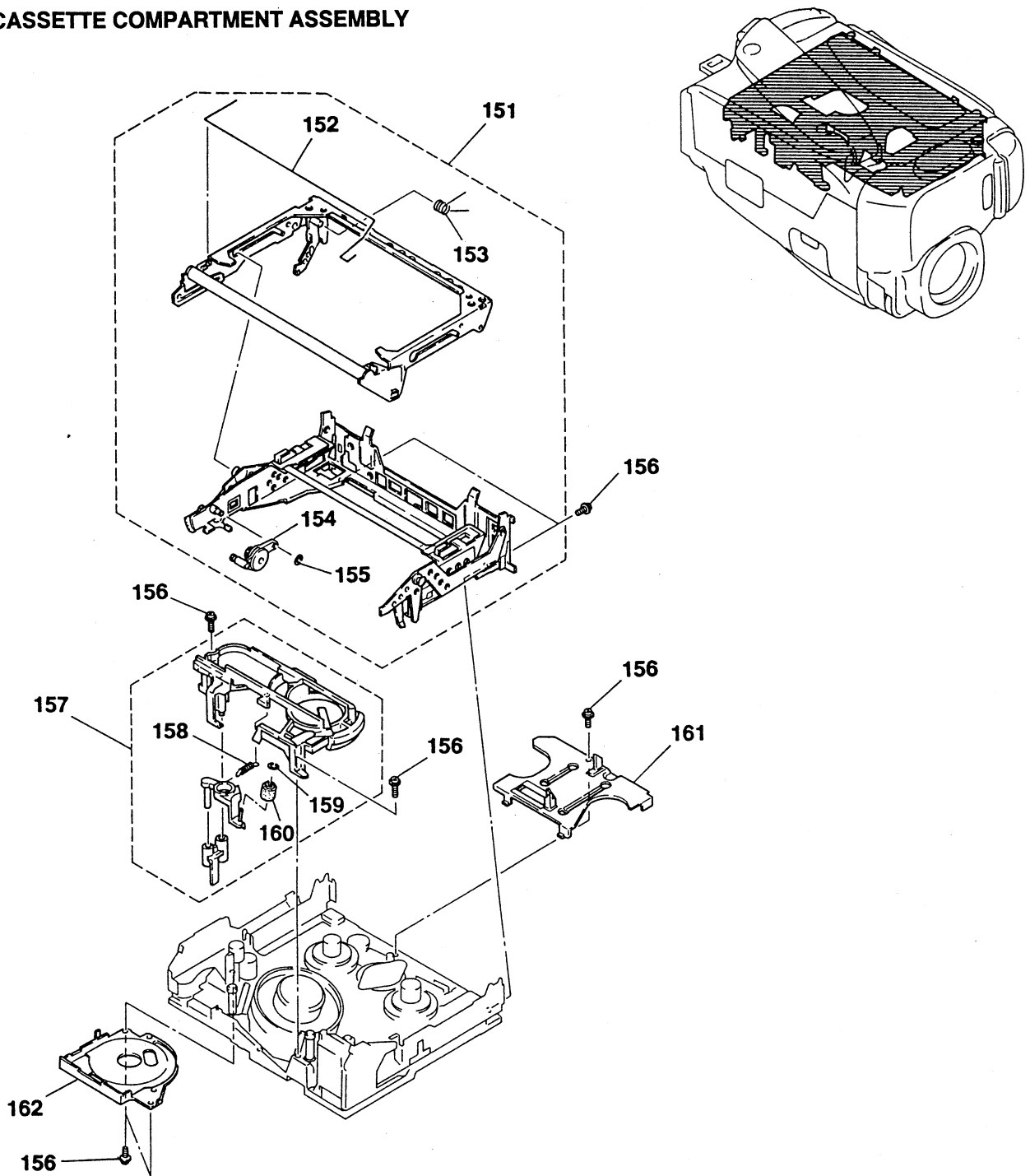
The components identified by circles D, E, or F are not critical for safe use. Do not replace any of these parts unless they are replaced with the correct part.

Be sure to install "Procedures for Replacement of O-Ring" images in proper position according to the O-Ring image.

Part No.	Qty.	Description
100	1	MAIN SCAPER BODY
101	1	TOP COVER
102	1	BOTTOM COVER
103	1	INTERNAL BRACKET
104	1	DRIVE SHAFT
105	1	DRIVE GEAR
106	1	DRIVE PINION
107	1	DRIVE HOUSING
108	1	DRIVE SEAL
109	1	DRIVE NUT
110	1	DRIVE FLANGE
111	1	DRIVE GASKET
112	1	DRIVE BOLT
113	1	DRIVE WASHER
114	1	DRIVE NUT
115	1	DRIVE FLANGE
116	1	DRIVE SEAL
117	1	DRIVE NUT
118	1	DRIVE FLANGE
119	1	DRIVE SEAL
120	1	DRIVE NUT
121	1	DRIVE FLANGE
122	1	DRIVE SEAL
123	1	DRIVE NUT
124	1	DRIVE FLANGE
125	1	DRIVE SEAL

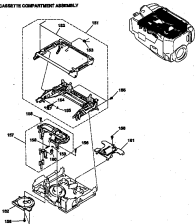
Part No.	Qty.	Description
100	1	MAIN SCAPER BODY
101	1	TOP COVER
102	1	BOTTOM COVER
103	1	INTERNAL BRACKET
104	1	DRIVE SHAFT
105	1	DRIVE GEAR
106	1	DRIVE PINION
107	1	DRIVE HOUSING
108	1	DRIVE SEAL
109	1	DRIVE NUT
110	1	DRIVE FLANGE
111	1	DRIVE GASKET
112	1	DRIVE BOLT
113	1	DRIVE WASHER
114	1	DRIVE NUT
115	1	DRIVE FLANGE
116	1	DRIVE SEAL
117	1	DRIVE NUT
118	1	DRIVE FLANGE
119	1	DRIVE SEAL
120	1	DRIVE NUT
121	1	DRIVE FLANGE
122	1	DRIVE SEAL
123	1	DRIVE NUT
124	1	DRIVE FLANGE
125	1	DRIVE SEAL

5-4. CASSETTE COMPARTMENT ASSEMBLY



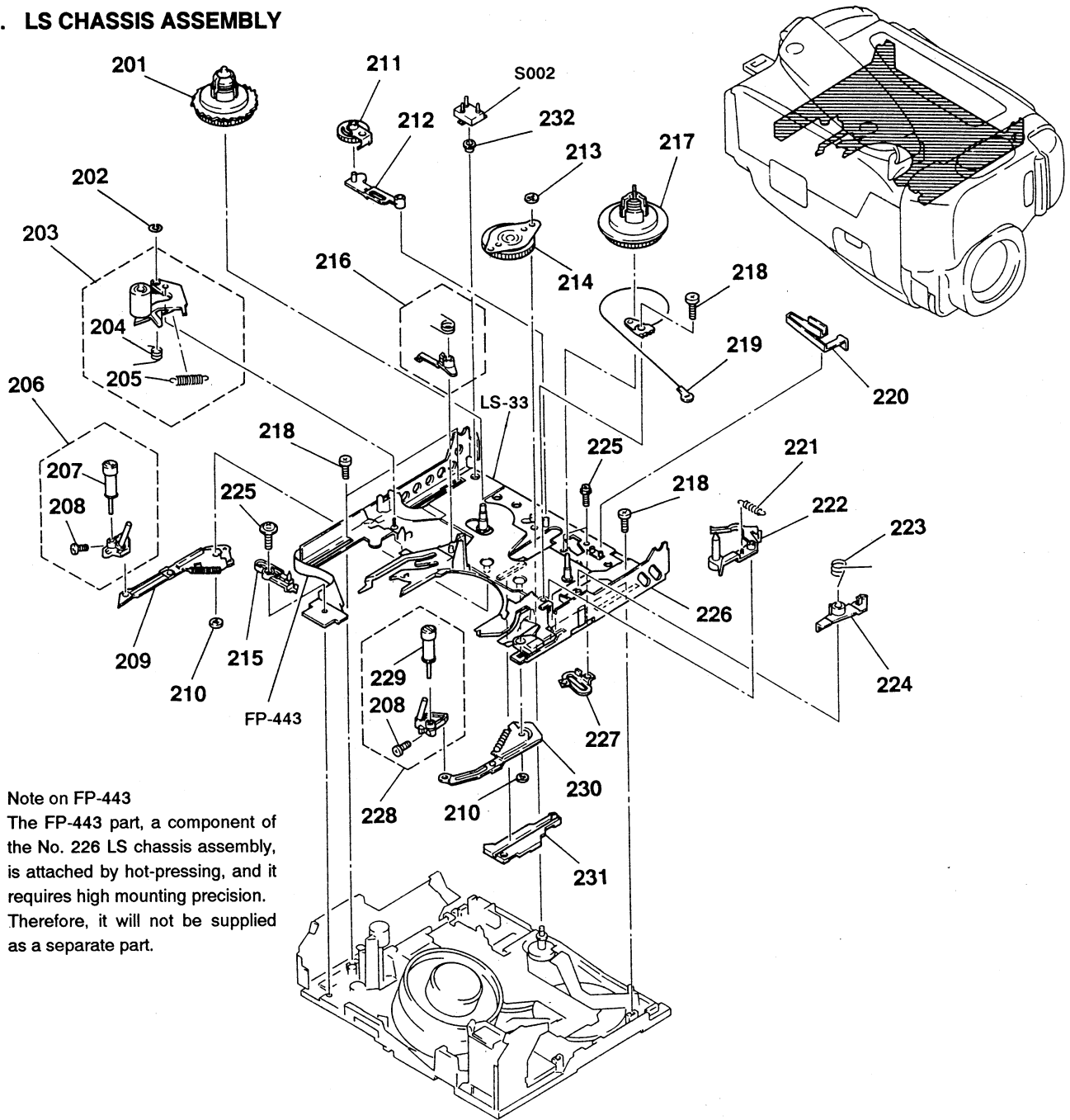
Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
151	A-7040-312-K	CASSETTE COMPARTMENT BLOCKASSY		157	A-7040-309-A	PROTECT (BASE) BLOCK ASSY	
152	3-945-773-01	BAR, TORSION		158	3-945-760-01	SPRING, TENSION	
153	3-945-771-01	SPRING, TORSION		159	3-321-393-01	WASHER, STOPPER	
154	X-3941-287-2	DAMPER ASSY		160	X-3166-813-1	ROLLER ASSY, HC	
155	3-315-384-31	WASHER, STOPPER		161	X-3941-280-1	RETAINER ASSY, GOOSENECK	
156	3-947-503-01	SCREW (M1.4X2.5)		162	3-945-733-01	COVER, CAPSTAN	

1-4. CASSETTE COMPARTMENT ASSEMBLY



Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
101	1-100-002-0	CASSETTE COMPARTMENT ASSEMBLY		107	1-100-002-0	CASSETTE COMPARTMENT ASSEMBLY	1
102	1-100-002-0	TOP COVER		108	1-100-002-0	CASSETTE TAPE	1
103	1-100-002-0	TOP COVER HINGE		109	1-100-002-0	CASSETTE TAPE DECK	1
104	1-100-002-0	FRONT FRAME		110	1-100-002-0	CASSETTE TAPE	1
105	1-100-002-0	FRONT FRAME LATCH		111	1-100-002-0	CASSETTE TAPE DECK	1
106	1-100-002-0	FRONT FRAME HINGE					
107	1-100-002-0	CASSETTE COMPARTMENT ASSEMBLY					
108	1-100-002-0	CASSETTE TAPE					
109	1-100-002-0	CASSETTE TAPE DECK					
110	1-100-002-0	CASSETTE TAPE					
111	1-100-002-0	CASSETTE TAPE DECK					

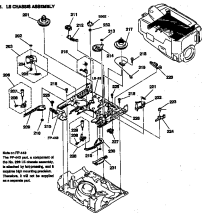
5-5. LS CHASSIS ASSEMBLY



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 mounting 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)	
217	X-3943-676-1	TABLE ASSY, S REEL				(REC PROOF, ME/MP, MP/MP-HG)	

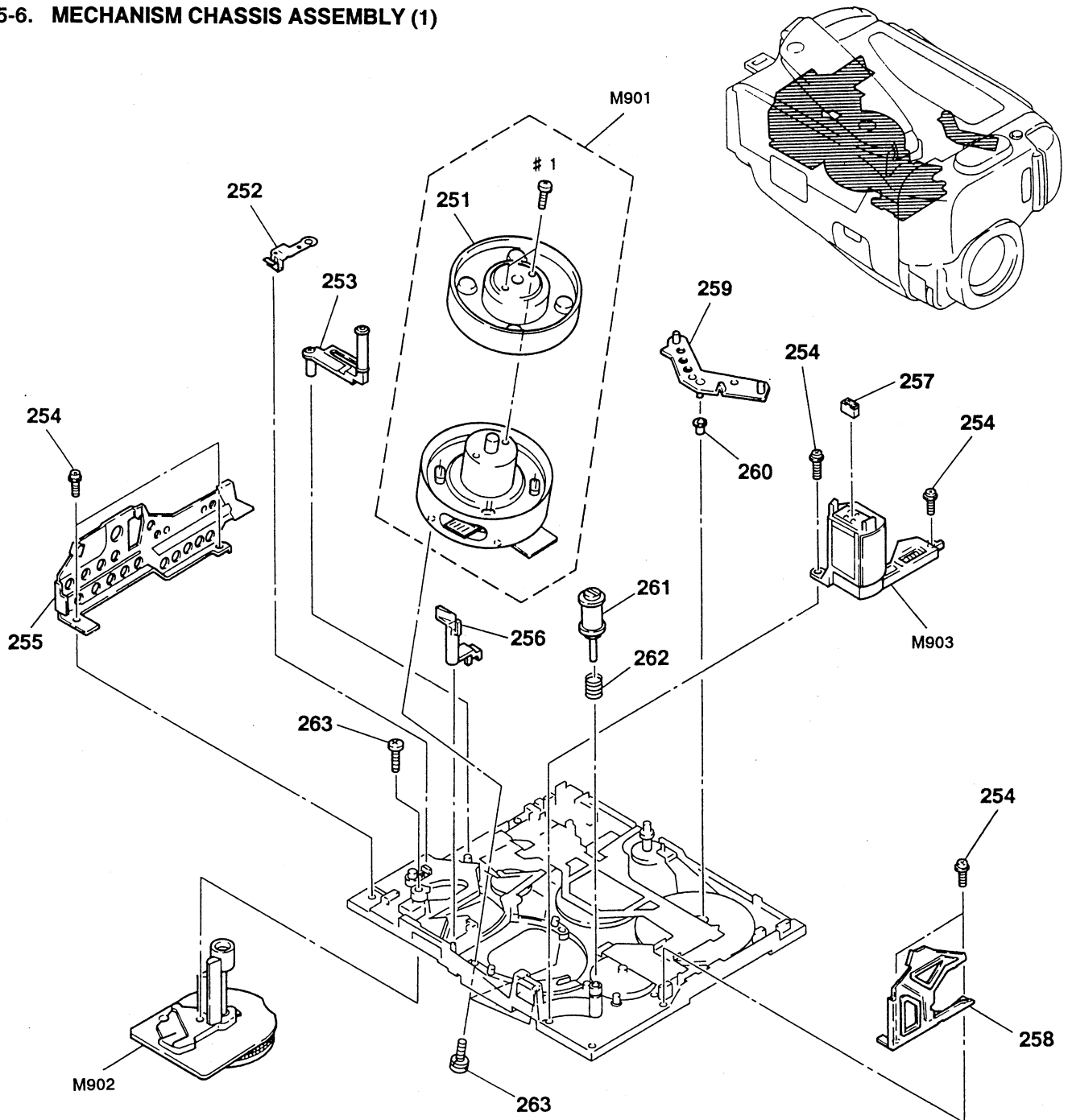
5-6. LE CHARGE ASSEMBLY



Note on PP-422
 The PP-422 part, a component of the No. 500 (L) assault assembly, is obtained by hot pressing, and it requires high manufacturing precision. Therefore, it will not be supplied as a separate part.

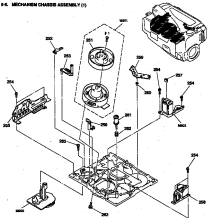
Qty.	Part No.	Description	Unit	Qty.	Part No.	Description	Unit
1	191	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	201	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	192	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	202	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	193	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	203	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	194	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	204	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	195	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	205	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	196	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	206	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	197	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	207	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	198	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	208	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	199	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	209	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	200	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	210	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	201	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	211	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	202	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	212	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	203	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	213	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	204	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	214	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	205	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	215	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	206	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	216	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	207	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	217	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	208	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	218	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	209	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	219	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	210	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	220	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	211	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	221	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	212	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	222	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	213	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	223	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	214	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	224	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	215	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	225	SCREW, TORX, 2.5x1.5, 2.5x1.5	
1	216	SCREW, TORX, 2.5x1.5, 2.5x1.5		1	226	SCREW, TORX, 2.5x1.5, 2.5x1.5	

5-6. MECHANISM CHASSIS ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	A-7049-501-A	DRUM ASSY, UPPER (DGR-78-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	3-956-651-01	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		M901	A-7048-564-A	DRUM ASSY (DGH-78A-R)	
256	3-945-735-01	ARM, HC CONVERSION		M902	8-835-477-01	MOTOR, DC SCE-0101A (CAPSTAN)	
257	1-568-323-11	CONNECTOR, BOARD TO BOARD 4P		M903	A-7040-304-A	MOTOR BLOCK ASSY, LM (LOADING)	
258	3-945-691-01	PLATE (S), SIDE					
259	3-945-701-01	ARM, LS					

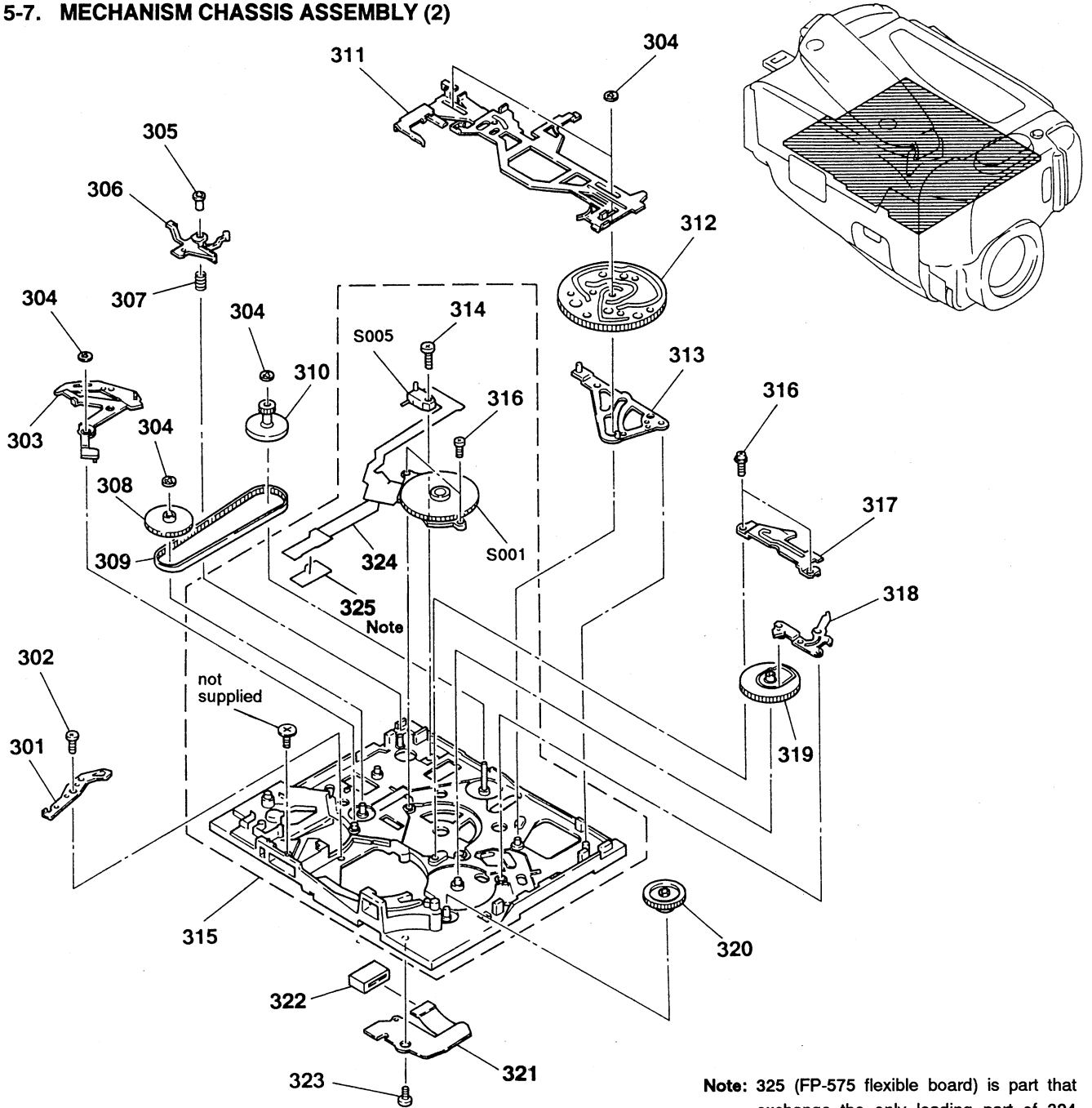
8-5. MICROWAVE CHASSIS ASSEMBLY (7)



QTY	Part No.	Description
1	1-100-000-01	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-02	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-03	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-04	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-05	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-06	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-07	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-08	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-09	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-10	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-11	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-12	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-13	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-14	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-15	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-16	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-17	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-18	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-19	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-20	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-21	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-22	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-23	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-24	CHASSIS BOARD, 10" x 10" x .040"

QTY	Part No.	Description
1	1-100-000-25	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-26	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-27	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-28	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-29	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-30	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-31	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-32	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-33	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-34	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-35	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-36	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-37	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-38	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-39	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-40	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-41	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-42	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-43	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-44	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-45	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-46	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-47	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-48	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-49	CHASSIS BOARD, 10" x 10" x .040"
1	1-100-000-50	CHASSIS BOARD, 10" x 10" x .040"

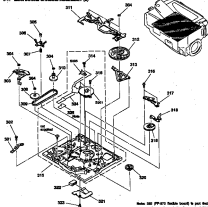
5-7. MECHANISM CHASSIS ASSEMBLY (2)



Note: 325 (FP-575 flexible board) is part that exchange the only leading part of 324 (FP-442 flexible board).

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	3-945-734-01	ARM, HC DRIVING		315	A-7040-303-A	CHASSIS ASSY, MECHANICAL	
302	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD		316	3-947-503-01	SCREW (M1.4X2.5)	
303	X-3941-259-1	ARM ASSY, PINCH PRESS		317	3-945-722-01	RETAINER, GEAR	
304	3-726-829-01	WASHER, STOPPER		318	X-3941-257-1	ARM ASSY, FF	
305	3-945-730-01	SLEEVE, EJECT		319	3-945-697-01	GEAR (B), L	
306	3-945-706-01	LEVER, EJECT		320	3-945-700-01	GEAR (A), L	
307	3-945-729-01	SPRING, COMPRESSION		321	1-641-643-12	FP-444 FLEXIBLE BOARD	
308	X-3941-256-1	GEAR ASSY, CHANGE		322	1-691-254-13	CONNECTOR, TRANSLATION 10P	
309	3-944-539-01	BELT, RELAY		323	3-945-756-01	SCREW (M1.4X3)	
310	3-945-695-01	PULLEY, RELAY		324	1-641-639-13	FP-442 FLEXIBLE BOARD	
311	X-3941-260-1	SLIDER ASSY, M		325	1-645-271-11	FP-575 FLEXIBLE BOARD	
312	3-945-696-02	CAM		S001	1-572-986-11	SWITCH, ROTARY (ENCODER)	
313	X-3941-258-3	ARM ASSY, GL		S005	1-570-771-21	SWITCH (C DOWN)	
314	3-713-786-71	SCREW (M2X5)					

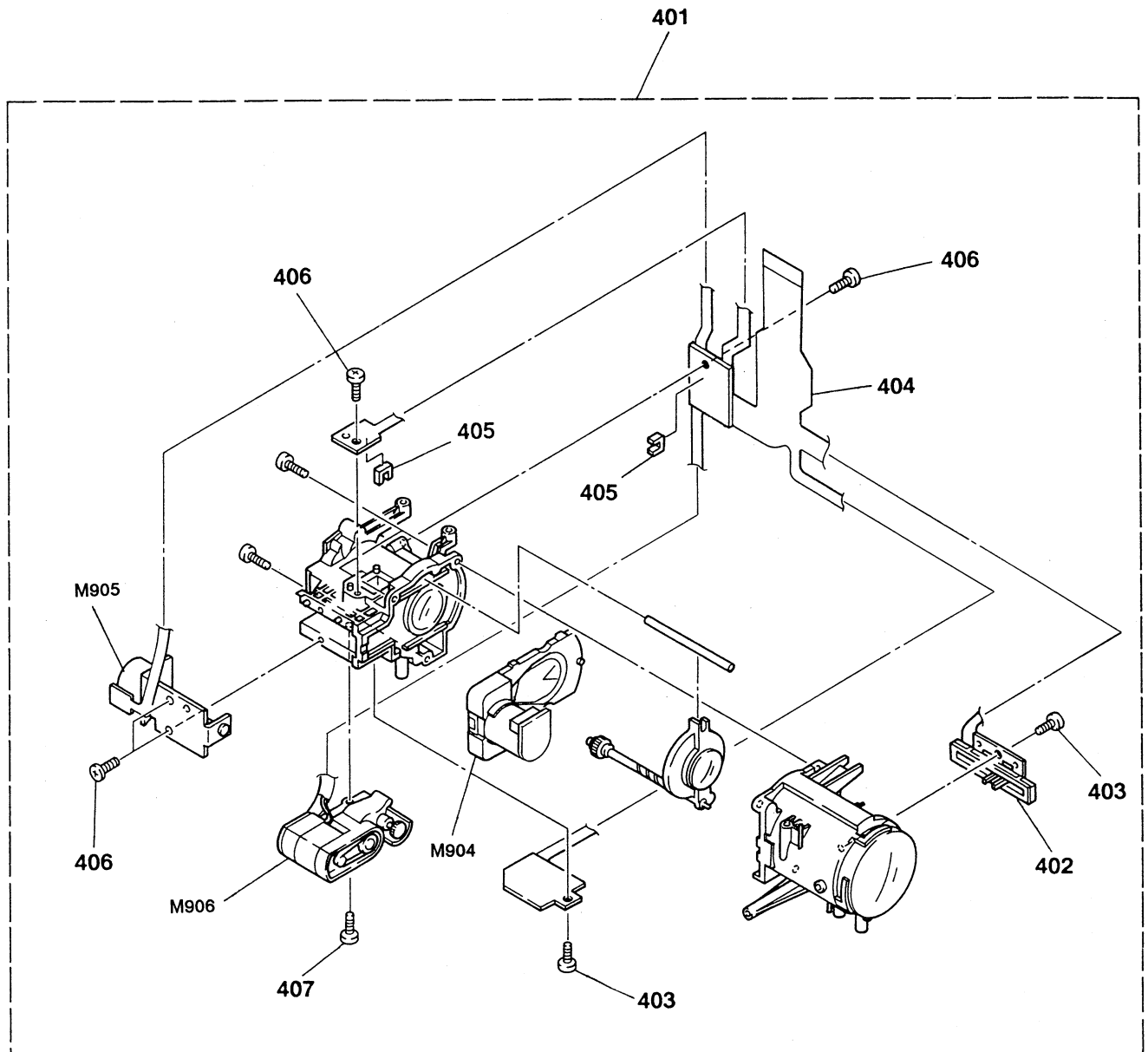
8-7. MECHANISM CHARGE ASSEMBLY (2)



Note: Use (FF-47) handle (only) to put the magazine for only loading part of the (FF-47) handle (only).

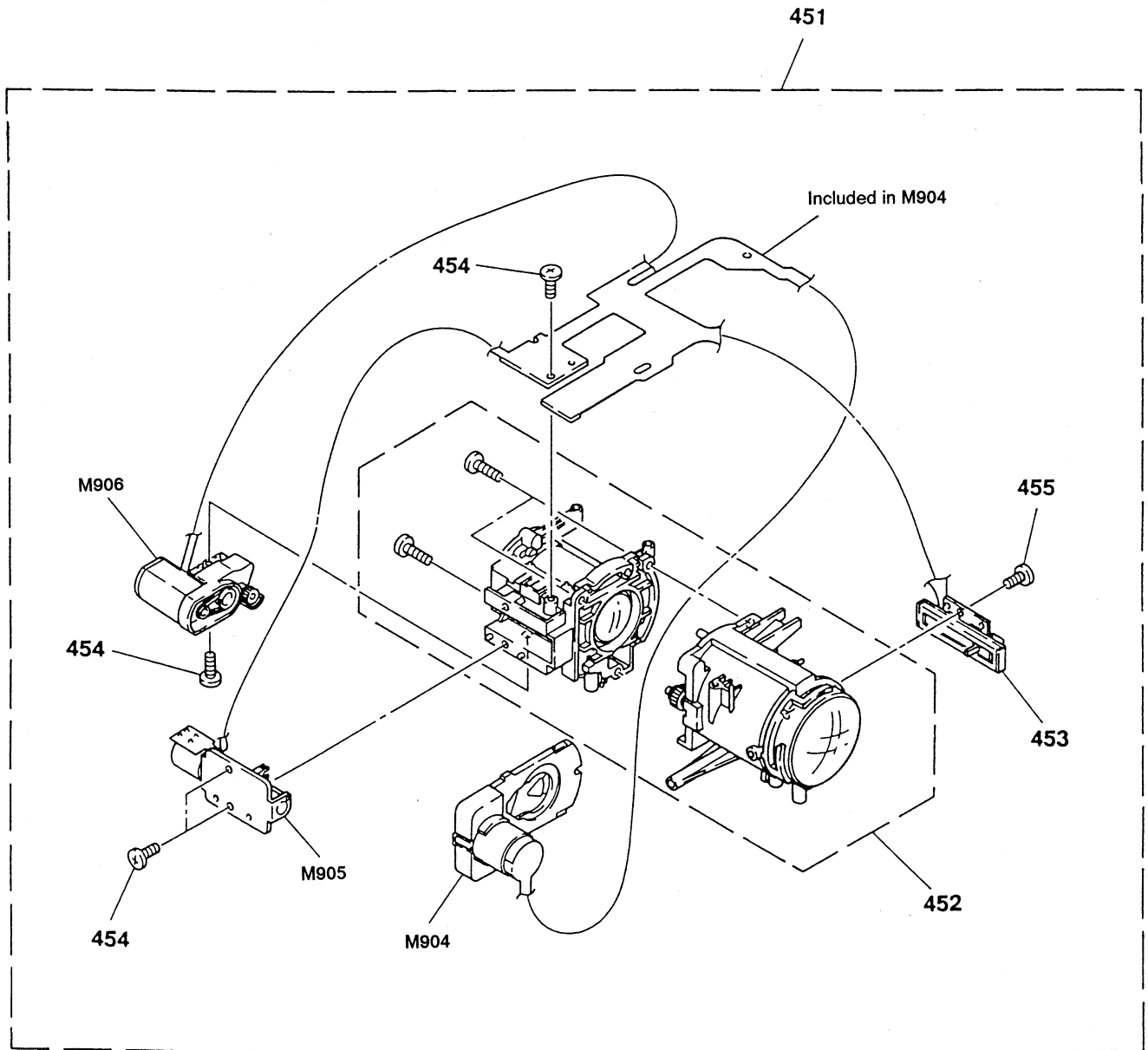
Qty. In	Part No.	Description	Notes	Qty. In	Part No.	Description	Notes
1	1-100-00-1	COVER, REAR		1	1-100-00-1	COVER, REAR	
1	1-100-00-2	COVER, FRONT		1	1-100-00-2	COVER, FRONT	
1	1-100-00-3	COVER, TOP		1	1-100-00-3	COVER, TOP	
1	1-100-00-4	COVER, BOTTOM		1	1-100-00-4	COVER, BOTTOM	
1	1-100-00-5	COVER, LEFT		1	1-100-00-5	COVER, LEFT	
1	1-100-00-6	COVER, RIGHT		1	1-100-00-6	COVER, RIGHT	
1	1-100-00-7	COVER, INSIDE		1	1-100-00-7	COVER, INSIDE	
1	1-100-00-8	COVER, OUTSIDE		1	1-100-00-8	COVER, OUTSIDE	
1	1-100-00-9	COVER, TOP/FRONT		1	1-100-00-9	COVER, TOP/FRONT	
1	1-100-00-10	COVER, BOTTOM/REAR		1	1-100-00-10	COVER, BOTTOM/REAR	
1	1-100-00-11	COVER, LEFT/RIGHT		1	1-100-00-11	COVER, LEFT/RIGHT	
1	1-100-00-12	COVER, INSIDE/OUTSIDE		1	1-100-00-12	COVER, INSIDE/OUTSIDE	
1	1-100-00-13	COVER, TOP/BOTTOM		1	1-100-00-13	COVER, TOP/BOTTOM	
1	1-100-00-14	COVER, FRONT/BACK		1	1-100-00-14	COVER, FRONT/BACK	
1	1-100-00-15	COVER, LEFT/RIGHT/FRONT		1	1-100-00-15	COVER, LEFT/RIGHT/FRONT	
1	1-100-00-16	COVER, BOTTOM/REAR/INSIDE		1	1-100-00-16	COVER, BOTTOM/REAR/INSIDE	
1	1-100-00-17	COVER, TOP/FRONT/OUTSIDE		1	1-100-00-17	COVER, TOP/FRONT/OUTSIDE	
1	1-100-00-18	COVER, LEFT/RIGHT/BACK		1	1-100-00-18	COVER, LEFT/RIGHT/BACK	
1	1-100-00-19	COVER, INSIDE/OUTSIDE/FRONT		1	1-100-00-19	COVER, INSIDE/OUTSIDE/FRONT	
1	1-100-00-20	COVER, TOP/BOTTOM/REAR		1	1-100-00-20	COVER, TOP/BOTTOM/REAR	
1	1-100-00-21	COVER, FRONT/BACK/INSIDE		1	1-100-00-21	COVER, FRONT/BACK/INSIDE	
1	1-100-00-22	COVER, LEFT/RIGHT/OUTSIDE		1	1-100-00-22	COVER, LEFT/RIGHT/OUTSIDE	
1	1-100-00-23	COVER, TOP/FRONT/BACK		1	1-100-00-23	COVER, TOP/FRONT/BACK	
1	1-100-00-24	COVER, BOTTOM/REAR/FRONT		1	1-100-00-24	COVER, BOTTOM/REAR/FRONT	
1	1-100-00-25	COVER, LEFT/RIGHT/INSIDE		1	1-100-00-25	COVER, LEFT/RIGHT/INSIDE	
1	1-100-00-26	COVER, TOP/FRONT/INSIDE		1	1-100-00-26	COVER, TOP/FRONT/INSIDE	
1	1-100-00-27	COVER, BOTTOM/REAR/OUTSIDE		1	1-100-00-27	COVER, BOTTOM/REAR/OUTSIDE	
1	1-100-00-28	COVER, LEFT/RIGHT/FRONT/INSIDE		1	1-100-00-28	COVER, LEFT/RIGHT/FRONT/INSIDE	
1	1-100-00-29	COVER, TOP/FRONT/BACK/OUTSIDE		1	1-100-00-29	COVER, TOP/FRONT/BACK/OUTSIDE	
1	1-100-00-30	COVER, BOTTOM/REAR/FRONT/INSIDE		1	1-100-00-30	COVER, BOTTOM/REAR/FRONT/INSIDE	
1	1-100-00-31	COVER, LEFT/RIGHT/OUTSIDE/FRONT		1	1-100-00-31	COVER, LEFT/RIGHT/OUTSIDE/FRONT	
1	1-100-00-32	COVER, TOP/FRONT/INSIDE/BACK		1	1-100-00-32	COVER, TOP/FRONT/INSIDE/BACK	
1	1-100-00-33	COVER, BOTTOM/REAR/OUTSIDE/FRONT		1	1-100-00-33	COVER, BOTTOM/REAR/OUTSIDE/FRONT	
1	1-100-00-34	COVER, LEFT/RIGHT/FRONT/INSIDE/BACK		1	1-100-00-34	COVER, LEFT/RIGHT/FRONT/INSIDE/BACK	
1	1-100-00-35	COVER, TOP/FRONT/BACK/OUTSIDE/FRONT		1	1-100-00-35	COVER, TOP/FRONT/BACK/OUTSIDE/FRONT	
1	1-100-00-36	COVER, BOTTOM/REAR/FRONT/INSIDE/BACK		1	1-100-00-36	COVER, BOTTOM/REAR/FRONT/INSIDE/BACK	
1	1-100-00-37	COVER, LEFT/RIGHT/OUTSIDE/FRONT/INSIDE		1	1-100-00-37	COVER, LEFT/RIGHT/OUTSIDE/FRONT/INSIDE	
1	1-100-00-38	COVER, TOP/FRONT/INSIDE/BACK/OUTSIDE		1	1-100-00-38	COVER, TOP/FRONT/INSIDE/BACK/OUTSIDE	
1	1-100-00-39	COVER, BOTTOM/REAR/OUTSIDE/FRONT/INSIDE		1	1-100-00-39	COVER, BOTTOM/REAR/OUTSIDE/FRONT/INSIDE	
1	1-100-00-40	COVER, LEFT/RIGHT/FRONT/INSIDE/BACK/OUTSIDE		1	1-100-00-40	COVER, LEFT/RIGHT/FRONT/INSIDE/BACK/OUTSIDE	

5-8. ZOOM LENS ASSEMBLY (VCL-6210WC) (TYPE A)



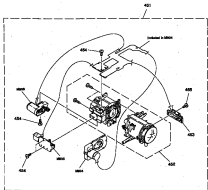
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
401	1-547-548-11	LENS, ZOOM (VCL-6210WC) (TYPE A)		406	3-707-946-01	SCREW	
402	3-708-446-01	METER, POTENTIAL		407	3-708-450-01	SCREW, PZ	
403	3-708-053-01	SCREW, FB FITTING		M904	3-708-494-11	METER ASSY, IG (IRIS) (TYPE A)	
404	3-708-493-11	FLEXIBLE		M905	3-708-491-01	MOTOR ASSY, STEPPING (FOCUS) (TYPE A)	
405	3-708-435-01	PHOTO INTERRUPTER		M906	3-708-492-01	MOTOR ASSY, PZ (ZOOM) (TYPE A)	

5-9. ZOOM LENS ASSEMBLY (VCL-6210WF) (TYPE B)



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
451	1-547-630-11	LENS, ZOOM (VCL-6210WF) (TYPE B)		M904	3-708-653-01	IRIS UNIT (TYPE B)	
452	3-708-652-01	LENS ASSY		M905	3-708-656-01	MOTOR UNIT, FOCUS (TYPE B)	
453	3-708-655-01	POTENTIO, ZOOM		M906	3-708-654-01	MOTOR UNIT, ZOOM (TYPE B)	
454	3-708-302-01	SCREW, FITTING M.E					
455	3-708-657-01	SCREW, POTENTIOMETER FITTING					

5-4. COOK LEADS ASSEMBLY (VCL-4030WV) (TYPE B)



Ref. No.	Part No.	Description
400	1-100-0000-01	COOK LEADS (VCL-4030WV) (TYPE B)
401	1-100-0000-01	COOK LEADS
402	1-100-0000-01	COOK LEADS
403	1-100-0000-01	COOK LEADS

Ref. No.	Part No.	Description	Mount
404	1-100-0000-01	COOK LEADS	
405	1-100-0000-01	COOK LEADS	
406	1-100-0000-01	COOK LEADS	
407	1-100-0000-01	COOK LEADS	

SECTION 6

ELECTRICAL PARTS LIST

AU-171

CD-116

NOTE:

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

- 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, -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
- Hardware (# mark) list is given in the last of this parts list.
- Canadian model is abbreviated as CND.
- 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: μ , for example:
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...
- CAPACITORS
uF : μ F
- COILS
uH : μ H

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-7066-004-A	AU-171 BOARD, COMPLETE (TR350/TR350PK)				< IC >	

*	A-7066-013-A	AU-171 BOARD, COMPLETE (TR28/TR30)		IC601	8-759-823-19	IC CXA1488R	
		*****		IC602	8-749-923-29	IC RS-20E-T (TR28/TR30)	
		(Ref. No. 2, 000 Series)				< COIL >	
		< CAPACITOR >		L601	1-410-384-31	INDUCTOR CHIP 18uH	
C601	1-126-607-11	ELECT CHIP	47uF 20% 4V			< RESISTOR >	
C605	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	R603	1-216-851-11	METAL CHIP 330K 5% 1/16W	
C607	1-164-222-11	CERAMIC CHIP	0.22uF 25V	R604	1-216-837-11	METAL CHIP 22K 5% 1/16W	
C614	1-164-156-11	CERAMIC CHIP	0.1uF 25V	R605	1-216-849-11	METAL CHIP 220K 5% 1/16W	
C615	1-164-373-11	CERAMIC CHIP	0.033uF 25V	R607	1-216-859-11	METAL GLAZE 1.5M 5% 1/16W	
C617	1-162-974-11	CERAMIC CHIP	0.01uF 50V	R609	1-216-833-11	METAL CHIP 10K 5% 1/16W	
C618	1-162-957-11	CERAMIC CHIP	220PF 5% 50V	R614	1-216-817-11	METAL CHIP 470 5% 1/16W	
C627	1-162-974-11	CERAMIC CHIP	0.01uF 50V	R615	1-216-839-11	METAL CHIP 33K 5% 1/16W	
C628	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V	R616	1-216-864-11	METAL CHIP 0 5% 1/16W	
C629	1-126-607-11	ELECT CHIP	47uF 20% 4V	R617	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
C630	1-124-778-00	ELECT CHIP	22uF 20% 6.3V	R618	1-216-839-11	METAL CHIP 33K 5% 1/16W	
C631	1-128-006-11	ELECT CHIP	4.7uF 20% 25V	R619	1-216-864-11	METAL CHIP 0 5% 1/16W	
C632	1-162-951-11	CERAMIC CHIP	68PF 5% 50V	R620	1-216-840-11	METAL CHIP 39K 5% 1/16W	
C636	1-162-967-11	CERAMIC CHIP	0.0033uF 10% 50V	R622	1-216-839-11	METAL CHIP 33K 5% 1/16W	
C637	1-162-974-11	CERAMIC CHIP	0.01uF 50V	R625	1-216-833-11	METAL CHIP 10K 5% 1/16W	
C639	1-162-974-11	CERAMIC CHIP	0.01uF 50V	R630	1-216-821-11	METAL CHIP 1K 5% 1/16W	
C640	1-164-005-11	CERAMIC CHIP	0.47uF 25V	R637	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR28/TR30)
C641	1-162-949-11	CERAMIC CHIP	47PF 5% 50V	R659	1-216-841-11	METAL CHIP 47K 5% 1/16W	
C643	1-162-957-11	CERAMIC CHIP	220PF 5% 50V	R677	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
C645	1-128-006-11	ELECT CHIP	4.7uF 20% 25V	R679	1-216-821-11	METAL CHIP 1K 5% 1/16W	
C647	1-128-013-11	ELECT CHIP	1uF 20% 50V	R681	1-216-851-11	METAL CHIP 330K 5% 1/16W	
C649	1-128-004-11	ELECT CHIP	10uF 20% 16V	R682	1-216-849-11	METAL CHIP 220K 5% 1/16W	
C651	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V	R691	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
C654	1-162-977-11	CERAMIC CHIP	0.0018uF 10% 50V	R692	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
C655	1-126-205-11	ELECT CHIP	47uF 20% 6.3V	R693	1-216-837-11	METAL CHIP 22K 5% 1/16W	
C657	1-164-005-11	CERAMIC CHIP	0.47uF 25V			*****	
C660	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V	*	A-7063-963-A	CD-116 BOARD, COMPLETE	
C691	1-128-006-11	ELECT CHIP	4.7uF 20% 25V			*****	
C695	1-128-006-11	ELECT CHIP	4.7uF 20% 25V			(Ref. No. 1, 000 Series)	
C699	1-124-778-00	ELECT CHIP	22uF 20% 6.3V			< CAPACITOR >	
		< CONNECTOR >		C875	1-135-214-21	TANTAL. CHIP 4.7uF 20% 20V	
CN601	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P		C876	1-128-013-11	ELECT CHIP 1uF 20% 50V	
CN602	1-573-338-11	CONNECTOR, BOARD TO BOARD 20P					
CN604	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P					

Ref.No.	Part No.	Description	Remark
C877	1-128-008-11	ELECT CHIP 3.3uF 20%	35V
C879	1-162-637-11	CERAMIC CHIP 0.47uF	16V
C880	1-135-091-91	TANTAL. CHIP 1uF 20%	16V
C881	1-128-004-11	ELECT CHIP 10uF 20%	16V
C882	1-126-607-11	ELECT CHIP 47uF 20%	4V
C883	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C884	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C888	1-135-214-21	TANTAL. CHIP 4.7uF 20%	20V
< CONNECTOR >			
CN875	1-573-308-11	CONNECTOR, BOARD TO BOARD 16P	
< DIODE >			
D875	8-719-800-76	DIODE 1SS123	
D876	8-719-404-46	DIODE MA110	
D877	8-719-820-05	DIODE 1SS181	
D878	8-719-404-46	DIODE MA110	
< IC >			
IC875	A-7030-368-A	CCD BLOCK ASSY (054 SERVICE) (CCD IMAGER)	
< COIL >			
L875	1-412-064-11	INDUCTOR CHIP 100uH	
< TRANSISTOR >			
Q875	8-729-425-64	TRANSISTOR 2SD2216Q	
Q876	8-729-427-72	TRANSISTOR XP4501	
Q877	8-729-232-86	TRANSISTOR 2SK1875	
< RESISTOR >			
R877	1-216-845-11	METAL CHIP 100K 5%	1/16W
R878	1-216-857-11	METAL CHIP 1M 5%	1/16W
R879	1-216-839-11	METAL CHIP 33K 5%	1/16W
R880	1-216-843-11	METAL CHIP 68K 5%	1/16W
R881	1-216-819-11	METAL CHIP 680 5%	1/16W
R882	1-216-849-11	METAL CHIP 220K 5%	1/16W
R883	1-216-835-11	METAL CHIP 15K 5%	1/16W
R884	1-216-850-11	METAL CHIP 270K 5%	1/16W
R885	1-216-833-11	METAL CHIP 10K 5%	1/16W
R886	1-216-809-11	METAL CHIP 100 5%	1/16W
R887	1-216-828-11	METAL CHIP 3.9K 5%	1/16W

*	A-7072-012-A	CF-34 BOARD, COMPLETE	

(Ref. No. 7,000 Series)			
< CONNECTOR >			
CN993	1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P	

Ref.No.	Part No.	Description	Remark
< DIODE >			
D992	8-719-404-46	DIODE MA110	
< RESISTOR >			
R994	1-216-295-00	METAL CHIP 0 5%	1/10W
R996	1-216-295-00	METAL CHIP 0 5%	1/10W
R999	1-216-295-00	METAL CHIP 0 5%	1/10W
< SWITCH >			
S993	1-692-111-11	SWITCH, KEY BOARD (DATE (+))	
S995	1-692-111-11	SWITCH, KEY BOARD (COUNTER RESET)	
S996	1-692-111-11	SWITCH, KEY BOARD (TIME (NEXT))	
S997	1-692-024-21	SWITCH, ROTARY (POWER)	
< FLEXIBLE BOARD >			
W986	1-696-621-11	FP-590 FLEXIBLE BOARD	

*	A-7072-008-A	CN-84 BOARD, COMPLETE	

(Ref. No. 6,000 Series)			
< CONNECTOR >			
CN518	1-573-310-11	CONNECTOR, BOARD TO BOARD 20P	
< FLAT CABLE >			
W991	1-696-483-11	CABLE, FLAT (FFC-86)	

*	A-7063-968-A	DD-67 BOARD, COMPLETE	

(Ref. No. 1,000 Series)			
< CAPACITOR >			
C901	1-164-218-11	CERAMIC CHIP 180PF 0.25PF	50V
C902	1-164-633-11	CERAMIC CHIP 0.1uF 10%	25V
C903	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C904	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C906	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C907	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C909	1-164-633-11	CERAMIC CHIP 0.1uF 10%	25V
C910	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C911	1-164-633-11	CERAMIC CHIP 0.1uF 10%	25V
C912	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C914	1-162-962-11	CERAMIC CHIP 470PF 10%	50V
C915	1-162-962-11	CERAMIC CHIP 470PF 10%	50V
C916	1-162-962-11	CERAMIC CHIP 470PF 10%	50V
C917	1-162-962-11	CERAMIC CHIP 470PF 10%	50V
C918	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V

Be sure to read "Precautions for Replacement of CCD Imager" on page 76 when changing the CCD imager.

LS-33 **MA-206** **MF-214** **SL-41**

Ref. No.	Part No.	Description	Remark
< 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) (REC PROOF, ME/MP, MPHG)	

*	A-7063-970-A	MA-206 BOARD, COMPLETE ***** (Ref. No. 2,000 Series)	
< CAPACITOR >			
C551	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C552	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C553	1-162-960-11	CERAMIC CHIP 220PF 10% 50V	
C554	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C555	1-162-587-11	CERAMIC CHIP 0.039uF 10% 25V	
C556	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C557	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C558	1-162-638-11	CERAMIC CHIP 1uF 16V	
C562	1-162-638-11	CERAMIC CHIP 1uF 16V	
C563	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C566	1-162-638-11	CERAMIC CHIP 1uF 16V	
C569	1-164-492-11	CERAMIC CHIP 0.15uF 10% 16V	
< CONNECTOR >			
CN551	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
* CN552	1-580-056-21	PIN, CONNECTOR 3P	
< DIODE >			
D552	8-719-404-46	DIODE MA110	
< IC >			
IC551	8-759-822-37	IC LA7293M	
< JACK >			
J551	1-568-027-11	JACK, SMALL TYPE 1P (MIC)	
< COIL >			
L571	1-410-192-51	INDUCTOR CHIP 1uH	
L572	1-410-192-51	INDUCTOR CHIP 1uH	
< TRANSISTOR >			
Q551	8-729-230-60	TRANSISTOR 2SA1586	

Ref. No.	Part No.	Description	Remark
< RESISTOR >			
R551	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R552	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R553	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R554	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R555	1-216-864-11	METAL CHIP 0 5% 1/16W	
R556	1-216-864-11	METAL CHIP 0 5% 1/16W	
R558	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R564	1-216-295-00	METAL CHIP 0 5% 1/10W	
R565	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R566	1-216-864-11	METAL CHIP 0 5% 1/16W	

*	A-7072-009-A	MF-214 BOARD, COMPLETE ***** (Ref. No. 5,000 Series)	
< DIODE >			
D971	8-719-404-46	DIODE MA110	
< SWITCH >			
S973	1-572-467-21	SWITCH, PUSH (1 KEY) (LENS OPEN/CLOSE)	
< FLAT CABLE >			
W971	1-696-484-11	CABLE, FLAT (FFC-87)	

*	A-7063-967-A	SL-41 BOARD, COMPLETE ***** (Ref. No. 5,000 Series)	
< CAPACITOR >			
C521	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C522	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C523	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C524	1-128-013-11	ELECT CHIP 1uF 20% 50V	
C525	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C526	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C527	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
< CONNECTOR >			
CN521	1-691-482-21	CONNECTOR, FFC/FPC 15P	
CN522	1-691-472-21	CONNECTOR, FFC/FPC 6P	
CN523	1-691-473-21	CONNECTOR, FFC/FPC 7P	
< IC >			
IC521	8-759-059-09	IC LB8111V	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >					
Q521	8-729-402-81	TRANSISTOR XN4501		C718	1-164-360-11	CERAMIC CHIP 0.1uF	16V
		< RESISTOR >		C719	1-162-974-11	CERAMIC CHIP 0.01uF	50V
R522	1-216-845-11	METAL CHIP 100K 5% 1/16W		C721	1-162-974-11	CERAMIC CHIP 0.01uF	50V
R523	1-216-845-11	METAL CHIP 100K 5% 1/16W		C722	1-162-974-11	CERAMIC CHIP 0.01uF	50V
R524	1-216-825-11	METAL CHIP 2.2K 5% 1/16W		C723	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
R525	1-216-825-11	METAL CHIP 2.2K 5% 1/16W		C724	1-164-634-11	CERAMIC CHIP 1uF	16V
R528	1-216-845-11	METAL CHIP 100K 5% 1/16W		C725	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
R530	1-216-840-11	METAL CHIP 39K 5% 1/16W		C726	1-164-360-11	CERAMIC CHIP 0.1uF	16V
R532	1-216-174-00	METAL GLAZE 100 5% 1/8W		C727	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
R533	1-216-864-11	METAL CHIP 0 5% 1/16W		C728	1-162-974-11	CERAMIC CHIP 0.01uF	50V
		< NETWORK >		C729	1-164-360-11	CERAMIC CHIP 0.1uF	16V
RB521	1-236-424-11	NETWORK, RES 10K		C730	1-162-971-11	CERAMIC CHIP 0.001uF	50V
RB522	1-236-424-11	NETWORK, RES 10K		C734	1-163-038-00	CERAMIC CHIP 0.1uF	25V
		< FLEXIBLE BOARD >		C735	1-162-971-11	CERAMIC CHIP 0.001uF	50V
W521	1-642-186-11	FP-437 FLEXIBLE BOARD		C737	1-107-682-11	CERAMIC CHIP 1uF 10%	16V
W522	1-696-490-11	FP-589 FLEXIBLE BOARD		C738	1-164-360-11	CERAMIC CHIP 0.1uF	16V
		*****		C739	1-162-974-11	CERAMIC CHIP 0.01uF	50V
*	A-7071-828-A	SW-223 BOARD, COMPLETE		C741	1-162-974-11	CERAMIC CHIP 0.01uF	50V
		*****		C742	1-107-682-11	CERAMIC CHIP 1uF 10%	16V
		(Ref. No. 7,000 Series)		C749	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
		< SWITCH >		C750	1-164-360-11	CERAMIC CHIP 0.1uF	16V
S519	1-553-977-00	SWITCH, SLIDE (STANDBY)		C751	1-162-974-11	CERAMIC CHIP 0.01uF	50V
S520	1-571-315-11	SWITCH, KEY BOARD (START/STOP)		C752	1-162-946-11	CERAMIC CHIP 27PF 5%	50V
		< FLAT CABLE >		C801	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
W519	1-696-488-11	CABLE, FLAT (FFC-92)		C802	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
		*****		C803	1-163-077-91	CERAMIC CHIP 0.1uF	50V
*	A-7063-965-A	VC-147 BOARD, COMPLETE		C804	1-162-974-11	CERAMIC CHIP 0.01uF	50V
		*****		C805	1-162-974-11	CERAMIC CHIP 0.01uF	50V
		(Ref. No. 3,000 Series)		C806	1-162-971-11	CERAMIC CHIP 0.001uF	50V
		< CAPACITOR >		C807	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C701	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V		C808	1-135-091-91	TANTAL. CHIP 1uF 20%	16V
C702	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V		C809	1-163-077-91	CERAMIC CHIP 0.1uF	50V
C703	1-164-361-11	CERAMIC CHIP 0.047uF 16V		C810	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C705	1-164-360-11	CERAMIC CHIP 0.1uF 16V		C811	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C707	1-162-974-11	CERAMIC CHIP 0.01uF 50V		C813	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C708	1-162-974-11	CERAMIC CHIP 0.01uF 50V		C814	1-162-971-11	CERAMIC CHIP 0.001uF	50V
C711	1-107-682-11	CERAMIC CHIP 1uF 10% 16V		C815	1-107-682-11	CERAMIC CHIP 1uF 10%	16V
C712	1-164-360-11	CERAMIC CHIP 0.1uF 16V		C817	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C713	1-162-947-11	CERAMIC CHIP 33PF 5% 50V		C818	1-135-091-91	TANTAL. CHIP 1uF 20%	16V
C716	1-164-360-11	CERAMIC CHIP 0.1uF 16V		C819	1-164-360-11	CERAMIC CHIP 0.1uF	16V
				C820	1-135-091-91	TANTAL. CHIP 1uF 20%	16V
				C821	1-162-947-11	CERAMIC CHIP 33PF 5%	50V
				C823	1-135-091-91	TANTAL. CHIP 1uF 20%	16V
				C824	1-164-360-11	CERAMIC CHIP 0.1uF	16V
				C826	1-164-360-11	CERAMIC CHIP 0.1uF	16V
				C827	1-164-360-11	CERAMIC CHIP 0.1uF	16V
				C830	1-164-156-11	CERAMIC CHIP 0.1uF	25V
				C832	1-162-971-11	CERAMIC CHIP 0.001uF	50V
				C833	1-162-974-11	CERAMIC CHIP 0.01uF	50V
				C834	1-164-360-11	CERAMIC CHIP 0.1uF	16V

Ref. No.	Part No.	Description	Qty	Unit	Ref. No.	Part No.	Description	Qty	Unit
(TRANSISTOR)									
888	1-13-00-1	TRANSISTOR	888	EA	878	1-04-00-1	TRANSISTOR	1	EA
(RESISTOR)									
889	1-10-00-1	RESISTOR	889	EA	879	1-04-00-1	TRANSISTOR	1	EA
890	1-10-00-1	RESISTOR	890	EA	880	1-04-00-1	TRANSISTOR	1	EA
891	1-10-00-1	RESISTOR	891	EA	881	1-04-00-1	TRANSISTOR	1	EA
892	1-10-00-1	RESISTOR	892	EA	882	1-04-00-1	TRANSISTOR	1	EA
893	1-10-00-1	RESISTOR	893	EA	883	1-04-00-1	TRANSISTOR	1	EA
894	1-10-00-1	RESISTOR	894	EA	884	1-04-00-1	TRANSISTOR	1	EA
895	1-10-00-1	RESISTOR	895	EA	885	1-04-00-1	TRANSISTOR	1	EA
896	1-10-00-1	RESISTOR	896	EA	886	1-04-00-1	TRANSISTOR	1	EA
897	1-10-00-1	RESISTOR	897	EA	887	1-04-00-1	TRANSISTOR	1	EA
898	1-10-00-1	RESISTOR	898	EA	888	1-04-00-1	TRANSISTOR	1	EA
899	1-10-00-1	RESISTOR	899	EA	889	1-04-00-1	TRANSISTOR	1	EA
900	1-10-00-1	RESISTOR	900	EA	890	1-04-00-1	TRANSISTOR	1	EA
(DIODE)									
901	1-10-00-1	DIODE	901	EA	891	1-04-00-1	TRANSISTOR	1	EA
902	1-10-00-1	DIODE	902	EA	892	1-04-00-1	TRANSISTOR	1	EA
(FUSIBLE)									
903	1-10-00-1	FUSIBLE	903	EA	893	1-04-00-1	TRANSISTOR	1	EA
904	1-10-00-1	FUSIBLE	904	EA	894	1-04-00-1	TRANSISTOR	1	EA
(CAPACITOR)									
905	1-10-00-1	CAPACITOR	905	EA	895	1-04-00-1	TRANSISTOR	1	EA
906	1-10-00-1	CAPACITOR	906	EA	896	1-04-00-1	TRANSISTOR	1	EA
907	1-10-00-1	CAPACITOR	907	EA	897	1-04-00-1	TRANSISTOR	1	EA
908	1-10-00-1	CAPACITOR	908	EA	898	1-04-00-1	TRANSISTOR	1	EA
909	1-10-00-1	CAPACITOR	909	EA	899	1-04-00-1	TRANSISTOR	1	EA
910	1-10-00-1	CAPACITOR	910	EA	900	1-04-00-1	TRANSISTOR	1	EA
911	1-10-00-1	CAPACITOR	911	EA	901	1-04-00-1	TRANSISTOR	1	EA
912	1-10-00-1	CAPACITOR	912	EA	902	1-04-00-1	TRANSISTOR	1	EA
913	1-10-00-1	CAPACITOR	913	EA	903	1-04-00-1	TRANSISTOR	1	EA
914	1-10-00-1	CAPACITOR	914	EA	904	1-04-00-1	TRANSISTOR	1	EA
915	1-10-00-1	CAPACITOR	915	EA	905	1-04-00-1	TRANSISTOR	1	EA
916	1-10-00-1	CAPACITOR	916	EA	906	1-04-00-1	TRANSISTOR	1	EA
917	1-10-00-1	CAPACITOR	917	EA	907	1-04-00-1	TRANSISTOR	1	EA
918	1-10-00-1	CAPACITOR	918	EA	908	1-04-00-1	TRANSISTOR	1	EA
919	1-10-00-1	CAPACITOR	919	EA	909	1-04-00-1	TRANSISTOR	1	EA
920	1-10-00-1	CAPACITOR	920	EA	910	1-04-00-1	TRANSISTOR	1	EA
921	1-10-00-1	CAPACITOR	921	EA	911	1-04-00-1	TRANSISTOR	1	EA
922	1-10-00-1	CAPACITOR	922	EA	912	1-04-00-1	TRANSISTOR	1	EA
923	1-10-00-1	CAPACITOR	923	EA	913	1-04-00-1	TRANSISTOR	1	EA
924	1-10-00-1	CAPACITOR	924	EA	914	1-04-00-1	TRANSISTOR	1	EA
925	1-10-00-1	CAPACITOR	925	EA	915	1-04-00-1	TRANSISTOR	1	EA
926	1-10-00-1	CAPACITOR	926	EA	916	1-04-00-1	TRANSISTOR	1	EA
927	1-10-00-1	CAPACITOR	927	EA	917	1-04-00-1	TRANSISTOR	1	EA
928	1-10-00-1	CAPACITOR	928	EA	918	1-04-00-1	TRANSISTOR	1	EA
929	1-10-00-1	CAPACITOR	929	EA	919	1-04-00-1	TRANSISTOR	1	EA
930	1-10-00-1	CAPACITOR	930	EA	920	1-04-00-1	TRANSISTOR	1	EA
931	1-10-00-1	CAPACITOR	931	EA	921	1-04-00-1	TRANSISTOR	1	EA
932	1-10-00-1	CAPACITOR	932	EA	922	1-04-00-1	TRANSISTOR	1	EA
933	1-10-00-1	CAPACITOR	933	EA	923	1-04-00-1	TRANSISTOR	1	EA
934	1-10-00-1	CAPACITOR	934	EA	924	1-04-00-1	TRANSISTOR	1	EA
935	1-10-00-1	CAPACITOR	935	EA	925	1-04-00-1	TRANSISTOR	1	EA
936	1-10-00-1	CAPACITOR	936	EA	926	1-04-00-1	TRANSISTOR	1	EA
937	1-10-00-1	CAPACITOR	937	EA	927	1-04-00-1	TRANSISTOR	1	EA
938	1-10-00-1	CAPACITOR	938	EA	928	1-04-00-1	TRANSISTOR	1	EA
939	1-10-00-1	CAPACITOR	939	EA	929	1-04-00-1	TRANSISTOR	1	EA
940	1-10-00-1	CAPACITOR	940	EA	930	1-04-00-1	TRANSISTOR	1	EA
941	1-10-00-1	CAPACITOR	941	EA	931	1-04-00-1	TRANSISTOR	1	EA
942	1-10-00-1	CAPACITOR	942	EA	932	1-04-00-1	TRANSISTOR	1	EA
943	1-10-00-1	CAPACITOR	943	EA	933	1-04-00-1	TRANSISTOR	1	EA
944	1-10-00-1	CAPACITOR	944	EA	934	1-04-00-1	TRANSISTOR	1	EA
945	1-10-00-1	CAPACITOR	945	EA	935	1-04-00-1	TRANSISTOR	1	EA
946	1-10-00-1	CAPACITOR	946	EA	936	1-04-00-1	TRANSISTOR	1	EA
947	1-10-00-1	CAPACITOR	947	EA	937	1-04-00-1	TRANSISTOR	1	EA
948	1-10-00-1	CAPACITOR	948	EA	938	1-04-00-1	TRANSISTOR	1	EA
949	1-10-00-1	CAPACITOR	949	EA	939	1-04-00-1	TRANSISTOR	1	EA
950	1-10-00-1	CAPACITOR	950	EA	940	1-04-00-1	TRANSISTOR	1	EA

VC-147

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark	
C835	1-162-974-11	CERAMIC CHIP	0.01uF	50V	IC804	8-752-327-48 IC	CXD1250N	
C836	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	IC805	8-752-054-61 IC	CXA1390AR
C837	1-162-974-11	CERAMIC CHIP	0.01uF	50V	IC851	8-759-701-24 IC	NJM3414M	
C838	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	IC852	8-759-060-00 IC	LM324DR
C839	1-162-974-11	CERAMIC CHIP	0.01uF	50V	IC853	8-759-058-47 IC	MPC1724VM	
C841	1-164-360-11	CERAMIC CHIP	0.1uF	16V	IC854	8-759-823-51 IC	LB1830M	
C851	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	IC856	8-759-998-98 IC	LM358D
C852	1-162-971-11	CERAMIC CHIP	0.001uF	50V	< COIL >			
C853	1-164-634-11	CERAMIC CHIP	1uF	16V	L701	1-412-006-31	INDUCTOR CHIP 10uH	
C854	1-162-974-11	CERAMIC CHIP	0.01uF	50V	L704	1-412-006-31	INDUCTOR CHIP 10uH	
C855	1-164-360-11	CERAMIC CHIP	0.1uF	16V	L706	1-412-062-11	INDUCTOR CHIP 47uH	
C856	1-162-974-11	CERAMIC CHIP	0.01uF	50V	L708	1-412-979-21	INDUCTOR 1uH	
C857	1-164-360-11	CERAMIC CHIP	0.1uF	16V	L711	1-412-058-11	INDUCTOR CHIP 10uH	
C858	1-162-974-11	CERAMIC CHIP	0.01uF	50V	L714	1-412-006-31	INDUCTOR CHIP 10uH	
C859	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	L715	1-412-058-11	INDUCTOR CHIP 10uH
C860	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	L717	1-412-058-11	INDUCTOR CHIP 10uH
C861	1-162-974-11	CERAMIC CHIP	0.01uF	50V	L720	1-412-006-31	INDUCTOR CHIP 10uH	
C862	1-162-974-11	CERAMIC CHIP	0.01uF	50V	L721	1-410-391-11	INDUCTOR CHIP 68uH	
C863	1-162-974-11	CERAMIC CHIP	0.01uF	50V	L801	1-412-029-11	INDUCTOR CHIP 10uH	
C864	1-162-638-11	CERAMIC CHIP	1uF	16V	L802	1-412-006-31	INDUCTOR CHIP 10uH	
C866	1-162-974-11	CERAMIC CHIP	0.01uF	50V	L803	1-412-058-11	INDUCTOR CHIP 10uH	
C868	1-164-360-11	CERAMIC CHIP	0.1uF	16V	L804	1-412-058-11	INDUCTOR CHIP 10uH	
C869	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V	L851	1-412-058-11	INDUCTOR CHIP 10uH
C870	1-164-005-11	CERAMIC CHIP	0.47uF	25V	L853	1-412-031-11	INDUCTOR CHIP 47uH	
C871	1-164-634-11	CERAMIC CHIP	1uF	16V	< TRANSISTOR >			
< CONNECTOR >								
CN701	1-573-372-21	CONNECTOR, BOARD TO BOARD	18P					
CN801	1-573-336-11	CONNECTOR, BOARD TO BOARD	16P					
CN851	1-573-361-11	CONNECTOR, FFC/FPC	21P					
< TRIMMER >								
CT801	1-141-356-11	CAP, ADJ	6PF					
< FILTER >								
FL701	1-236-834-21	FILTER, LOW PASS						
FL702	1-415-751-21	DELAY LINE, LC (YH)						
< IC >								
IC702	8-759-064-36	IC	MB88346BPFV	Q701	8-729-928-87	TRANSISTOR	DTC124EE	
IC703	8-759-710-07	IC	NJM2234M	Q702	8-729-427-74	TRANSISTOR	XP4601	
IC704	8-752-358-10	IC	CXD2101BR	Q703	8-729-427-74	TRANSISTOR	XP4601	
IC705	8-759-069-18	IC	CXD2103AR	Q704	8-729-425-50	TRANSISTOR	2SB1462Q	
IC706	8-752-355-56	IC	CXD2104BN	Q706	8-729-425-64	TRANSISTOR	2SD2216Q	
IC707	8-752-347-93	IC	CXD2100AQ	Q707	8-729-428-84	TRANSISTOR	UN9111	
IC709	8-752-840-64	IC	CXP80624-434R	Q708	8-729-425-64	TRANSISTOR	2SD2216Q	
IC712	8-759-159-70	IC	BR9021BF	Q709	8-729-427-72	TRANSISTOR	XP4501	
IC801	8-752-350-16	IC	CXD1257AR	Q801	8-729-425-64	TRANSISTOR	2SD2216Q	
IC802	8-752-060-50	IC	CXA1577R	Q802	8-729-427-70	TRANSISTOR	XP4401	
IC803	8-752-053-26	IC	CXA1399Q	Q851	8-729-425-64	TRANSISTOR	2SD2216Q	
				Q852	8-729-907-00	TRANSISTOR	DTC114EU	
				Q853	8-729-427-70	TRANSISTOR	XP4401	
< RESISTOR >								
R701	1-216-864-11	METAL CHIP	0	5%	1/16W			
R702	1-216-821-11	METAL CHIP	1K	5%	1/16W			
R703	1-216-837-11	METAL CHIP	22K	5%	1/16W			
R704	1-216-815-11	METAL CHIP	330	5%	1/16W			
R705	1-216-833-11	METAL CHIP	10K	5%	1/16W			
R707	1-216-825-11	METAL CHIP	2.2K	5%	1/16W			
R708	1-216-845-11	METAL CHIP	100K	5%	1/16W			
R709	1-216-839-11	METAL CHIP	33K	5%	1/16W			

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R711	1-216-864-11	METAL CHIP	0 5% 1/16W	R779	1-216-833-11	METAL CHIP	10K 5% 1/16W
R712	1-216-821-11	METAL CHIP	1K 5% 1/16W	R781	1-216-833-11	METAL CHIP	10K 5% 1/16W
R713	1-216-821-11	METAL CHIP	1K 5% 1/16W	R782	1-216-813-11	METAL CHIP	220 5% 1/16W
R714	1-216-821-11	METAL CHIP	1K 5% 1/16W	R784	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R715	1-216-821-11	METAL CHIP	1K 5% 1/16W	R785	1-216-841-11	METAL CHIP	47K 5% 1/16W
R716	1-216-821-11	METAL CHIP	1K 5% 1/16W	R787	1-216-821-11	METAL CHIP	1K 5% 1/16W
R718	1-216-821-11	METAL CHIP	1K 5% 1/16W	R791	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R720	1-216-864-11	METAL CHIP	0 5% 1/16W	R792	1-216-833-11	METAL CHIP	10K 5% 1/16W
R721	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R793	1-216-821-11	METAL CHIP	1K 5% 1/16W
R722	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R794	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R724	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R795	1-216-815-11	METAL CHIP	330 5% 1/16W
R725	1-216-821-11	METAL CHIP	1K 5% 1/16W	R796	1-216-817-11	METAL CHIP	470 5% 1/16W
R727	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R797	1-216-818-11	METAL CHIP	560 5% 1/16W
R728	1-216-864-11	METAL CHIP	0 5% 1/16W	R802	1-216-835-11	METAL CHIP	15K 5% 1/16W
R729	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R803	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R731	1-216-295-00	METAL CHIP	0 5% 1/10W	R804	1-216-833-11	METAL CHIP	10K 5% 1/16W
R732	1-216-821-11	METAL CHIP	1K 5% 1/16W	R805	1-216-845-11	METAL CHIP	100K 5% 1/16W
R733	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R806	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R734	1-216-817-11	METAL CHIP	470 5% 1/16W	R807	1-216-819-11	METAL CHIP	680 5% 1/16W
R735	1-216-834-11	METAL CHIP	12K 5% 1/16W	R808	1-216-801-11	METAL CHIP	22 5% 1/16W
R736	1-216-864-11	METAL CHIP	0 5% 1/16W	R809	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R738	1-216-821-11	METAL CHIP	1K 5% 1/16W	R810	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R739	1-216-833-11	METAL CHIP	10K 5% 1/16W	R812	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R742	1-216-821-11	METAL CHIP	1K 5% 1/16W	R813	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R744	1-216-833-11	METAL CHIP	10K 5% 1/16W	R816	1-216-833-11	METAL CHIP	10K 5% 1/16W
R745	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R819	1-216-805-11	METAL CHIP	47 5% 1/16W
R747	1-216-864-11	METAL CHIP	0 5% 1/16W	R821	1-216-863-11	METAL GLAZE	3.3M 5% 1/16W
R749	1-216-841-11	METAL CHIP	47K 5% 1/16W	R823	1-218-876-11	METAL CHIP	16K 0.50% 1/16W
R750	1-216-842-11	METAL CHIP	56K 5% 1/16W	R825	1-216-832-11	METAL CHIP	8.2K 5% 1/16W
R751	1-216-821-11	METAL CHIP	1K 5% 1/16W	R826	1-216-833-11	METAL CHIP	10K 5% 1/16W
R752	1-216-817-11	METAL CHIP	470 5% 1/16W	R827	1-216-833-11	METAL CHIP	10K 5% 1/16W
R753	1-216-834-11	METAL CHIP	12K 5% 1/16W	R828	1-218-871-11	METAL CHIP	10K 0.50% 1/16W
R754	1-216-821-11	METAL CHIP	1K 5% 1/16W	R829	1-218-899-11	METAL CHIP	150K 0.50% 1/16W
R755	1-216-821-11	METAL CHIP	1K 5% 1/16W	R830	1-218-847-11	METAL CHIP	1K 0.50% 1/16W
R756	1-216-857-11	METAL CHIP	1M 5% 1/16W	R831	1-216-864-11	METAL CHIP	0 5% 1/16W
R757	1-216-857-11	METAL CHIP	1M 5% 1/16W	R833	1-216-295-00	METAL CHIP	0 5% 1/10W
R758	1-216-841-11	METAL CHIP	47K 5% 1/16W	R851	1-216-837-11	METAL CHIP	22K 5% 1/16W
R759	1-216-821-11	METAL CHIP	1K 5% 1/16W	R852	1-216-821-11	METAL CHIP	1K 5% 1/16W
R760	1-216-857-11	METAL CHIP	1M 5% 1/16W	R853	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R761	1-216-841-11	METAL CHIP	47K 5% 1/16W	R854	1-216-833-11	METAL CHIP	10K 5% 1/16W
R762	1-216-821-11	METAL CHIP	1K 5% 1/16W	R855	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R769	1-216-821-11	METAL CHIP	1K 5% 1/16W	R856	1-216-837-11	METAL CHIP	22K 5% 1/16W
R770	1-216-821-11	METAL CHIP	1K 5% 1/16W	R857	1-216-848-11	METAL CHIP	180K 5% 1/16W
R771	1-216-821-11	METAL CHIP	1K 5% 1/16W	R858	1-216-837-11	METAL CHIP	22K 5% 1/16W
R772	1-216-864-11	METAL CHIP	0 5% 1/16W	R859	1-216-845-11	METAL CHIP	100K 5% 1/16W
R773	1-216-864-11	METAL CHIP	0 5% 1/16W	R860	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R775	1-216-833-11	METAL CHIP	10K 5% 1/16W	R861	1-218-879-11	METAL CHIP	22K 0.50% 1/16W
R776	1-216-841-11	METAL CHIP	47K 5% 1/16W	R862	1-216-848-11	METAL CHIP	180K 5% 1/16W
R777	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R863	1-216-855-11	METAL CHIP	680K 5% 1/16W
R778	1-216-839-11	METAL CHIP	33K 5% 1/16W	R864	1-216-134-00	METAL CHIP	2.2 5% 1/8W

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark	
R865	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	C514	1-131-381-00	TANTALUM 47uF 10%	10V	
R866	1-216-820-11	METAL CHIP	820 5% 1/16W	C515	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V	
R867	1-216-837-11	METAL CHIP	22K 5% 1/16W	C516	1-135-149-21	TANTALUM CHIP 2.2uF 20%	10V	
R868	1-216-833-11	METAL CHIP	10K 5% 1/16W	< CONNECTOR >				
R869	1-218-881-11	METAL CHIP	27K 0.50% 1/16W	* CN501	1-566-759-11	PIN, CONNECTOR (PC BOARD)	4P	
R870	1-216-841-11	METAL CHIP	47K 5% 1/16W	* CN502	1-566-195-11	PIN, CONNECTOR (PC BOARD)	2P	
R871	1-216-833-11	METAL CHIP	10K 5% 1/16W	* CN503	1-566-195-11	PIN, CONNECTOR (PC BOARD)	2P	
R872	1-216-851-11	METAL CHIP	330K 5% 1/16W	< DIODE >				
R873	1-216-814-11	METAL CHIP	270 5% 1/16W	D501	8-719-820-65	LED TLS221 (TALLY)		
R874	1-216-842-11	METAL CHIP	56K 5% 1/16W	D502	8-719-984-02	LED BR4371F (TALLY)		
R875	1-216-296-91	METAL GLAZE	0 5% 1/8W	D503	8-719-400-20	DIODE MA152WA		
R876	1-216-864-11	METAL CHIP	0 5% 1/16W	< IC >				
R890	1-216-296-91	METAL GLAZE	0 5% 1/8W	IC501	8-759-420-01	IC AN2512S		
R891	1-216-296-91	METAL GLAZE	0 5% 1/8W	< COIL >				
< NETWORK >				L501	1-408-976-21	INDUCTOR 33uH		
RB701	1-236-420-11	NETWORK, RES 4.7K		L502	1-408-785-21	INDUCTOR CHIP 47uH		
RB702	1-236-432-11	NETWORK, RES 47K		△L503	1-459-876-41	COIL, FERRITE (HLC)		
RB703	1-236-412-11	NETWORK, RES 1.0K		< TRANSISTOR >				
RB704	1-236-416-11	NETWORK, RES 2.2K		Q501	8-729-120-28	TRANSISTOR 2SC1623		
RB705	1-236-416-11	NETWORK, RES 2.2K		Q502	8-729-216-31	TRANSISTOR 2SA1163-G		
RB706	1-236-412-11	NETWORK, RES 1.0K		△Q503	8-729-120-28	TRANSISTOR 2SC1623		
RB707	1-236-412-11	NETWORK, RES 1.0K		Q504	8-729-106-68	TRANSISTOR 2SD1615A-GP		
RB708	1-236-412-11	NETWORK, RES 1.0K		< RESISTOR >				
< VIBRATOR >				R501	1-216-033-00	METAL CHIP 220 5%	1/10W	
X701	1-579-553-11	VIBRATOR (12MHz)		R502	1-216-041-00	METAL CHIP 470 5%	1/10W	
X801	1-579-619-11	VIBRATOR, CRYSTAL (28.6363MHz)		R503	1-216-041-00	METAL CHIP 470 5%	1/10W	
*****				△R504	1-216-675-11	METAL CHIP 10K 0.5%	1/10W	
* A-7063-183-A	VF-42 BOARD, COMPLETE		(Ref. No. 1,000 Series)	△R505	1-218-150-11	METAL GLAZE 1.2K 1%	1/10W	
	*****			R506	1-216-069-00	METAL CHIP 6.8K 5%	1/10W	
	3-942-888-01	HOLDER, LED		R507	1-216-047-00	METAL CHIP 820 5%	1/10W	
< CAPACITOR >				R508	1-216-689-11	METAL CHIP 39K 0.5%	1/10W	
C501	1-126-176-11	ELECT 220uF 20%	10V	R509	1-216-689-11	METAL CHIP 39K 0.5%	1/10W	
C502	1-163-077-91	CERAMIC CHIP 0.1uF	50V	R510	1-216-005-00	METAL CHIP 15 5%	1/10W	
C503	1-163-109-00	CERAMIC CHIP 47PF	5%	50V	R511	1-216-121-00	METAL CHIP 1M 5%	1/10W
△C504	1-163-009-11	CERAMIC CHIP 0.001uF	10%	50V	R512	1-216-131-11	METAL CHIP 2.7M 5%	1/10W
△C505	1-164-713-11	CERAMIC CHIP 0.0056uF	5%	50V	R513	1-216-101-00	METAL CHIP 150K 5%	1/10W
△C506	1-164-713-11	CERAMIC CHIP 0.0056uF	5%	50V	R514	1-216-121-00	METAL CHIP 1M 5%	1/10W
C507	1-127-515-11	ELECT(SOLID) 47uF	20%	6.3V	R515	1-216-131-11	METAL CHIP 2.7M 5%	1/10W
C508	1-164-611-11	CERAMIC CHIP 0.001uF	10%	500V	R516	1-216-055-00	METAL CHIP 1.8K 5%	1/10W
C509	1-124-257-00	ELECT 2.2uF	20%	50V	R517	1-216-025-00	METAL CHIP 100 5%	1/10W
C510	1-163-037-11	CERAMIC CHIP 0.022uF	10%	25V	R518	1-216-308-00	METAL CHIP 4.7 5%	1/10W
C511	1-126-090-11	ELECT 82uF	20%	10V	R519	1-216-336-11	METAL CHIP 47K 1%	1/10W
C512	1-137-306-11	FILM CHIP 0.1uF	5%	16V	R520	1-216-099-00	METAL CHIP 120K 5%	1/10W
C513	1-135-149-21	TANTALUM CHIP 2.2uF	20%	10V				

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark
	216-121-00	METAL CHIP 1M 5% 1/10W	
	216-160-00	METAL GLAZE 27 5% 1/8W	
	-216-053-00	METAL CHIP 1.5K 5% 1/10W	
	1-216-113-00	METAL CHIP 470K 5% 1/10W	
	1-216-097-00	METAL CHIP 100K 5% 1/10W	
< VARIABLE RESISTOR >			
501	1-241-596-11	RES, ADJ, METAL GRAZE 47K	
#502	1-241-590-11	RES, ADJ, METAL GRAZE 470	
RV503	1-241-592-11	RES, ADJ, METAL GRAZE 2.2K	
RV504	1-228-762-00	RES, ADJ, METAL GLAZE 1M	
< TRANSFORMER >			
△T501	1-439-486-11	TRANSFORMER ASSY, FLYBACK	
< THERMISTOR >			
TH501	1-809-350-21	THERMISTOR, NTC (2125)	
< SOCKET >			
△W501	1-540-019-21	SOCKET ASSY, CRT	

*	A-7072-010-A	VK-32 BOARD, COMPLETE	

		(Ref. No. 9,000 Series)	
< DIODE >			
D977	8-719-420-14	DIODE MA8082	
D978	8-719-420-14	DIODE MA8082	
D979	8-719-420-14	DIODE MA8082	
D980	8-719-420-14	DIODE MA8082	
D981	8-719-420-14	DIODE MA8082	
< SWITCH >			
S976	1-572-921-31	SWITCH, KEY BOARD (■ STOP)	
S979	1-572-921-31	SWITCH, KEY BOARD (◀ REW)	
S980	1-572-921-31	SWITCH, KEY BOARD (▷ PLAY)	
S983	1-572-921-31	SWITCH, KEY BOARD (▶▶ FF)	
S984	1-572-921-31	SWITCH, KEY BOARD (■ PAUSE)	

*	A-7066-014-A	VS-116 BOARD, COMPLETE (TR28/TR30)	

*	A-7066-020-A	VS-116 BOARD, COMPLETE (TR350/TR350PK)	

		(Ref. No. 4,000 Series)	
	1-691-471-11	CONNECTOR, TRANSLATION 11P	

Ref. No.	Part No.	Description	Remark
< CAPACITOR >			
C001	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C002	1-162-953-11	CERAMIC CHIP 100PF 5%	50V
C003	1-162-955-11	CERAMIC CHIP 150PF 5%	50V
C004	1-162-953-11	CERAMIC CHIP 100PF 5%	50V
C005	1-162-953-11	CERAMIC CHIP 100PF 5%	50V
C006	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C009	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C010	1-135-157-21	TANTALUM CHIP 10uF 20%	6.3V
C011	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C012	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C013	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C014	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C018	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C019	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C020	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C021	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C022	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C023	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C024	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C025	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C026	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C027	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C028	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C029	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C030	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C035	1-135-157-21	TANTALUM CHIP 10uF 20%	6.3V
C049	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
C061	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C063	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C064	1-162-995-11	CERAMIC CHIP 0.022uF	50V
C065	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C066	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C067	1-165-128-11	CERAMIC CHIP 0.22uF	16V
C068	1-162-949-11	CERAMIC CHIP 47PF 5%	50V
C069	1-162-948-11	CERAMIC CHIP 39PF 5%	50V
C072	1-162-943-11	CERAMIC CHIP 15PF 5%	50V
C073	1-162-952-11	CERAMIC CHIP 82PF 5%	50V
C074	1-162-956-11	CERAMIC CHIP 180PF 5%	50V
C075	1-162-942-11	CERAMIC CHIP 12PF 5%	50V
C076	1-162-945-11	CERAMIC CHIP 22PF 5%	50V
C077	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C080	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C081	1-162-945-11	CERAMIC CHIP 22PF 5%	50V
C082	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C083	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C085	1-162-947-11	CERAMIC CHIP 33PF 5%	50V

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description		Remark	Ref. No.	Part No.	Description		Remark	
C091	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C237	1-135-259-11	TANTAL. CHIP	10uF	20% 6. 3V	
C092	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C238	1-164-005-11	CERAMIC CHIP	0. 47uF	25V	
C150	1-162-946-11	CERAMIC CHIP	27PF	5%	50V	C239	1-162-957-11	CERAMIC CHIP	220PF	5% 50V
C151	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C240	1-162-959-11	CERAMIC CHIP	330PF	5% 50V	
C156	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	C241	1-126-607-11	ELECT CHIP	47uF	20% 4V
C159	1-162-950-11	CERAMIC CHIP	56PF	5%	50V	C242	1-162-960-11	CERAMIC CHIP	220PF	10% 50V
C161	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	C246	1-135-157-21	TANTALUM CHIP	10uF	20% 6. 3V
C167	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C247	1-135-259-11	TANTAL. CHIP	10uF	20% 6. 3V	
C170	1-162-568-11	CERAMIC CHIP	0. 33uF	25V	C248	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	
C171	1-162-638-11	CERAMIC CHIP	1uF	16V	C249	1-162-959-11	CERAMIC CHIP	330PF	5% 50V	
C173	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C250	1-164-145-11	CERAMIC CHIP	390PF	5% 50V	
C175	1-128-004-11	ELECT CHIP	10uF	20%	16V	C254	1-162-995-11	CERAMIC CHIP	0. 022uF	50V
C176	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C255	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	
C177	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C256	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	
C178	1-164-145-11	CERAMIC CHIP	390PF	5%	50V	C257	1-162-947-11	CERAMIC CHIP	33PF	5% 50V
C179	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C259	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	
C180	1-162-947-11	CERAMIC CHIP	33PF	5%	50V	C260	1-162-945-11	CERAMIC CHIP	22PF	5% 50V
C181	1-162-965-11	CERAMIC CHIP	0. 0015uF	10%	50V	C261	1-162-974-11	CERAMIC CHIP	0. 01uF	50V
C182	1-162-958-11	CERAMIC CHIP	270PF	5%	50V	C262	1-162-954-11	CERAMIC CHIP	120PF	5% 50V
C187	1-162-948-11	CERAMIC CHIP	39PF	5%	50V	C263	1-162-951-11	CERAMIC CHIP	68PF	5% 50V
C192	1-164-217-11	CERAMIC CHIP	150PF	5%	50V	C264	1-162-950-11	CERAMIC CHIP	56PF	5% 50V
C194	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C265	1-162-957-11	CERAMIC CHIP	220PF	5% 50V
C199	1-135-149-21	TANTALUM CHIP	2. 2uF	20%	10V	C266	1-162-953-11	CERAMIC CHIP	100PF	5% 50V
C205	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	C267	1-162-974-11	CERAMIC CHIP	0. 01uF	50V
C206	1-164-360-11	CERAMIC CHIP	0. 1uF	16V	C268	1-162-955-11	CERAMIC CHIP	150PF	5% 50V	
C207	1-162-952-11	CERAMIC CHIP	82PF	5%	50V	C271	1-128-004-11	ELECT CHIP	10uF	20% 16V
C208	1-162-967-11	CERAMIC CHIP	0. 0033uF	10%	50V	C272	1-162-974-11	CERAMIC CHIP	0. 01uF	50V
C209	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C273	1-126-205-11	ELECT CHIP	47uF	20% 6. 3V
C213	1-164-222-11	CERAMIC CHIP	0. 22uF	25V	C274	1-162-952-11	CERAMIC CHIP	82PF	5% 50V	
C214	1-164-005-11	CERAMIC CHIP	0. 47uF	25V	C275	1-162-970-11	CERAMIC CHIP	0. 01uF	10% 25V	
C216	1-128-004-11	ELECT CHIP	10uF	20%	16V	C276	1-162-945-11	CERAMIC CHIP	22PF	5% 50V
C217	1-135-181-21	TANTALUM CHIP	4. 7uF	20%	6. 3V	C277	1-162-941-11	CERAMIC CHIP	10PF	0. 5PF 50V
C218	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C278	1-162-638-11	CERAMIC CHIP	1uF	16V	
C219	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C280	1-162-995-11	CERAMIC CHIP	0. 022uF	50V
C220	1-126-246-11	ELECT CHIP	220uF	20%	4V	C281	1-135-146-21	TANTALUM CHIP	0. 68uF	20% 25V
C221	1-163-809-11	CERAMIC CHIP	0. 047uF	10%	25V	C282	1-107-682-11	CERAMIC CHIP	1uF	10% 16V
C222	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C283	1-107-682-11	CERAMIC CHIP	1uF	10% 16V	
C223	1-128-004-11	ELECT CHIP	10uF	20%	16V	C284	1-162-959-11	CERAMIC CHIP	330PF	5% 50V
C225	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C285	1-135-259-11	TANTAL. CHIP	10uF	20% 6. 3V
C226	1-164-005-11	CERAMIC CHIP	0. 47uF	25V	C286	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	
C227	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C288	1-162-974-11	CERAMIC CHIP	0. 01uF	50V
C228	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C289	1-164-360-11	CERAMIC CHIP	0. 1uF	16V
C229	1-135-180-21	TANTALUM CHIP	3. 3uF	20%	6. 3V	C290	1-162-974-11	CERAMIC CHIP	0. 01uF	50V
C230	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C291	1-162-974-11	CERAMIC CHIP	0. 01uF	50V
C231	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C292	1-135-180-21	TANTALUM CHIP	3. 3uF	20% 6. 3V	
C232	1-135-180-21	TANTALUM CHIP	3. 3uF	20%	6. 3V	C294	1-162-638-11	CERAMIC CHIP	1uF	16V
C233	1-128-006-11	ELECT CHIP	4. 7uF	20%	25V	C296	1-162-974-11	CERAMIC CHIP	0. 01uF	50V
C234	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C297	1-135-259-11	TANTAL. CHIP	10uF	20% 6. 3V	
C235	1-162-974-11	CERAMIC CHIP	0. 01uF	50V	C299	1-162-949-11	CERAMIC CHIP	47PF	5% 50V	
C236	1-135-259-11	TANTAL. CHIP	10uF	20%	6. 3V	C300	1-162-949-11	CERAMIC CHIP	47PF	5% 50V

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
C301	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C453	1-162-927-11	CERAMIC CHIP	100PF 5% 50V (TR28/TR30)
C303	1-135-149-21	TANTALUM CHIP	2.2uF 20% 10V	C454	1-162-927-11	CERAMIC CHIP	100PF 5% 50V (TR28/TR30)
C304	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C455	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V
C305	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C456	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C306	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C457	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V
C307	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C458	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C308	1-162-949-11	CERAMIC CHIP	47PF 5% 50V	C459	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C401	1-164-346-11	CERAMIC CHIP	1uF 16V	C460	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C403	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C461	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C404	1-164-346-11	CERAMIC CHIP	1uF 16V	C462	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C405	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C463	1-135-215-21	TANTAL. CHIP	6.8uF 20% 16V
C406	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C464	1-135-180-21	TANTALUM CHIP	3.3uF 20% 6.3V
C408	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C465	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C409	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V	C466	1-164-298-11	CERAMIC CHIP	0.15uF 10% 25V
C412	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V	C467	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C413	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C468	1-164-298-11	CERAMIC CHIP	0.15uF 10% 25V
C414	1-162-919-11	CERAMIC CHIP	22PF 5% 50V	C469	1-162-967-11	CERAMIC CHIP	0.0033uF 10% 50V
C415	1-165-128-11	CERAMIC CHIP	0.22uF 16V	C470	1-162-967-11	CERAMIC CHIP	0.0033uF 10% 50V
C416	1-162-916-11	CERAMIC CHIP	12PF 5% 50V	C471	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C417	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C472	1-107-682-11	CERAMIC CHIP	1uF 10% 16V
C418	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C473	1-165-176-11	CERAMIC CHIP	0.047uF 10% 16V
C421	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C474	1-162-967-11	CERAMIC CHIP	0.0033uF 10% 50V
C422	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C476	1-107-682-11	CERAMIC CHIP	1uF 10% 16V
C423	1-164-361-11	CERAMIC CHIP	0.047uF 16V	C477	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C424	1-162-995-11	CERAMIC CHIP	0.022uF 50V	C478	1-162-963-11	CERAMIC CHIP	680PF 10% 50V
C426	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V	C481	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C427	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C482	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C428	1-162-995-11	CERAMIC CHIP	0.022uF 50V	C483	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C429	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C485	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C430	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C487	1-128-530-11	ELECT CHIP	33uF 20% 10V
C431	1-162-965-11	CERAMIC CHIP	0.0015uF 10% 50V	C488	1-162-953-11	CERAMIC CHIP	100PF 5% 50V
C432	1-164-173-11	CERAMIC CHIP	0.0039uF 10% 50V	C489	1-107-682-11	CERAMIC CHIP	1uF 10% 16V
C433	1-162-918-11	CERAMIC CHIP	18PF 5% 50V			< FILTER >	
C434	1-162-917-11	CERAMIC CHIP	15PF 5% 50V				
C435	1-162-974-11	CERAMIC CHIP	0.01uF 50V				
C436	1-162-974-11	CERAMIC CHIP	0.01uF 50V	CF151	1-579-370-11	FILTER, CERAMIC	
C437	1-162-995-11	CERAMIC CHIP	0.022uF 50V			< CONNECTOR >	
C438	1-162-995-11	CERAMIC CHIP	0.022uF 50V				
C439	1-162-907-11	CERAMIC CHIP	2PF 0.25PF 50V	CN002	1-569-775-21	PIN, CONNECTOR 5P	
C440	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	CN101	1-566-538-11	CONNECTOR, FPC (NON ZIF) 6P	
C441	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	CN102	1-580-789-21	PIN, CONNECTOR (SMD) 6P	
C442	1-162-995-11	CERAMIC CHIP	0.022uF 50V	CN401	1-573-310-11	CONNECTOR, BOARD TO BOARD 20P	
C445	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	CN403	1-573-338-11	CONNECTOR, BOARD TO BOARD 20P	
C446	1-162-995-11	CERAMIC CHIP	0.022uF 50V	CN404	1-695-325-11	CONNECTOR, BOARD TO BOARD 42P	
C447	1-162-974-11	CERAMIC CHIP	0.01uF 50V	CN406	1-573-343-21	CONNECTOR, BOARD TO BOARD 30P	
C449	1-164-360-11	CERAMIC CHIP	0.1uF 16V	* CN407	1-580-055-21	PIN, CONNECTOR 2P	
C450	1-164-360-11	CERAMIC CHIP	0.1uF 16V (TR28/TR30)			< DIODE >	
C452	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	D001	8-719-800-76	DIODE 1SS123	

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D152	8-719-027-48	DIODE MA142WA		L154	1-410-390-11	INDUCTOR CHIP 56uH	
D159	8-719-027-50	DIODE MA142WK		L155	1-410-390-11	INDUCTOR CHIP 56uH	
D160	8-719-027-50	DIODE MA142WK		L160	1-412-058-11	INDUCTOR CHIP 10uH	
D163	8-719-027-50	DIODE MA142WK		L161	1-410-385-11	INDUCTOR CHIP 22uH	
△D401	8-719-421-27	DIODE MA728		L162	1-412-280-31	INDUCTOR 330uH	
D402	8-719-027-50	DIODE MA142WK		L163	1-410-167-41	INDUCTOR CHIP 820uH	
D403	8-719-404-46	DIODE MA110		L164	1-410-657-21	INDUCTOR CHIP 180uH	
D456	8-719-420-14	DIODE MA8082		L169	1-410-389-31	INDUCTOR CHIP 47uH	
D462	8-719-420-14	DIODE MA8082		L171	1-410-390-11	INDUCTOR CHIP 56uH	
< FILTER >				L175	1-410-393-11	INDUCTOR CHIP 100uH	
FL152	1-236-575-11	B. P. F		L176	1-410-656-11	INDUCTOR CHIP 150uH	
FL153	1-236-146-11	FILTER, BAND PASS		L177	1-412-058-11	INDUCTOR CHIP 10uH	
FL155	1-236-757-21	FILTER, LOW PASS (C)		L178	1-412-062-11	INDUCTOR CHIP 47uH	
FL401	1-406-452-11	COIL, OSC		L179	1-410-379-31	INDUCTOR CHIP 6. 8uH	
< IC >				L180	1-410-393-11	INDUCTOR CHIP 100uH	
IC001	8-752-033-38	IC CXA1202R		L181	1-410-393-11	INDUCTOR CHIP 100uH	
IC003	8-752-053-21	IC CXA1211M		L182	1-410-655-31	INDUCTOR CHIP 120uH	
IC151	8-752-065-54	IC CXA1207AR		L183	1-410-385-11	INDUCTOR CHIP 22uH	
IC152	8-752-051-40	IC CXA1208R		L184	1-410-385-11	INDUCTOR CHIP 22uH	
IC154	8-752-332-68	IC CXL5502M		L185	1-412-058-11	INDUCTOR CHIP 10uH	
IC155	8-752-053-21	IC CXA1211M		L186	1-412-052-21	INDUCTOR CHIP 1uH	
IC156	8-759-055-82	IC M62353GP		L401	1-412-056-11	INDUCTOR CHIP 4. 7uH	
IC158	8-759-055-82	IC M62353GP		L402	1-412-058-11	INDUCTOR CHIP 10uH	
IC159	8-759-636-33	IC CXA1452N		L403	1-412-062-11	INDUCTOR CHIP 47uH	
△IC401	8-759-056-84	IC S-8420AF		L404	1-412-058-11	INDUCTOR CHIP 10uH	
IC402	8-752-836-29	IC CXP80624-416R		L405	1-412-058-11	INDUCTOR CHIP 10uH	
IC403	8-759-258-83	IC uPD75316GF-463-3B9		L406	1-412-058-11	INDUCTOR CHIP 10uH	
IC404	8-759-059-42	IC CXA1481AR		L407	1-414-261-11	INDUCTOR 1uH	
IC405	8-759-044-78	IC BR9011BF-RE2		< IC LINK >			
IC406	8-759-081-96	IC uPD6456GS-620		△PS401	1-576-122-21	LINK, IC (0. 4A CCP2E10)	
IC407	8-759-145-63	IC uPD7564G-540 (TR28/TR30)		△PS402	1-576-123-21	LINK, IC (0. 8A CCP2E20)	
IC408	8-759-057-60	IC MCD004BM		< TRANSISTOR >			
IC409	8-759-999-02	IC TL1596CDB		Q001	8-729-216-22	TRANSISTOR 2SA1162	
IC410	8-759-062-02	IC MPC1720VM		Q002	8-729-014-16	TRANSISTOR RN2302	
< COIL >				Q003	8-729-230-60	TRANSISTOR 2SA1586	
L001	1-410-381-11	INDUCTOR CHIP 10uH		Q008	8-729-402-32	TRANSISTOR 2SD1819A-R	
L002	1-412-066-21	INDUCTOR CHIP 220uH		Q010	8-729-403-35	TRANSISTOR UN5113	
L003	1-412-066-21	INDUCTOR CHIP 220uH		Q019	8-729-402-32	TRANSISTOR 2SD1819A-R	
L005	1-412-060-11	INDUCTOR CHIP 22uH		Q020	8-729-402-32	TRANSISTOR 2SD1819A-R	
L007	1-412-058-11	INDUCTOR CHIP 10uH		Q021	8-729-230-60	TRANSISTOR 2SA1586	
L009	1-410-380-31	INDUCTOR CHIP 8. 2uH		Q024	8-729-102-07	TRANSISTOR 2SC2223-F13	
L010	1-410-655-31	INDUCTOR CHIP 120uH		Q025	8-729-014-16	TRANSISTOR RN2302	
L011	1-412-280-31	INDUCTOR 330uH		Q026	8-729-402-32	TRANSISTOR 2SD1819A-R	
L012	1-410-387-11	INDUCTOR CHIP 33uH		Q029	8-729-403-35	TRANSISTOR UN5113	
L013	1-410-657-21	INDUCTOR CHIP 180uH		Q151	8-729-101-07	TRANSISTOR 2SB798-DL	
L015	1-410-381-11	INDUCTOR CHIP 10uH		Q152	8-729-402-32	TRANSISTOR 2SD1819A-R	
L150	1-410-389-31	INDUCTOR CHIP 47uH		Q154	8-729-402-32	TRANSISTOR 2SD1819A-R	
L152	1-410-385-11	INDUCTOR CHIP 22uH					

<p>The components identified by mark <u>△</u> or dotted line with mark <u>△</u> are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque <u>△</u> sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Ref. No.	Ref. No.	Description
3028	2-72-02-04	20000 60-230
3029	2-72-02-04	20000 60-230
3030	2-72-02-04	20000 60-230
3031	2-72-02-04	20000 60-230

Ref. No.	Ref. No.	Description
3032	2-72-02-07	20000 60-230
3033	2-72-02-08	20000 60-230
3034	2-72-02-08	20000 60-230
3035	2-72-02-11	20000 60-230
3036	2-72-02-11	20000 60-230

C PLANS :

PL001	1-59-02-01	6-1-1
PL002	1-59-02-01	7-1-1, 8-1-1, 9-1-1
PL003	1-59-02-01	7-1-1, 8-1-1, 9-1-1, 10-1-1
PL004	1-59-02-01	10-1-1, 11-1-1

C IC :

IC001	2-72-02-08	IC	200000
IC002	2-72-02-08	IC	200000
IC003	2-72-02-08	IC	200000
IC004	2-72-02-08	IC	200000
IC005	2-72-02-08	IC	200000

IC006	2-72-02-01	IC	200000
IC007	2-72-02-02	IC	200000
IC008	2-72-02-02	IC	200000
IC009	2-72-02-02	IC	200000
IC010	2-72-02-02	IC	200000

IC011	2-72-02-03	IC	200000-000
IC012	2-72-02-03	IC	200000-000-000
IC013	2-72-02-03	IC	200000-000
IC014	2-72-02-03	IC	200000-000
IC015	2-72-02-03	IC	200000-000

IC016	2-72-02-03	IC	200000-000 (200000)
IC017	2-72-02-03	IC	200000
IC018	2-72-02-03	IC	200000
IC019	2-72-02-03	IC	200000

C IC :

IC020	1-52-02-11	2000000 207 1-1
IC021	1-52-02-11	2000000 207 2-1
IC022	1-52-02-11	2000000 207 3-1
IC023	1-52-02-11	2000000 207 4-1
IC024	1-52-02-11	2000000 207 5-1

IC025	1-52-02-11	2000000 207 6-1
IC026	1-52-02-11	2000000 207 7-1
IC027	1-52-02-11	2000000 207 8-1
IC028	1-52-02-11	2000000 207 9-1
IC029	1-52-02-11	2000000 207 10-1

IC030	1-52-02-11	2000000 207 1-1
IC031	1-52-02-11	2000000 207 1-1
IC032	1-52-02-11	2000000 207 1-1

Serial	Ref. No.	Part No.	Description	Serial
1254	1-52-02-11	2000000	207 1-1	
1255	1-52-02-11	2000000	207 1-1	
1256	1-52-02-11	2000000	207 1-1	
1257	1-52-02-11	2000000	207 1-1	
1258	1-52-02-11	2000000	207 1-1	
1259	1-52-02-11	2000000	207 1-1	
1260	1-52-02-11	2000000	207 1-1	
1261	1-52-02-11	2000000	207 1-1	
1262	1-52-02-11	2000000	207 1-1	
1263	1-52-02-11	2000000	207 1-1	
1264	1-52-02-11	2000000	207 1-1	
1265	1-52-02-11	2000000	207 1-1	
1266	1-52-02-11	2000000	207 1-1	
1267	1-52-02-11	2000000	207 1-1	
1268	1-52-02-11	2000000	207 1-1	
1269	1-52-02-11	2000000	207 1-1	
1270	1-52-02-11	2000000	207 1-1	
1271	1-52-02-11	2000000	207 1-1	
1272	1-52-02-11	2000000	207 1-1	
1273	1-52-02-11	2000000	207 1-1	
1274	1-52-02-11	2000000	207 1-1	
1275	1-52-02-11	2000000	207 1-1	
1276	1-52-02-11	2000000	207 1-1	
1277	1-52-02-11	2000000	207 1-1	
1278	1-52-02-11	2000000	207 1-1	
1279	1-52-02-11	2000000	207 1-1	
1280	1-52-02-11	2000000	207 1-1	
1281	1-52-02-11	2000000	207 1-1	
1282	1-52-02-11	2000000	207 1-1	
1283	1-52-02-11	2000000	207 1-1	
1284	1-52-02-11	2000000	207 1-1	
1285	1-52-02-11	2000000	207 1-1	
1286	1-52-02-11	2000000	207 1-1	
1287	1-52-02-11	2000000	207 1-1	

C IC :

IC033	1-52-02-11	2000000	207 1-1 (2-1-1) (200000)
IC034	1-52-02-11	2000000	207 1-1 (2-1-1) (200000)

C DRAWINGS :

DR01	2-72-02-04	2000000	60-230
DR02	2-72-02-04	2000000	60-230
DR03	2-72-02-04	2000000	60-230
DR04	2-72-02-04	2000000	60-230-1
DR05	2-72-02-04	2000000	60-230

DR06	2-72-02-08	2000000	60-230-1
DR07	2-72-02-08	2000000	60-230-1
DR08	2-72-02-08	2000000	60-230
DR09	2-72-02-11	2000000	60-230-1
DR10	2-72-02-11	2000000	60-230

DR11	2-72-02-01	2000000	60-230-1
DR12	2-72-02-02	2000000	60-230
DR13	2-72-02-02	2000000	60-230-1
DR14	2-72-02-02	2000000	60-230-1
DR15	2-72-02-02	2000000	60-230-1

<p>The components identified by check mark (✓) are critical items with respect to airworthiness.</p> <p>Repair only with part number specified.</p>	<p>All components identified per our drawings & our criteria must be replaced.</p> <p>No substitutions are per our policies unless a variance is granted.</p>
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Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
Q158	8-729-402-32	TRANSISTOR	2SD1819A-R	R012	1-216-835-11	METAL CHIP	15K 5% 1/16W
Q161	8-729-402-32	TRANSISTOR	2SD1819A-R	R013	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q162	8-729-403-35	TRANSISTOR	UN5113	R016	1-216-837-11	METAL CHIP	22K 5% 1/16W
Q166	8-729-230-60	TRANSISTOR	2SA1586	R017	1-216-837-11	METAL CHIP	22K 5% 1/16W
Q168	8-729-403-35	TRANSISTOR	UN5113	R020	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
Q170	8-729-420-20	TRANSISTOR	XN4312	R021	1-216-836-11	METAL CHIP	18K 5% 1/16W
Q171	8-729-117-73	TRANSISTOR	2SC4178-F14	R022	1-216-840-11	METAL CHIP	39K 5% 1/16W
Q172	8-729-117-73	TRANSISTOR	2SC4178-F14	R023	1-216-838-11	METAL CHIP	27K 5% 1/16W
Q175	8-729-402-32	TRANSISTOR	2SD1819A-R	R024	1-216-838-11	METAL CHIP	27K 5% 1/16W
Q176	8-729-402-32	TRANSISTOR	2SD1819A-R	R025	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
Q177	8-729-230-60	TRANSISTOR	2SA1586	R026	1-216-832-11	METAL CHIP	8.2K 5% 1/16W
Q178	8-729-230-60	TRANSISTOR	2SA1586	R027	1-216-841-11	METAL CHIP	47K 5% 1/16W
Q180	8-729-422-54	TRANSISTOR	XN4215	R028	1-216-837-11	METAL CHIP	22K 5% 1/16W
Q182	8-729-402-32	TRANSISTOR	2SD1819A-R	R029	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
Q183	8-729-420-53	TRANSISTOR	UN5115	R030	1-216-837-11	METAL CHIP	22K 5% 1/16W
Q184	8-729-402-32	TRANSISTOR	2SD1819A-R	R031	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
Q189	8-729-402-32	TRANSISTOR	2SD1819A-R	R033	1-216-791-11	METAL CHIP	3.3 5% 1/16W
Q192	8-729-402-32	TRANSISTOR	2SD1819A-R	R049	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
Q194	8-729-402-32	TRANSISTOR	2SD1819A-R	R050	1-216-832-11	METAL CHIP	8.2K 5% 1/16W
Q195	8-729-230-60	TRANSISTOR	2SA1586	R051	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
Q196	8-729-403-35	TRANSISTOR	UN5113	R052	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
Q199	8-729-807-87	TRANSISTOR	2SB1295-UL6	R054	1-216-817-11	METAL CHIP	470 5% 1/16W
Q200	8-729-013-88	TRANSISTOR	RN1302	R055	1-216-820-11	METAL CHIP	820 5% 1/16W
Q203	8-729-230-60	TRANSISTOR	2SA1586	R056	1-216-864-11	METAL CHIP	0 5% 1/16W
Q204	8-729-402-32	TRANSISTOR	2SD1819A-R	R057	1-216-818-11	METAL CHIP	560 5% 1/16W
Q205	8-729-402-42	TRANSISTOR	UN5213	R058	1-216-818-11	METAL CHIP	560 5% 1/16W
Q207	8-729-403-35	TRANSISTOR	UN5113	R060	1-216-864-11	METAL CHIP	0 5% 1/16W
Q208	8-729-013-88	TRANSISTOR	RN1302	R061	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q210	8-729-402-42	TRANSISTOR	UN5213	R062	1-216-818-11	METAL CHIP	560 5% 1/16W
Q221	8-729-420-12	TRANSISTOR	XN4213	R063	1-216-837-11	METAL CHIP	22K 5% 1/16W
Q226	8-729-403-35	TRANSISTOR	UN5113	R064	1-216-817-11	METAL CHIP	470 5% 1/16W
Q231	8-729-230-60	TRANSISTOR	2SA1586	R066	1-216-809-11	METAL CHIP	100 5% 1/16W
Q232	8-729-402-32	TRANSISTOR	2SD1819A-R	R067	1-216-836-11	METAL CHIP	18K 5% 1/16W
Q233	8-729-402-32	TRANSISTOR	2SD1819A-R	R070	1-216-834-11	METAL CHIP	12K 5% 1/16W
Q234	8-729-230-60	TRANSISTOR	2SA1586	R071	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
Q236	8-729-420-56	TRANSISTOR	UN511E	R072	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
Q237	8-729-230-60	TRANSISTOR	2SA1586	R076	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
Q401	8-729-402-48	TRANSISTOR	UN521E	R078	1-216-820-11	METAL CHIP	820 5% 1/16W
Q403	8-729-403-35	TRANSISTOR	UN5113 (TR28/TR30)	R079	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q405	8-729-013-88	TRANSISTOR	RN1302	R081	1-216-864-11	METAL CHIP	0 5% 1/16W
Q409	8-729-017-67	TRANSISTOR	2SB1574	R082	1-216-864-11	METAL CHIP	0 5% 1/16W
< RESISTOR >				R083	1-216-821-11	METAL CHIP	1K 5% 1/16W
R001	1-216-806-11	METAL GLAZE	56 5% 1/16W	R085	1-216-821-11	METAL CHIP	1K 5% 1/16W
R002	1-216-818-11	METAL CHIP	560 5% 1/16W	R086	1-216-817-11	METAL CHIP	470 5% 1/16W
R003	1-216-803-11	METAL CHIP	33 5% 1/16W	R087	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R004	1-216-814-11	METAL CHIP	270 5% 1/16W	R088	1-216-808-11	METAL CHIP	82 5% 1/16W
R005	1-216-813-11	METAL CHIP	220 5% 1/16W	R090	1-216-836-11	METAL CHIP	18K 5% 1/16W
R006	1-216-837-11	METAL CHIP	22K 5% 1/16W	R097	1-216-821-11	METAL CHIP	1K 5% 1/16W
R007	1-216-839-11	METAL CHIP	33K 5% 1/16W	R112	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
				R113	1-216-295-00	METAL CHIP	0 5% 1/10W

HA No.	Pty No.	Description	Amount
339	0-79-09-02	REAR L.H. S	390.00
340	0-79-09-03	REAR L.H. S	390.00
341	0-79-09-04	REAR L.H. S	390.00
342	0-79-09-05	REAR L.H. S	390.00
343	0-79-09-06	REAR L.H. S	390.00
344	0-79-09-07	REAR L.H. S	390.00
345	0-79-09-08	REAR L.H. S	390.00
346	0-79-09-09	REAR L.H. S	390.00
347	0-79-09-10	REAR L.H. S	390.00
348	0-79-09-11	REAR L.H. S	390.00
349	0-79-09-12	REAR L.H. S	390.00
350	0-79-09-13	REAR L.H. S	390.00
351	0-79-09-14	REAR L.H. S	390.00
352	0-79-09-15	REAR L.H. S	390.00
353	0-79-09-16	REAR L.H. S	390.00
354	0-79-09-17	REAR L.H. S	390.00
355	0-79-09-18	REAR L.H. S	390.00
356	0-79-09-19	REAR L.H. S	390.00
357	0-79-09-20	REAR L.H. S	390.00
358	0-79-09-21	REAR L.H. S	390.00
359	0-79-09-22	REAR L.H. S	390.00
360	0-79-09-23	REAR L.H. S	390.00
361	0-79-09-24	REAR L.H. S	390.00
362	0-79-09-25	REAR L.H. S	390.00
363	0-79-09-26	REAR L.H. S	390.00
364	0-79-09-27	REAR L.H. S	390.00
365	0-79-09-28	REAR L.H. S	390.00
366	0-79-09-29	REAR L.H. S	390.00
367	0-79-09-30	REAR L.H. S	390.00
368	0-79-09-31	REAR L.H. S	390.00
369	0-79-09-32	REAR L.H. S	390.00
370	0-79-09-33	REAR L.H. S	390.00
371	0-79-09-34	REAR L.H. S	390.00
372	0-79-09-35	REAR L.H. S	390.00
373	0-79-09-36	REAR L.H. S	390.00
374	0-79-09-37	REAR L.H. S	390.00
375	0-79-09-38	REAR L.H. S	390.00
376	0-79-09-39	REAR L.H. S	390.00
377	0-79-09-40	REAR L.H. S	390.00
378	0-79-09-41	REAR L.H. S	390.00
379	0-79-09-42	REAR L.H. S	390.00
380	0-79-09-43	REAR L.H. S	390.00
381	0-79-09-44	REAR L.H. S	390.00
382	0-79-09-45	REAR L.H. S	390.00
383	0-79-09-46	REAR L.H. S	390.00
384	0-79-09-47	REAR L.H. S	390.00
385	0-79-09-48	REAR L.H. S	390.00
386	0-79-09-49	REAR L.H. S	390.00
387	0-79-09-50	REAR L.H. S	390.00
388	0-79-09-51	REAR L.H. S	390.00
389	0-79-09-52	REAR L.H. S	390.00
390	0-79-09-53	REAR L.H. S	390.00
391	0-79-09-54	REAR L.H. S	390.00
392	0-79-09-55	REAR L.H. S	390.00
393	0-79-09-56	REAR L.H. S	390.00
394	0-79-09-57	REAR L.H. S	390.00
395	0-79-09-58	REAR L.H. S	390.00
396	0-79-09-59	REAR L.H. S	390.00
397	0-79-09-60	REAR L.H. S	390.00

HA No.	Pty No.	Description	Amount
398	1-79-09-01	FRONT L.H. S	390.00
399	1-79-09-02	FRONT L.H. S	390.00
400	1-79-09-03	FRONT L.H. S	390.00
401	1-79-09-04	FRONT L.H. S	390.00
402	1-79-09-05	FRONT L.H. S	390.00
403	1-79-09-06	FRONT L.H. S	390.00
404	1-79-09-07	FRONT L.H. S	390.00
405	1-79-09-08	FRONT L.H. S	390.00
406	1-79-09-09	FRONT L.H. S	390.00
407	1-79-09-10	FRONT L.H. S	390.00
408	1-79-09-11	FRONT L.H. S	390.00
409	1-79-09-12	FRONT L.H. S	390.00
410	1-79-09-13	FRONT L.H. S	390.00
411	1-79-09-14	FRONT L.H. S	390.00
412	1-79-09-15	FRONT L.H. S	390.00
413	1-79-09-16	FRONT L.H. S	390.00
414	1-79-09-17	FRONT L.H. S	390.00
415	1-79-09-18	FRONT L.H. S	390.00
416	1-79-09-19	FRONT L.H. S	390.00
417	1-79-09-20	FRONT L.H. S	390.00
418	1-79-09-21	FRONT L.H. S	390.00
419	1-79-09-22	FRONT L.H. S	390.00
420	1-79-09-23	FRONT L.H. S	390.00
421	1-79-09-24	FRONT L.H. S	390.00
422	1-79-09-25	FRONT L.H. S	390.00
423	1-79-09-26	FRONT L.H. S	390.00
424	1-79-09-27	FRONT L.H. S	390.00
425	1-79-09-28	FRONT L.H. S	390.00
426	1-79-09-29	FRONT L.H. S	390.00
427	1-79-09-30	FRONT L.H. S	390.00
428	1-79-09-31	FRONT L.H. S	390.00
429	1-79-09-32	FRONT L.H. S	390.00
430	1-79-09-33	FRONT L.H. S	390.00
431	1-79-09-34	FRONT L.H. S	390.00
432	1-79-09-35	FRONT L.H. S	390.00
433	1-79-09-36	FRONT L.H. S	390.00
434	1-79-09-37	FRONT L.H. S	390.00
435	1-79-09-38	FRONT L.H. S	390.00
436	1-79-09-39	FRONT L.H. S	390.00
437	1-79-09-40	FRONT L.H. S	390.00
438	1-79-09-41	FRONT L.H. S	390.00
439	1-79-09-42	FRONT L.H. S	390.00
440	1-79-09-43	FRONT L.H. S	390.00
441	1-79-09-44	FRONT L.H. S	390.00
442	1-79-09-45	FRONT L.H. S	390.00
443	1-79-09-46	FRONT L.H. S	390.00
444	1-79-09-47	FRONT L.H. S	390.00
445	1-79-09-48	FRONT L.H. S	390.00
446	1-79-09-49	FRONT L.H. S	390.00
447	1-79-09-50	FRONT L.H. S	390.00
448	1-79-09-51	FRONT L.H. S	390.00
449	1-79-09-52	FRONT L.H. S	390.00
450	1-79-09-53	FRONT L.H. S	390.00
451	1-79-09-54	FRONT L.H. S	390.00
452	1-79-09-55	FRONT L.H. S	390.00
453	1-79-09-56	FRONT L.H. S	390.00
454	1-79-09-57	FRONT L.H. S	390.00
455	1-79-09-58	FRONT L.H. S	390.00
456	1-79-09-59	FRONT L.H. S	390.00
457	1-79-09-60	FRONT L.H. S	390.00

VS-116

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R114	1-216-864-11	METAL CHIP	0 5% 1/16W	R232	1-216-833-11	METAL CHIP	10K 5% 1/16W
R131	1-216-841-11	METAL CHIP	47K 5% 1/16W	R242	1-216-818-11	METAL CHIP	560 5% 1/16W
R132	1-216-833-11	METAL CHIP	10K 5% 1/16W	R243	1-216-821-11	METAL CHIP	1K 5% 1/16W
R142	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R253	1-216-820-11	METAL CHIP	820 5% 1/16W
R151	1-216-296-91	METAL GLAZE	0 5% 1/8W	R254	1-216-820-11	METAL CHIP	820 5% 1/16W
R152	1-216-830-11	METAL CHIP	5.6K 5% 1/16W	R255	1-216-833-11	METAL CHIP	10K 5% 1/16W
R153	1-216-304-11	METAL CHIP	3.3 5% 1/10W	R256	1-216-821-11	METAL CHIP	1K 5% 1/16W
R154	1-216-820-11	METAL CHIP	820 5% 1/16W	R257	1-216-809-11	METAL CHIP	100 5% 1/16W
R155	1-216-836-11	METAL CHIP	18K 5% 1/16W	R258	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R156	1-216-296-91	METAL GLAZE	0 5% 1/8W	R259	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R158	1-216-833-11	METAL CHIP	10K 5% 1/16W	R260	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R160	1-216-819-11	METAL CHIP	680 5% 1/16W	R263	1-216-864-11	METAL CHIP	0 5% 1/16W
R161	1-216-809-11	METAL CHIP	100 5% 1/16W	R266	1-216-864-11	METAL CHIP	0 5% 1/16W
R164	1-216-809-11	METAL CHIP	100 5% 1/16W	R267	1-216-864-11	METAL CHIP	0 5% 1/16W
R167	1-216-820-11	METAL CHIP	820 5% 1/16W	R270	1-216-864-11	METAL CHIP	0 5% 1/16W
R168	1-216-820-11	METAL CHIP	820 5% 1/16W	R271	1-216-841-11	METAL CHIP	47K 5% 1/16W
R170	1-216-822-11	METAL CHIP	1.2K 5% 1/16W	R272	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R175	1-216-813-11	METAL CHIP	220 5% 1/16W	R276	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R177	1-216-818-11	METAL CHIP	560 5% 1/16W	R277	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R178	1-216-817-11	METAL CHIP	470 5% 1/16W	R278	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R179	1-216-820-11	METAL CHIP	820 5% 1/16W	R279	1-216-818-11	METAL CHIP	560 5% 1/16W
R189	1-216-828-11	METAL CHIP	3.9K 5% 1/16W	R280	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R190	1-216-837-11	METAL CHIP	22K 5% 1/16W	R281	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
R192	1-216-833-11	METAL CHIP	10K 5% 1/16W	R282	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R193	1-216-841-11	METAL CHIP	47K 5% 1/16W	R283	1-216-821-11	METAL CHIP	1K 5% 1/16W
R194	1-216-833-11	METAL CHIP	10K 5% 1/16W	R285	1-216-833-11	METAL CHIP	10K 5% 1/16W
R196	1-216-815-11	METAL CHIP	330 5% 1/16W	R286	1-216-833-11	METAL CHIP	10K 5% 1/16W
R198	1-216-817-11	METAL CHIP	470 5% 1/16W	R290	1-216-821-11	METAL CHIP	1K 5% 1/16W
R200	1-216-821-11	METAL CHIP	1K 5% 1/16W	R291	1-216-820-11	METAL CHIP	820 5% 1/16W
R201	1-216-815-11	METAL CHIP	330 5% 1/16W	R293	1-216-807-11	METAL CHIP	68 5% 1/16W
R202	1-216-840-11	METAL CHIP	39K 5% 1/16W	R294	1-216-845-11	METAL CHIP	100K 5% 1/16W
R203	1-216-837-11	METAL CHIP	22K 5% 1/16W	R295	1-216-853-11	METAL CHIP	470K 5% 1/16W
R204	1-216-821-11	METAL CHIP	1K 5% 1/16W	R297	1-216-820-11	METAL CHIP	820 5% 1/16W
R205	1-216-824-11	METAL CHIP	1.8K 5% 1/16W	R298	1-216-820-11	METAL CHIP	820 5% 1/16W
R206	1-216-813-11	METAL CHIP	220 5% 1/16W	R299	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R208	1-216-864-11	METAL CHIP	0 5% 1/16W	R300	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
R211	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R301	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R213	1-216-835-11	METAL CHIP	15K 5% 1/16W	R304	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R216	1-216-837-11	METAL CHIP	22K 5% 1/16W	R306	1-216-821-11	METAL CHIP	1K 5% 1/16W
R217	1-216-837-11	METAL CHIP	22K 5% 1/16W	R307	1-216-821-11	METAL CHIP	1K 5% 1/16W
R218	1-216-824-11	METAL CHIP	1.8K 5% 1/16W	R309	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R219	1-216-821-11	METAL CHIP	1K 5% 1/16W	R310	1-216-848-11	METAL CHIP	180K 5% 1/16W
R220	1-216-811-11	METAL CHIP	150 5% 1/16W	R312	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R221	1-216-864-11	METAL CHIP	0 5% 1/16W	R314	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R222	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	R315	1-216-833-11	METAL CHIP	10K 5% 1/16W
R223	1-216-835-11	METAL CHIP	15K 5% 1/16W	R316	1-216-817-11	METAL CHIP	470 5% 1/16W
R224	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R320	1-216-824-11	METAL CHIP	1.8K 5% 1/16W
R226	1-216-818-11	METAL CHIP	560 5% 1/16W	R321	1-216-819-11	METAL CHIP	680 5% 1/16W
R228	1-216-812-11	METAL CHIP	180 5% 1/16W	R324	1-216-817-11	METAL CHIP	470 5% 1/16W
R231	1-216-821-11	METAL CHIP	1K 5% 1/16W	R329	1-216-822-11	METAL CHIP	1.2K 5% 1/16W

Ref. No.	Part No.	Description	QTY	UNIT	PRICE	AMOUNT	Ref. No.	Part No.	Description	QTY	UNIT	PRICE	AMOUNT
828	1-03-024-01	WAL. CAP	9	EA	1.75	15.75	893	1-03-024-11	WAL. CAP	30	EA	1.50	45.00
829	1-03-024-01	WAL. CAP	48	EA	1.75	84.00	894	1-03-024-11	WAL. CAP	30	EA	1.50	45.00
830	1-03-024-01	WAL. CAP	39	EA	1.75	68.25	895	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
848	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	896	1-03-024-11	WAL. CAP	80	EA	1.75	140.00
849	1-03-024-01	WAL. CAP	0	EA	1.75	0.00	897	1-03-024-11	WAL. CAP	80	EA	1.75	140.00
850	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	898	1-03-024-11	WAL. CAP	30	EA	1.75	52.50
851	1-03-024-01	WAL. CAP	5.7	EA	1.75	9.97	899	1-03-024-11	WAL. CAP	30	EA	1.75	52.50
852	1-03-024-01	WAL. CAP	80	EA	1.75	140.00	900	1-03-024-11	WAL. CAP	30	EA	1.75	52.50
853	1-03-024-01	WAL. CAP	18	EA	1.75	31.50	901	1-03-024-11	WAL. CAP	1.00	EA	1.75	1.75
854	1-03-024-01	WAL. CAP	7	EA	1.75	12.25	902	1-03-024-11	WAL. CAP	1.00	EA	1.75	1.75
855	1-03-024-01	WAL. CAP	2	EA	1.75	3.50	903	1-03-024-11	WAL. CAP	1.00	EA	1.75	1.75
856	1-03-024-01	WAL. CAP	80	EA	1.75	140.00	904	1-03-024-11	WAL. CAP	7	EA	1.75	12.25
857	1-03-024-01	WAL. CAP	10	EA	1.75	17.50	905	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
864	1-03-024-01	WAL. CAP	10	EA	1.75	17.50	906	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
865	1-03-024-01	WAL. CAP	60	EA	1.75	105.00	907	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
866	1-03-024-01	WAL. CAP	80	EA	1.75	140.00	908	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
867	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	909	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
868	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	910	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
869	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	911	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
870	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	912	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
871	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	913	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
872	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	914	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
873	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	915	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
874	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	916	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
875	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	917	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
876	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	918	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
877	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	919	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
878	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	920	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
879	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	921	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
880	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	922	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
881	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	923	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
882	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	924	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
883	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	925	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
884	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	926	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
885	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	927	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
886	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	928	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
887	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	929	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
888	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	930	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
889	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	931	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
890	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	932	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
891	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	933	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
892	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	934	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
893	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	935	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
894	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	936	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
895	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	937	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
896	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	938	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
897	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	939	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
898	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	940	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
899	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	941	1-03-024-11	WAL. CAP	9	EA	1.75	15.75
900	1-03-024-01	WAL. CAP	1.00	EA	1.75	1.75	942	1-03-024-11	WAL. CAP	9	EA	1.75	15.75

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R331	1-216-825-11	METAL CHIP	2. 2K 5% 1/16W	R411	1-216-821-11	METAL CHIP	1K 5% 1/16W
R333	1-216-822-11	METAL CHIP	1. 2K 5% 1/16W	R412	1-216-841-11	METAL CHIP	47K 5% 1/16W
R334	1-216-833-11	METAL CHIP	10K 5% 1/16W	R413	1-216-821-11	METAL CHIP	1K 5% 1/16W
R335	1-216-821-11	METAL CHIP	1K 5% 1/16W	R414	1-216-821-11	METAL CHIP	1K 5% 1/16W
R338	1-216-864-11	METAL CHIP	0 5% 1/16W	R415	1-216-821-11	METAL CHIP	1K 5% 1/16W
R339	1-216-864-11	METAL CHIP	0 5% 1/16W	R417	1-216-833-11	METAL CHIP	10K 5% 1/16W
R346	1-216-845-11	METAL CHIP	100K 5% 1/16W	R418	1-216-829-11	METAL CHIP	4. 7K 5% 1/16W
R347	1-216-823-11	METAL CHIP	1. 5K 5% 1/16W	R419	1-216-845-11	METAL CHIP	100K 5% 1/16W
R352	1-216-831-11	METAL CHIP	6. 8K 5% 1/16W	R420	1-216-857-11	METAL CHIP	1M 5% 1/16W
R353	1-216-832-11	METAL CHIP	8. 2K 5% 1/16W	R421	1-216-851-11	METAL CHIP	330K 5% 1/16W
R354	1-216-828-11	METAL CHIP	3. 9K 5% 1/16W	R422	1-216-829-11	METAL CHIP	4. 7K 5% 1/16W
R355	1-216-825-11	METAL CHIP	2. 2K 5% 1/16W	R423	1-216-837-11	METAL CHIP	22K 5% 1/16W
R356	1-216-817-11	METAL CHIP	470 5% 1/16W	R424	1-216-845-11	METAL CHIP	100K 5% 1/16W
R357	1-216-830-11	METAL CHIP	5. 6K 5% 1/16W	R425	1-216-849-11	METAL CHIP	220K 5% 1/16W
R358	1-216-831-11	METAL CHIP	6. 8K 5% 1/16W	R426	1-216-852-11	METAL CHIP	390K 5% 1/16W
R359	1-216-296-91	METAL GLAZE	0 5% 1/8W	R427	1-216-833-11	METAL CHIP	10K 5% 1/16W
R360	1-216-296-91	METAL GLAZE	0 5% 1/8W	R428	1-216-833-11	METAL CHIP	10K 5% 1/16W
R362	1-216-821-11	METAL CHIP	1K 5% 1/16W	R429	1-216-821-11	METAL CHIP	1K 5% 1/16W
R363	1-216-864-11	METAL CHIP	0 5% 1/16W	R430	1-216-851-11	METAL CHIP	330K 5% 1/16W
R366	1-216-844-11	METAL CHIP	82K 5% 1/16W	R431	1-216-841-11	METAL CHIP	47K 5% 1/16W
R369	1-216-864-11	METAL CHIP	0 5% 1/16W	R432	1-216-833-11	METAL CHIP	10K 5% 1/16W
R370	1-216-864-11	METAL CHIP	0 5% 1/16W	R433	1-216-821-11	METAL CHIP	1K 5% 1/16W
R371	1-216-857-11	METAL CHIP	1M 5% 1/16W	R435	1-216-821-11	METAL CHIP	1K 5% 1/16W
R376	1-216-817-11	METAL CHIP	470 5% 1/16W	R436	1-216-864-11	METAL CHIP	0 5% 1/16W
R377	1-216-821-11	METAL CHIP	1K 5% 1/16W	R437	1-216-817-11	METAL CHIP	470 5% 1/16W
R378	1-216-825-11	METAL CHIP	2. 2K 5% 1/16W	R438	1-216-841-11	METAL CHIP	47K 5% 1/16W
R379	1-216-821-11	METAL CHIP	1K 5% 1/16W	R439	1-216-864-11	METAL CHIP	0 5% 1/16W
R381	1-216-839-11	METAL CHIP	33K 5% 1/16W	R441	1-216-864-11	METAL CHIP	0 5% 1/16W
R386	1-216-842-11	METAL CHIP	56K 5% 1/16W	R442	1-216-864-11	METAL CHIP	0 5% 1/16W
R387	1-216-821-11	METAL CHIP	1K 5% 1/16W	R443	1-216-845-11	METAL CHIP	100K 5% 1/16W
R388	1-216-825-11	METAL CHIP	2. 2K 5% 1/16W	R445	1-216-837-11	METAL CHIP	22K 5% 1/16W
R389	1-216-821-11	METAL CHIP	1K 5% 1/16W	R447	1-216-864-11	METAL CHIP	0 5% 1/16W
R390	1-216-825-11	METAL CHIP	2. 2K 5% 1/16W	R448	1-216-809-11	METAL CHIP	100 5% 1/16W (TR28/TR30)
R391	1-216-825-11	METAL CHIP	2. 2K 5% 1/16W	R449	1-216-845-11	METAL CHIP	100K 5% 1/16W
R392	1-216-837-11	METAL CHIP	22K 5% 1/16W	R450	1-216-833-11	METAL CHIP	10K 5% 1/16W
R393	1-216-833-11	METAL CHIP	10K 5% 1/16W	R451	1-216-841-11	METAL CHIP	47K 5% 1/16W
R394	1-216-841-11	METAL CHIP	47K 5% 1/16W	R452	1-216-833-11	METAL CHIP	10K 5% 1/16W
R395	1-216-864-11	METAL CHIP	0 5% 1/16W	R453	1-216-841-11	METAL CHIP	47K 5% 1/16W (TR28/TR30)
R396	1-216-864-11	METAL CHIP	0 5% 1/16W	R454	1-216-825-11	METAL CHIP	2. 2K 5% 1/16W
R397	1-216-828-11	METAL CHIP	3. 9K 5% 1/16W	R456	1-216-833-11	METAL CHIP	10K 5% 1/16W
R398	1-216-829-11	METAL CHIP	4. 7K 5% 1/16W	R457	1-216-837-11	METAL CHIP	22K 5% 1/16W
R401	1-216-827-11	METAL CHIP	3. 3K 5% 1/16W	R460	1-216-864-11	METAL CHIP	0 5% 1/16W
R403	1-216-845-11	METAL CHIP	100K 5% 1/16W	R461	1-216-845-11	METAL CHIP	100K 5% 1/16W
R404	1-216-827-11	METAL CHIP	3. 3K 5% 1/16W	R462	1-216-809-11	METAL CHIP	100 5% 1/16W
R405	1-216-821-11	METAL CHIP	1K 5% 1/16W	R463	1-216-827-11	METAL CHIP	3. 3K 5% 1/16W
R406	1-216-809-11	METAL CHIP	100 5% 1/16W	R468	1-216-039-00	METAL CHIP	390 5% 1/10W
R407	1-216-821-11	METAL CHIP	1K 5% 1/16W	R469	1-216-838-11	METAL CHIP	27K 5% 1/16W
R408	1-216-833-11	METAL CHIP	10K 5% 1/16W	R470	1-216-838-11	METAL CHIP	27K 5% 1/16W
R409	1-216-841-11	METAL CHIP	47K 5% 1/16W				
R410	1-216-821-11	METAL CHIP	1K 5% 1/16W				

Ref. No.	Part No.	Description	QTY	UOM	REMARK	Ref. No.	Part No.	Description	QTY	UOM	REMARK
881	1-218-002-11	WHEEL, CYST	2.00	EA	1/308	881	1-218-002-11	WHEEL, CYST	21	EA	1/308
882	1-218-003-11	WHEEL, CYST	1.00	EA	1/308	882	1-218-003-11	WHEEL, CYST	470	EA	1/308
883	1-218-004-11	WHEEL, CYST	2.00	EA	1/308	883	1-218-004-11	WHEEL, CYST	21	EA	1/308
884	1-218-005-11	WHEEL, CYST	24	EA	1/308	884	1-218-005-11	WHEEL, CYST	21	EA	1/308
885	1-218-006-11	WHEEL, CYST	4	EA	1/308	885	1-218-006-11	WHEEL, CYST	21	EA	1/308
886	1-218-007-11	WHEEL, CYST	9	EA	1/308	886	1-218-007-11	WHEEL, CYST	242	EA	1/308
887	1-218-008-11	WHEEL, CYST	2.00	EA	1/308	887	1-218-008-11	WHEEL, CYST	4.78	EA	1/308
888	1-218-009-11	WHEEL, CYST	1.00	EA	1/308	888	1-218-009-11	WHEEL, CYST	1.00	EA	1/308
889	1-218-010-11	WHEEL, CYST	1.00	EA	1/308	889	1-218-010-11	WHEEL, CYST	18	EA	1/308
890	1-218-011-11	WHEEL, CYST	41.00	EA	1/308	890	1-218-011-11	WHEEL, CYST	268	EA	1/308
891	1-218-012-11	WHEEL, CYST	41.00	EA	1/308	891	1-218-012-11	WHEEL, CYST	268	EA	1/308
892	1-218-013-11	WHEEL, CYST	41.00	EA	1/308	892	1-218-013-11	WHEEL, CYST	4.78	EA	1/308
893	1-218-014-11	WHEEL, CYST	41.00	EA	1/308	893	1-218-014-11	WHEEL, CYST	201	EA	1/308
894	1-218-015-11	WHEEL, CYST	41.00	EA	1/308	894	1-218-015-11	WHEEL, CYST	268	EA	1/308
895	1-218-016-11	WHEEL, CYST	5.00	EA	1/308	895	1-218-016-11	WHEEL, CYST	242	EA	1/308
896	1-218-017-11	WHEEL, CYST	5.00	EA	1/308	896	1-218-017-11	WHEEL, CYST	242	EA	1/308
897	1-218-018-11	WHEEL, CYST	9	EA	1/308	897	1-218-018-11	WHEEL, CYST	268	EA	1/308
898	1-218-019-11	WHEEL, CYST	9	EA	1/308	898	1-218-019-11	WHEEL, CYST	268	EA	1/308
899	1-218-020-11	WHEEL, CYST	9	EA	1/308	899	1-218-020-11	WHEEL, CYST	268	EA	1/308
900	1-218-021-11	WHEEL, CYST	18	EA	1/308	900	1-218-021-11	WHEEL, CYST	18	EA	1/308
901	1-218-022-11	WHEEL, CYST	9	EA	1/308	901	1-218-022-11	WHEEL, CYST	268	EA	1/308
902	1-218-023-11	WHEEL, CYST	9	EA	1/308	902	1-218-023-11	WHEEL, CYST	268	EA	1/308
903	1-218-024-11	WHEEL, CYST	9	EA	1/308	903	1-218-024-11	WHEEL, CYST	268	EA	1/308
904	1-218-025-11	WHEEL, CYST	9	EA	1/308	904	1-218-025-11	WHEEL, CYST	268	EA	1/308
905	1-218-026-11	WHEEL, CYST	9	EA	1/308	905	1-218-026-11	WHEEL, CYST	268	EA	1/308
906	1-218-027-11	WHEEL, CYST	18	EA	1/308	906	1-218-027-11	WHEEL, CYST	18	EA	1/308
907	1-218-028-11	WHEEL, CYST	470	EA	1/308	907	1-218-028-11	WHEEL, CYST	9	EA	1/308
908	1-218-029-11	WHEEL, CYST	21	EA	1/308	908	1-218-029-11	WHEEL, CYST	470	EA	1/308
909	1-218-030-11	WHEEL, CYST	1.00	EA	1/308	909	1-218-030-11	WHEEL, CYST	470	EA	1/308
910	1-218-031-11	WHEEL, CYST	1.00	EA	1/308	910	1-218-031-11	WHEEL, CYST	470	EA	1/308
911	1-218-032-11	WHEEL, CYST	41.00	EA	1/308	911	1-218-032-11	WHEEL, CYST	470	EA	1/308
912	1-218-033-11	WHEEL, CYST	41.00	EA	1/308	912	1-218-033-11	WHEEL, CYST	1	EA	1/308
913	1-218-034-11	WHEEL, CYST	41.00	EA	1/308	913	1-218-034-11	WHEEL, CYST	268	EA	1/308
914	1-218-035-11	WHEEL, CYST	2.00	EA	1/308	914	1-218-035-11	WHEEL, CYST	268	EA	1/308
915	1-218-036-11	WHEEL, CYST	41.00	EA	1/308	915	1-218-036-11	WHEEL, CYST	268	EA	1/308
916	1-218-037-11	WHEEL, CYST	41.00	EA	1/308	916	1-218-037-11	WHEEL, CYST	268	EA	1/308
917	1-218-038-11	WHEEL, CYST	41.00	EA	1/308	917	1-218-038-11	WHEEL, CYST	268	EA	1/308
918	1-218-039-11	WHEEL, CYST	41.00	EA	1/308	918	1-218-039-11	WHEEL, CYST	268	EA	1/308
919	1-218-040-11	WHEEL, CYST	41.00	EA	1/308	919	1-218-040-11	WHEEL, CYST	268	EA	1/308
920	1-218-041-11	WHEEL, CYST	41.00	EA	1/308	920	1-218-041-11	WHEEL, CYST	268	EA	1/308
921	1-218-042-11	WHEEL, CYST	41.00	EA	1/308	921	1-218-042-11	WHEEL, CYST	268	EA	1/308
922	1-218-043-11	WHEEL, CYST	41.00	EA	1/308	922	1-218-043-11	WHEEL, CYST	268	EA	1/308
923	1-218-044-11	WHEEL, CYST	41.00	EA	1/308	923	1-218-044-11	WHEEL, CYST	268	EA	1/308
924	1-218-045-11	WHEEL, CYST	41.00	EA	1/308	924	1-218-045-11	WHEEL, CYST	268	EA	1/308
925	1-218-046-11	WHEEL, CYST	41.00	EA	1/308	925	1-218-046-11	WHEEL, CYST	268	EA	1/308
926	1-218-047-11	WHEEL, CYST	41.00	EA	1/308	926	1-218-047-11	WHEEL, CYST	268	EA	1/308
927	1-218-048-11	WHEEL, CYST	41.00	EA	1/308	927	1-218-048-11	WHEEL, CYST	268	EA	1/308
928	1-218-049-11	WHEEL, CYST	41.00	EA	1/308	928	1-218-049-11	WHEEL, CYST	268	EA	1/308
929	1-218-050-11	WHEEL, CYST	41.00	EA	1/308	929	1-218-050-11	WHEEL, CYST	268	EA	1/308
930	1-218-051-11	WHEEL, CYST	41.00	EA	1/308	930	1-218-051-11	WHEEL, CYST	268	EA	1/308
931	1-218-052-11	WHEEL, CYST	41.00	EA	1/308	931	1-218-052-11	WHEEL, CYST	268	EA	1/308
932	1-218-053-11	WHEEL, CYST	41.00	EA	1/308	932	1-218-053-11	WHEEL, CYST	268	EA	1/308
933	1-218-054-11	WHEEL, CYST	41.00	EA	1/308	933	1-218-054-11	WHEEL, CYST	268	EA	1/308
934	1-218-055-11	WHEEL, CYST	41.00	EA	1/308	934	1-218-055-11	WHEEL, CYST	268	EA	1/308
935	1-218-056-11	WHEEL, CYST	470	EA	1/308	935	1-218-056-11	WHEEL, CYST	268	EA	1/308
936	1-218-057-11	WHEEL, CYST	41.00	EA	1/308	936	1-218-057-11	WHEEL, CYST	268	EA	1/308

VS-116

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R471	1-216-838-11	METAL CHIP	27K 5% 1/16W			< FLEXIBLE BOARD >	
R472	1-216-833-11	METAL CHIP	10K 5% 1/16W				
R473	1-216-833-11	METAL CHIP	10K 5% 1/16W	W001	1-696-489-11	FP-588 FLEXIBLE BOARD	
R474	1-217-671-11	METAL CHIP	1 5% 1/10W	W405	1-644-285-11	FP-572 FLEXIBLE BOARD	
R475	1-217-671-11	METAL CHIP	1 5% 1/10W			< VIBRATOR >	
R476	1-216-826-11	METAL CHIP	2.7K 5% 1/16W	X151	1-579-365-21	VIBRATOR, CRYSTAL (3.58MHz)	
R479	1-216-845-11	METAL CHIP	100K 5% 1/16W	X401	1-579-063-21	VIBRATOR, CERAMIC (4.19MHz)	
R480	1-217-671-11	METAL CHIP	1 5% 1/10W	X402	1-579-049-21	VIBRATOR, CRYSTAL (32.768kHz)	
R481	1-217-671-11	METAL CHIP	1 5% 1/10W	X403	1-579-367-21	VIBRATOR, CRYSTAL (11.89MHz)	
R484	1-216-845-11	METAL CHIP	100K 5% 1/16W	X404	1-579-551-11	VIBRATOR, CERAMIC (700kHz) (TR28/TR30)	
R485	1-216-845-11	METAL CHIP	100K 5% 1/16W	*****			
R487	1-216-864-11	METAL CHIP	0 5% 1/16W			MISCELLANEOUS	
R488	1-216-809-11	METAL CHIP	100 5% 1/16W			*****	
R489	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	18	1-696-487-11	CABLE, FLAT (FFC-90)	
R490	1-216-833-11	METAL CHIP	10K 5% 1/16W	85	1-692-257-11	SWITCH, PUSH (ZOOM)	
R491	1-216-296-91	METAL GLAZE	0 5% 1/8W (TR28/TR30)	105	1-547-548-11	LENS, ZOOM (VCL-6210WC) (TYPE A)	
R493	1-216-864-11	METAL CHIP	0 5% 1/16W	105	1-547-630-11	LENS, ZOOM (VCL-6210WF) (TYPE B)	
R496	1-216-831-11	METAL CHIP	6.8K 5% 1/16W (TR28/TR30)	108	1-547-558-21	FILTER BLOCK, OPTICAL	
R497	1-216-852-11	METAL CHIP	390K 5% 1/16W (TR350/TR350PK)	257	1-568-323-11	CONNECTOR, BOARD TO BOARD 4P	
R498	1-216-864-11	METAL CHIP	0 5% 1/16W	321	1-641-643-12	FP-444 FLEXIBLE BOARD	
		< NETWORK >		322	1-691-254-13	CONNECTOR, TRANSLATION 10P	
RB401	1-236-442-11	NETWORK, RES 330K		324	1-641-639-13	FP-442 FLEXIBLE BOARD	
RB402	1-236-907-11	NETWORK, RES 100K		325	1-645-271-11	FP-575 FLEXIBLE BOARD	
RB403	1-236-907-11	NETWORK, RES 100K		H516	1-550-104-32	HOLDER, BATTERY	
RB404	1-236-908-11	NETWORK, RES 10K		IC875	A-7030-368-A	CCD BLOCK ASSY (054 SERVICE) (CCD IMAGER)	
RB405	1-236-436-11	NETWORK, RES 100K		J901	1-537-281-41	TERMINAL BOARD	
RB406	1-236-908-11	NETWORK, RES 10K		M901	A-7048-564-A	DRUM ASSY (DGH-78A-R)	
RB407	1-236-907-11	NETWORK, RES 100K		M902	8-835-477-01	MOTOR, DC SCE-0101A (CAPSTAN)	
RB408	1-236-908-11	NETWORK, RES 10K		M903	A-7040-304-A	MOTOR BLOCK ASSY, LM (LOADING)	
RB409	1-236-904-11	NETWORK, RES 1K		M904	3-708-494-11	METER ASSY, IG (IRIS) (TYPE A)	
RB410	1-236-412-11	NETWORK, RES 1.0K		M904	3-708-653-01	IRIS UNIT (TYPE B)	
RB411	1-236-424-11	NETWORK, RES 10K		M905	3-708-491-01	MOTOR ASSY, STEPPING (FOCUS) (TYPE A)	
RB414	1-236-904-11	NETWORK, RES 1K		M905	3-708-656-01	MOTOR UNIT, FOCUS (TYPE B)	
RB416	1-236-412-11	NETWORK, RES 1.0K		M906	3-708-492-01	MOTOR ASSY, PZ (ZOOM) (TYPE A)	
RB418	1-236-408-11	NETWORK, RES 470		M906	3-708-654-01	MOTOR UNIT, ZOOM (TYPE B)	
RB419	1-236-412-11	NETWORK, RES 1.0K (TR28/TR30)		S001	1-572-986-11	SWITCH, ROTARY (ENCODER)	
RB420	1-236-904-11	NETWORK, RES 1K (TR28/TR30)		S002	1-572-987-11	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, MP/MP-HG)	
RB421	1-236-908-11	NETWORK, RES 10K		S005	1-570-771-21	SWITCH (C DOWN)	
RB422	1-236-424-11	NETWORK, RES 10K		△V901	1-452-565-11	CRT ASSY (M01KKD70WB)	
RB423	1-236-424-11	NETWORK, RES 10K		W001	1-696-489-11	FP-588 FLEXIBLE BOARD	
RB424	1-236-424-11	NETWORK, RES 10K		W405	1-644-285-11	FP-572 FLEXIBLE BOARD	
RB425	1-236-424-11	NETWORK, RES 10K		W519	1-696-488-11	CABLE, FLAT (FFC-92)	
RB426	1-236-412-11	NETWORK, RES 1.0K		W521	1-642-186-11	FP-437 FLEXIBLE BOARD	
		< VARIABLE RESISTOR >		W522	1-696-490-11	FP-589 FLEXIBLE BOARD	
RV151	1-238-087-11	RES, ADJ, CERMET 1K		△W501	1-540-019-21	SOCKET ASSY, CRT	
				W971	1-696-484-11	CABLE, FLAT (FFC-87)	
				W986	1-696-621-11	FP-590 FLEXIBLE BOARD	
				W987	1-696-622-11	FP-591 FLEXIBLE BOARD	

Be sure to read "Precautions for Replacement of CCD Imager" on page 76 when changing the CCD imager.

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

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
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W991	1-696-483-11	CABLE, FLAT (FFC-86)	
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ACCESSORIES & PACKING MATERIALS

	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR28/TR30)	
	1-574-039-11	CORD, CONNECTION (TR350:Tourist)	
		(A/V connecting cable (monaural), 1.5m)	
	3-738-517-01	BELT (S), SHOULDER (TR28/TR30)	
	3-758-358-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH)	
		(TR350/TR350PK)	
	3-758-358-41	MANUAL, INSTRUCTION (CHINESE) (TR350:E)	

	3-758-359-21	MANUAL, INSTRUCTION (ENGLISH) (TR28/TR30)	
	3-758-359-31	MANUAL, INSTRUCTION (FRENCH) (TR30:CND)	
	3-758-931-41	MANUAL, INSTRUCTION (KOREAN)	

(TR350:Tourist)

*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT	
		(TR28/TR30:US)	

*	3-949-004-01	CUSHION, ACC (TR28/TR30/TR350)	
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*	3-949-005-01	CUSHION (LOWER) (TR28/TR30/TR350)	
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*	3-950-791-01	CUSHION (FRONT), INNER (TR350PK)	
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*	3-950-792-01	CUSHION (REAR), INNER (TR350PK)	
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*	3-950-795-31	INDIVIDUAL CARTON (TR350PK)	
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*	3-956-637-01	PLATE, INNER (TR350PK)	
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	3-956-650-01	CASE, CARRYING (TR350PK)	
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*	3-958-245-21	INDIVIDUAL CARTON (TR350)	
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*	3-958-245-31	INDIVIDUAL CARTON (TR30)	
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*	3-958-245-41	INDIVIDUAL CARTON (TR28)	
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** AC-V25/V25A AC POWER ADAPTOR

*** NP-55 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 +P 2X5	
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SECTION 7 CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 192.

7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

7-1-1. List of Service Tools

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

Ref. No.	Name	Part Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	Max gain adjustment (2 used) White balance check
	ND filter 0.4	J-6080-806-A	Max gain adjustment
	ND filter 0.3	J-6080-818-A	White balance adjustment
	ND filter 0.1	J-6080-807-A	Max gain adjustment
J-3	Pattern box PTB-500	J-6029-140-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote control unit (RM-95-remodeled in part) ^{Note 1}	J-6082-053-B	
J-6	Extension cord (10P, 1 mm)	J-6082-064-A	For extension of JK-99 board
J-7	Extension cord (20P, 0.8 mm)	J-6082-196-A	For extension of CN-84 board (Cabinet (R)) (For the video and the camera section adjustment)
			For extension of AU-171 board (During the repair of AU-171 board)
J-8	Extension cord (16P, 0.8 mm)	J-6082-136-A	For the extension of the lens block (During the repair of the camera section)
J-9	Relay board (21P, 0.5 mm) ^{Note 2}	J-6082-176-A	For the extension of the lens block (During the repair of the camera section)
J-10	Measuring pin for camera section	J-6082-139-A	For the camera section adjustment
J-11	Extension cord (42P, 0.8 mm)	J-6082-195-A	For the extension of DD-67 board (During the repair of the video section)
J-12	Siemens star	J-6080-875-A	For flange back check
J-13	Extension cord (20P, 0.5 mm) ^{Note 2}	J-6082-138-A	For extension between the lens block (FPC) and VC-147 board (CN851) (During the repair of the camera section)
J-14	Extension board (30P, 0.8 mm)	J-6082-167-A	For the extension of VS-116 board (For the mecha deck check)

Note 1: If the micro processor IC in the adjusting remote control unit is not the new micro processor (UPD7503G-C56-12), the switchover of the page cannot be carried out. In this case, replace with the new micro processor (8-759-148-35).

Note 2: The extension code (J-6082-138-A) is also attached with a 21P, 0.5 mm code. Connect this code to the relay board (J-6082-176-A) for extensions between the lens block (FPC) and VC-147 board (CN851).

**SECTION 7
CAMERA SECTION ADJUSTMENTS**

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 186.

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

7-1-1. List of Service Tools

- Oscilloscope
- Special power supply
- Voltmeter
- Adjusting driver
- Color monitor
- Digital voltmeter

Ref. No.	Name	Part No.	Usage
7-1	Filter for video suspension terminals (C24)	1-000-008-A	Auto white balance adjustment/Adjust White balance adjustment
	VC filter 1.0	1-000-009-A	Max gain adjustment (2 revs) White balance check
	VC filter 2.4	1-000-010-A	Max gain adjustment
	VC filter 2.5	1-000-011-A	White balance adjustment
7-2	VC filter 3.1	1-000-012-A	Max gain adjustment
	Video bus (V13-90)	1-000-013-A	
7-3	Color clock for camera lens	1-000-014-A	
7-4	Adjusting screws control unit (284-05-000000 to part) ^{***}	1-000-015-B	
7-5	Extension cord (2P, 1 mm)	1-000-016-A	For connection of C24 board
	Extension cord (2P, 0.4 mm)	1-000-016-A	For connection of C24-04 board (Camera RG) (For the video and the camera section adjustment)
7-7			For connection of AU171 board (During the repair of AU171 board)
7-8	Extension cord (2P, 0.5 mm)	1-000-016-A	For the extension of the lens block. (During the repair of the camera section)
7-9	Relay board (2P, 0.2 mm) ^{***}	1-000-016-A	For the connection of the lens block. (During the repair of the camera section)
7-10	Measuring pin for camera section	1-000-019-A	For the camera section adjustment
7-11	Extension cord (2P, 0.4 mm)	1-000-016-A	For the connection of C6-07 board (During the repair of the video section)
7-12	Service pin	1-000-019-A	For trigger level check
7-13	Extension cord (2P, 0.2 mm) ^{***}	1-000-016-A	For connection between the lens block (PVC) and VC147 board (C600) (During the repair of the camera section)
	Extension board (2P, 0.2 mm)	1-000-017-A	For the connection of VS110 board (For the monitor check check)

Note 1: If the video processor IC in the adjusting remote control unit is not the same video processor (J8070000-C06-12), the withdrawal of the page number is omitted. In this case, replace with the same video processor (8-TR-000-02).

Note 2: The extension cord (1-000-016-A) is also attached with a 2P/0.2 mm code. Connect this code to the relay board (1-000-016-A) for connection between the lens block (PVC) and VC147 board (C600).

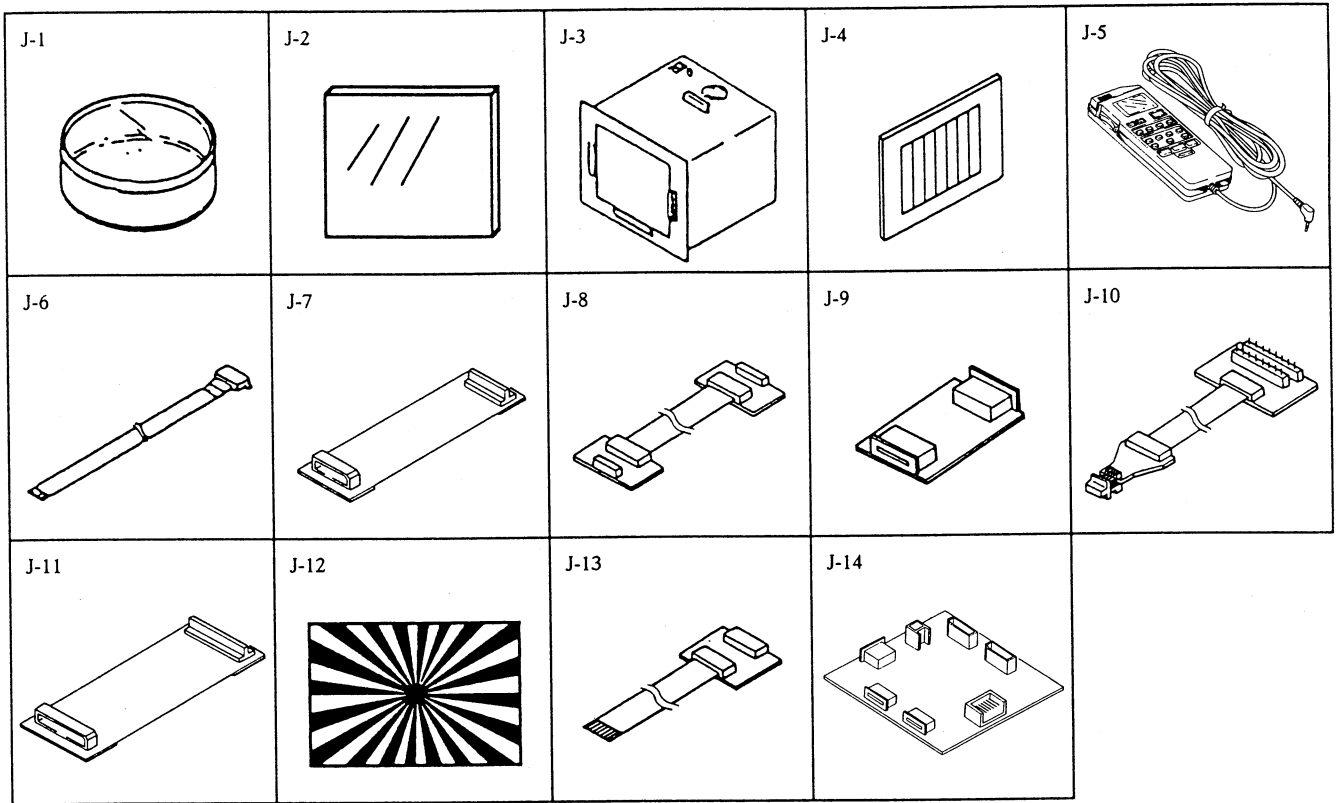


Fig. 7-1.

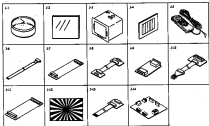


Fig. 14

7-1-2. Preparations

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

- 1) Connect the equipments for adjustment as shown in Fig. 7-3.
- 2) The EVF (Electronic viewfinder) is required for checking the white balance mode and shutter speeds. If the EVF is not required, remove the VS-116 board CN102.

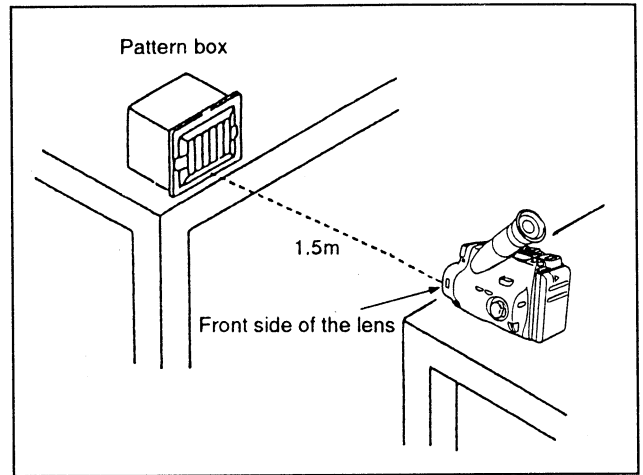


Fig. 7-2.

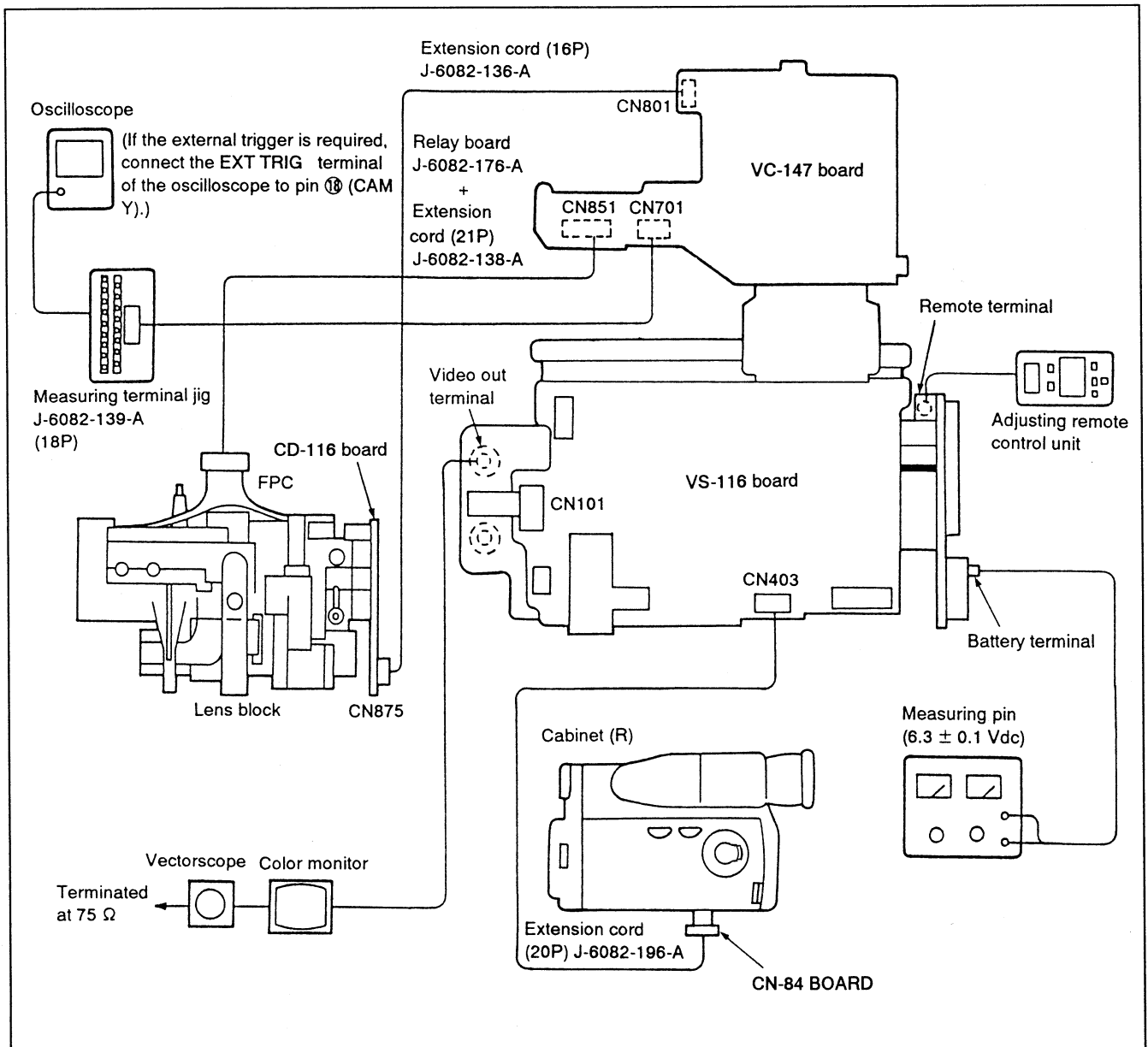


Fig. 7-3.

7-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and perform the adjustments without inserting the tape, unless specified otherwise.

1. Camera/player power switch (CF-34 board S997)Camera
2. Standby switch (SW-223 board S519).....Standby
3. LENS OPEN switch (MF-214 board S973) OPEN

2. Adjustment Procedure

Perform in the given order as a rule.

3. Subject

- 1) Color bar chart (Standard picture frame)
Adjust the display frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart.
(Standard picture frame)
- 2) White pattern (Standard picture frame)
Remove the color bar chart from the pattern box, and so that the white pattern will be displayed.
(In this case don't touch ZOOM SW).

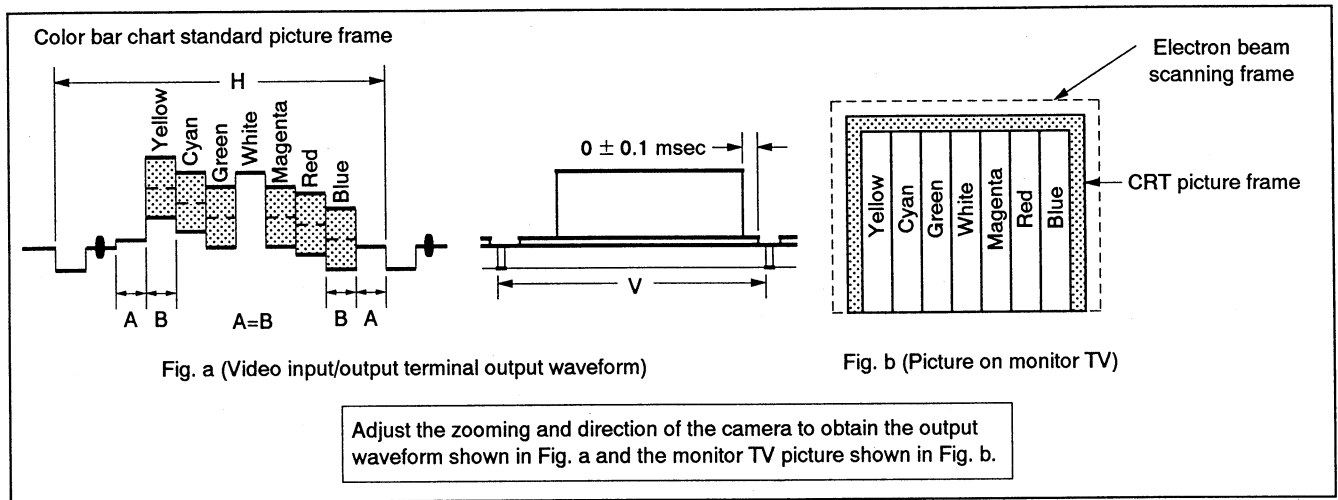


Fig. 7-4.

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.

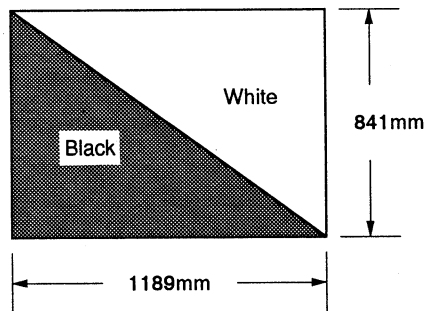


Fig. 7-5.

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.

7-4.3. Precautions

1. Bezel settings

Adjust the bezels to the following positions, and perform the adjustments without loosening the bezel unless specified otherwise.

1. Color bar chart (standard picture frame) — Center
2. Beauty white (DIP-200 board 20.0) — Beauty
3. LUMAS (DIP-200 board 20.0) or LUMAS (DIP-200 board 20.0) — OFF

2. Adjustment Procedure

Perform in the given order in a row.

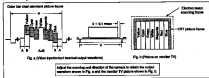


Fig. 7-4.

3) Check for fringe lock adjustment

Obtain a white 40 mm (2.0 in) square (40 mm) paper in a black case, and make the shape shown in Fig. 7-6.



Fig. 7-6.

Note: Use the non-reflecting and non-glossy white paper whose color is more than 40, and make the boundary between white and black to be smoothly flat.

2. Subject

- 1) Color bar chart (Standard picture frame)
Adjust the display (Picture) shown in Fig. 7-4. If adjustments are performed using the color bar chart (Standard picture frame).
- 2) White picture (Standard picture frame)
Remove the color bar chart from the picture head, and so that the white picture will be displayed.
(In this case don't touch DIP-200).

7-1-4. Adjusting Remote Control Unit

The camera section is adjusted by changing the constant using the coefficient of the digital signal processing calculation, or modifying the output voltage of EVR IC (VC-147 board IC702). These processes are carried out by the camera micro processor (VC-147 board IC709). This micro processor reads the data written in the non-volatile memory (VC-147 board IC712), and transmits it to the digital signal processing circuit and EVR.

The adjusting remote control unit is used for rewriting the adjustment data written in the non-volatile memory necessary for performing the adjustments.

The adjusting remote control unit uses the remote control signal line (LANC) to correspond mutually with the camera micro processor. The page, address and the up/down command of the data can be transmitted from the remote control unit to the camera micro processor. On the other hand, the page, address, and data can also be transmitted the other way round.

1. Using the adjusting remote control unit

- 1) Connect the adjusting remote control unit to the remote terminal (DD-67 board J902).
- 2) Adjust the HOLD switch of the adjusting remote control unit to HOLD (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote control unit will show the display in Fig. 7-6.

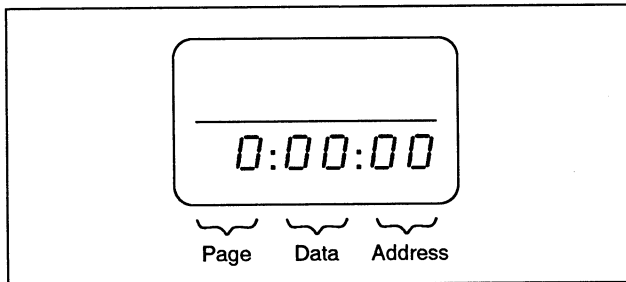


Fig. 7-6.

- 3) Operate the adjusting remote control unit as follows.

- Changing the page

The page will increase when the EDIT SEARCH+ button is pressed. It will decrease 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
Display on LCD	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 will increase when the FF (▶▶) button is pressed, and decrease when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.

- Changing the data (Data setting)

The data will increase when the PLAY (▶) button is pressed, and decrease when the STOP (■) button is pressed.

There are altogether 256 data, from 00 to FF.

- Writing the adjustment data

It is necessary to press the PAUSE button to write the adjustment data (F page, D page) in the non-volatile memory.

(The new adjustment data will not be recorded in the non-volatile memory if this operation is not performed.)

- 4) Select page: 6, address: 00, and adjust the data to 01. This releases the write protect of page F, and the camera section (F page) can be adjusted.
- 5) After completing all adjustments, turn off the main power (6.3V) once. This can release the adjustment mode (other than page F).

2. Precautions upon using the adjusting remote control unit

The correct adjustment data may be erased at times, due to operation errors of the adjusting remote control unit. To prevent this from occurring, it is recommended that all adjustment data be recorded in the memory before beginning adjustments, and the new adjustment data be recorded in the memory after each adjustment.

7-1-4. Adjusting Memory Control Unit

The memory address is adjusted by changing the constant using the modification of the digital signal processing calculation, or modifying the output voltage of CPU IC (IC1-10) based IC902. These processes are carried out by the memory address processor (IC1-10) based IC902. This address processor reads the data written in the non-volatile memory (IC1-10) based IC902, and transmits it to the digital signal processing circuit and CPU.

The adjusting constant control unit is used for setting the adjustment data written in the non-volatile memory necessary for performing the adjustment.

The adjusting constant control unit uses the remote control signal line (LWRC) to correspond generally with the remote sensor processor. The page, address and the operation command of the data can be transmitted from the remote control unit to the remote sensor processor. On the other hand, the page, address, and data can also be transmitted the other way round.

1. Using the adjusting remote control unit

- Connect the adjusting constant control unit to the remote terminal (IC1-10) based IC902.
- Adjust the HEX value of the adjusting constant control unit to HOLD (9999) position.

If it has been properly connected, the LCD on the adjusting remote control unit will show the display in Fig. 7-4.



Fig. 7-4.

2. Operate the adjusting remote control unit as follows.

• Changing the page

The page will increase when the FF (←) button is pressed, and decrease when the EEP (→) button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal characters	0 1 2 3 4 5 6 7 8 9 A B C D E F
Display on LED	0 1 2 3 4 5 6 7 8 9 0 0 0 0 0 0 0 0
Decimal characters corresponding 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 will increase when the FF (←) button is pressed, and decrease when the EEP (→) button is pressed. There are altogether 16 addresses, from 0 to FF.

• Changing the data (Data setting)

The data will increase when the PLAY (▶) button is pressed, and decrease when the STOP (■) button is pressed.

There are altogether 160 data, from 00 to FF.

• Writing the adjustment data

It is necessary to press the PAUSE button to write the adjustment data (Fig. 7) (page) to the non-volatile memory.

(The new adjustment data will not be recorded in the non-volatile memory if the operation is not performed.)

- Select page 0, address 00, and adjust the data to 01. This causes the write point of page 0, and the remote sensor (F page) can be adjusted.
- After completing all adjustments, turn off the main power (L/P) once. This can ensure the adjustment mode (held the page 0).

3. Precautions upon using the adjusting remote control unit

The correct adjustment data may be stored at times, due to operation errors of the adjusting remote control unit. To prevent this from occurring, it is recommended that all adjustment data be recorded in the memory before beginning adjustments, and the new adjustment data be recorded in the memory after each adjustment.

7-1-5. Page F Address List

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

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

Address	Name	Function [] indicate the adjustment voltage output terminal	Adjustment data							
			Initial value	Memo column						
00	ID	Set ID	3D	3D						
01	FADER LEVEL	AE REF level modification during fader	E0	E0						
02	FADER ENDTIM	The setting of the AE REF modulation time during fader	10	10						
03	CS SL	Carrier balance adjustment	35							
04	VSUB	CCD imager V SUB adjustment [IC702 ③]	80							
05	VPGH	CCD imager VRG adjustment [IC702 ④]	80							
06	VREF Y	Camera core Y D/A standard voltage, SYNC level adjustment [IC702 ⑤]	7B							
07	VREF C	Camera core CHROMA D/A standard voltage, BURST level adjustment [IC702 ⑥]	99							
08	HALL GAIN	Hole amplifier gain adjustment [IC702 ⑦]	47							
09	HALL OFFSET	Hole amplifier offset adjustment [IC702 ⑧]								
0A	LOWLIGHT CS	Low luminance intensity REF level modulation start setting	C0	C0						
0B	REF 2V	2V standard voltage for hole element [IC702 ⑩]	68	68						
0C	AD REF	Black level setting during A/D conversion, A/D off set adjustment [IC702 ⑬]	72							
0D	CORE DETH	CCD correction control	04	04						
0E	CORE VTR DELAY	1HDL longitudinal setting during VTR playback	16	16						
0F	CORE APCN4	Horizontal aperture setting	35	35						
10	CORE APCN5	Vertical aperture setting	3D	3D						
11	CORE EFECT	Special effect control	A8	A8						
12	CORE MATR	BLUE matrix constant	27	27						
13	CORE MATB	RED matrix constant	6C	6C						
14	CORE BURST LEVEL	Burst flag level setting, color modulation ON/OFF	2C	2C						
		<table border="1"> <thead> <tr> <th>Data</th> <th>Adjustment modeAdjustment</th> </tr> </thead> <tbody> <tr> <td>2C</td> <td>Normal level</td> </tr> <tr> <td>2E</td> <td>Color modulation stopped</td> </tr> </tbody> </table>			Data	Adjustment modeAdjustment	2C	Normal level	2E	Color modulation stopped
		Data			Adjustment modeAdjustment					
2C	Normal level									
2E	Color modulation stopped									
15	CORE CHROMA DLY	Y/C delay adjustment	07	07						
16	CORE Y SETUP	Set up level setting	06	06						
17	CORE VHAPCN	Slice and level setting of the aperture signal	18	18						
18	CORE B-Y GAIN	B-Y GAIN	13							
19	CORE R-Y GAIN	R-Y GAIN								
1A	CORE R-Y HUE	R-Y HUE								
1B	CORE B-Y HUE	B-Y HUE								
1C	CS/APCCUT	Low luminance intensity aperture and chroma suppress level	22	22						

Table 7-2 (1).

Note 1: The data listed in the adjustment data names column are final values.

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

Address	Name	Function () indicates the adjustment voltage output terminal	Adjustment data		
			Initial value	Minus value	
00	BI	Idle	00	00	
01	FACTOR (FREQ)	AC RMP level modification during idle	00	00	
02	FACTOR (VOLT)	The setting of the AC RMP controlling time during idle	00	10	
03	FLSB	Center balance adjustment	00		
04	VFLB	CCFL-lamp's V FLB adjustment (X'700 0)	00		
05	VFRB	CCFL-lamp's V RB adjustment (X'700 0)	00		
06	VSRFB	Gamma correction GSA standard voltage, STPA level adjustment (X'700 0)	00		
07	VSRFB	Gamma correction CHROMA 10A standard voltage, SRMP level adjustment (X'700 0)	00		
08	HALL (GAIN)	Hall amplifier gain adjustment (X'700 0)	HALL adjustment	07	
09	HALL (OFFSET)	Hall amplifier offset adjustment (X'700 0)		70	
0a	LOWBATT (CI)	Low battance (battery) STPA level modification when writing	00	00	
0b	RMP (V)	VV standard voltage for auto stoppage (X'700 0)	00	00	
0c	AC RMP	Blank level setting during AC correction, AC off set adjustment (X'700 0)	70		
0d	COR (OFF)	CCFL correction control	04	04	
0e	COR (VTR DELAY)	DEFL. lengthened setting during VTR playback	00	10	
0f	COR (APCEN)	Horizontal aperture setting	00	00	
10	COR (APCON)	Vertical aperture setting	00	00	
11	COR (EFFECT)	Special effect control	00	00	
12	COR (MATH)	Bi-/Di mode control	07	07	
13	COR (MATH)	RGB mode control	00	00	
14	COR (SUBST LEVEL)	Frame flag level setting, color modification/OFFSET		00	00
		00	Adjustment mode/operation		
		01	Normal level		
		02	Low battance stoppage		
16	COR (CONTRON (CY)	YC delay adjustment	00	07	
18	COR (Y MTRIP)	Set up screen setting	00	00	
17	COR (VTR ON)	Slow and level setting of the screen signal	10	00	
18	COR (S-Y (GAIN)	S-Y GAIN	Color reproduction adjustments	12	
19	COR (S-Y (GAIN)	S-Y GAIN		11	
1a	COR (S-Y (GAIN)	S-Y GAIN		00	
1b	COR (S-Y (GAIN)	S-Y GAIN		00	
1c	COR (S-Y (GAIN)	S-Y GAIN		00	
1d	COR (S-Y (GAIN)	S-Y GAIN	00	00	

Table F-4 (C)

Address	Name	Function [] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
1D	NEXT LINE DEFECT BIT	CCD correction pattern	00	
1E	CCD DEFECT0	CCD correction data	00	
1F	CCD DEFECT1	CCD correction data	00	
20	CCD DEFECT2	CCD correction data	00	
21	CCD DEFECT3	CCD correction data	00	
22	CCD DEFECT4	CCD correction data	00	
23	CCD DEFECT5	CCD correction data	00	
24	CCD DEFECT6	CCD correction data	00	
25	CCD DEFECT7	CCD correction data	00	
26	CCD DEFECT8	CCD correction data	00	
27	CCD DEFECT9	CCD correction data	00	
28	CCD DEFECT10	CCD correction data	00	
29	CCD DEFECT11	CCD correction data	00	
2A	CCD DEFECT12	CCD correction data	00	
2B	CCD DEFECT13	CCD correction data	00	
2C	CCD DEFECT14	CCD correction data	00	
2D	RREF L	3200k Red standard data LSB	72	
2E	RREF H	3200k Red standard data MSB	5F	
2F	GRF L	3200k Green standard data LSB	D4	
30	GRF H	3200k Green standard data MSB	63	
31	BREF L	3200k Blue standard data LSB	3B	
32	BREF H	3200k Blue standard data MSB	2C	
33	RCONTREF	3200k RCONT adjustment value	42	
34	BCONTREF	3200k BCONT adjustment value	4A	
35	AWB NOWM R	Red regular correction coefficient	7E	
36	AWB NORM B	Blue regular correction coefficient	96	
37	AWB SHUT IN	Indoor determination shutter data	A8	A8
38	ABW SHUT OUT	Outdoor determination shutter data	A0	A0
39	AWB IRIS IN	Indoor determination hole data	79	
3A	AWB IRIS OUT	Outdoor determination hole data	7F	
3B	AWB G LEVEL	High luminance section green integral level	02	02
3C	AWB G WIDTH	High luminance section green integral level range	03	03
3D	DMAT HUE	Variable linear matrix HUE coefficient	00	
3E	DMAT GAIN	Variable linear matrix GAIN coefficient	00	
3F	AWB SELECT	AWB mode selection	00	00
40	AWB DIFF	Standard difference from the outdoor fixed value	0A	0A
41	AWB BOTTOM SLP R	AWB incoming frame bottom R coefficient	48	48
42	AWB BOTTOM SLP B	AWB incoming frame bottom B coefficient	78	78
43	AWB MIDDLE SLP R	AWB incoming frame middle R coefficient	60	60
44	AWB MIDDLE SLP B	AWB incoming frame middle B coefficient	40	40
45	AWB TOP SLP R	AWB incoming frame top R coefficient	66	66
46	AWB TOP SLP B	AWB incoming frame top B coefficient	18	18

Table 7-2 (2).

Address	Name	Function [] indicates the adjustment voltage-output terminal	Adjustment value	
			Initial value	Max. value
10	NRCT LINE DEFECT INT	CCD correction value	00	
18	CCD DEFECT0	CCD correction data	00	
1F	CCD DEFECT1	CCD correction data	00	
20	CCD DEFECT2	CCD correction data	00	
21	CCD DEFECT3	CCD correction data	00	
22	CCD DEFECT4	CCD correction data	00	
24	CCD DEFECT5	CCD correction data	00	
24	CCD DEFECT6	CCD correction data	00	
26	CCD DEFECT7	CCD correction data	00	
28	CCD DEFECT8	CCD correction data	00	
2F	CCD DEFECT9	CCD correction data	00	
30	CCD DEFECT0	CCD correction data	00	
30	CCD DEFECT1	CCD correction data	00	
32	CCD DEFECT2	CCD correction data	00	
34	CCD DEFECT3	CCD correction data	00	
34	CCD DEFECT4	CCD correction data	00	
36	CCD DEFECT5	CCD correction data	00	
38	CCD DEFECT6	CCD correction data	00	
3A	CCD DEFECT7	CCD correction data	00	
3C	CCD DEFECT8	CCD correction data	00	
3D	DRP L	100% Red standard data LDR	73	
3E	DRP R	100% Red standard data MDR	8F	
3F	DRP L	100% Green standard data LDR	04	
3F	DRP R	100% Green standard data MDR	0F	
3A	DRP L	100% Blue standard data LDR	00	
3B	DRP R	100% Blue standard data MDR	0C	
3A	WDRTHRP	100% WDRTHRP adjustment value	42	
3A	WDRTHRP	100% WDRTHRP adjustment value	6A	
30	APS REG00A	Red regular correction coefficient	7C	
30	APS REG00B	Blue regular correction coefficient	90	
3F	APS DELT 00	Redder discrimination status data	A8	62
3E	APS DELT 01	Outer discrimination status data	A0	60
3A	APS DELT 02	Redder discrimination auto data	79	
3A	APS DELT 03	Outer discrimination auto data	4F	
30	APS G L000L	High luminance correction gain (upper level)	00	00
3C	APS G L000H	High luminance correction gain (upper level range)	00	00
30	DRGT RDR	Variable frame ratio-RDR coefficient	00	
30	DRGT GDR	Variable frame ratio-GDR coefficient	00	
3F	APS DELT 07	APS mode selection	00	00
40	APS DELT 08	Standard difference from the white level value	5A	55
40	APS DELT0M SLP B	APS (learning) frame bottom B coefficient	48	48
40	APS DELT0M SLP R	APS (learning) frame bottom R coefficient	78	78
40	APS MIDDLE SLP B	APS (learning) frame middle B coefficient	80	80
40	APS MIDDLE SLP R	APS (learning) frame middle R coefficient	40	40
40	APS TOP SLP B	APS (learning) frame top B coefficient	90	90
40	APS TOP SLP R	APS (learning) frame top R coefficient	14	14

Table 7-0 (2)

Address	Name	Function [] Indicate the adjustment voltage output terminal	Adjustment data									
			Initial value	Memo column								
47	AWB KEIKO R	AWB incoming frame fluorescent light R coefficient	66	66								
48	AWB KEIKO B	AWB incoming frame fluorescent light B coefficient	18	18								
49	AWB BOTTOM UP	AWB incoming frame bottom upper value	C2	C2								
4A	AWB BOTTOM DWN	AWB incoming frame bottom lower value	8C	8C								
4B	AWB MIDDLE UP	AWB incoming frame middle upper value	AD	AD								
4C	AWB MIDDLE DWN	AWB incoming frame middle lower value	96	96								
4D	AWB TOP UP	AWB incoming frame top upper value	78	78								
4E	AWB TOP DWN	AWB incoming frame top lower value	60	60								
4F	AWB KEIKO	AWB incoming frame fluorescent light output lower value	66	66								
50	AWB KEIKO DWN	AWB incoming frame fluorescent light lower value	59	59								
51	AWB R TOP LMT	AWB incoming frame Rcont upper value	6E	6E								
52	AWB R DWN LMT	AWB incoming frame Rcont lower value	20	20								
53	AWB B TOP LMT	AWB incoming frame Bcont upper value	83	83								
54	AWB B IN TOP	AWB incoming frame Bcont	67	67								
55	AWB B IN MAX	AWB incoming frame Bcont	5C	5C								
56	AWB B OUT MIN	AWB incoming frame Bcont	5C	5C								
57	AWB B OUT DWN	AWB incoming frame Bcont	4A	4A								
58	AWB B DWN LMT	AWB incoming frame Bcont lower value	1B	1B								
59	AWB LL LMT	Low luminance intensity limiter	06	06								
5A	AWB T M DIVID	AWB incoming frame upper, middle border value	5E	5E								
5B	AWB B M DIVID	AWB incoming frame middle, lower border value	39	39								
5C	AWB DELAY TM	AWB tracking speed <table border="1" style="margin-left: 20px;"> <tr> <td>Data</td> <td>Adjustment mode</td> </tr> <tr> <td>01</td> <td>High speed tracking mode</td> </tr> <tr> <td>10</td> <td>Normal</td> </tr> </table>	Data	Adjustment mode	01	High speed tracking mode	10	Normal	10	10		
Data	Adjustment mode											
01	High speed tracking mode											
10	Normal											
5D	AWB FAST TM	AWB initial high speed tracking amount	40	40								
5E	AWB OUT HYS OFF	AWB outdoor hysteresis off difference	0C	0C								
5F	AWB OUT B HYS	AWB outdoor hysteresis amount	06	06								
60	AWB MODE	AWB adjustment mode <table border="1" style="margin-left: 20px;"> <tr> <td>Data</td> <td>Adjustment mode</td> </tr> <tr> <td>00</td> <td>Normal</td> </tr> <tr> <td>D0</td> <td>AWB adjustment mode</td> </tr> <tr> <td>F1</td> <td>All area tracking mode</td> </tr> </table>	Data	Adjustment mode	00	Normal	D0	AWB adjustment mode	F1	All area tracking mode	00	00
Data	Adjustment mode											
00	Normal											
D0	AWB adjustment mode											
F1	All area tracking mode											
61	AE REFL	Reference value (lower) for AE	00	00								
62	AE REFH	Reference value (upper) for AE	1E	1E								
63	AGC MIN	AGC MIN value (AGCREF value), IRIS level adjustment	E3									
64	AE MIML	Low luminance intensity side limiter (MAXGAIN), MAX GAIN adjustment	32									
65	AE MAXL	High luminance intensity side limiter (lower)	80	80								
66	IRIS OFFSET	Iris ROM table OPEN side off set	D0	D0								
67	AE KEISU	Correction coefficient during detection weighting	00	00								
68	AE FUNCTION	SW for turning each AE function ON and OFF	00	00								

Table 7-2 (3).

Address	Name	Function Indicates the adjustment settings output terminal	Adjustment data									
			Initial value	Default (factory)								
47	AWB KIN02 B	AWB tracking/beam movement light B coefficient	00	00								
48	AWB KIN03 B	AWB tracking/beam movement light B coefficient	10	10								
49	AWB BOTTOM UP	AWB tracking/beam bottom upper value	03	03								
50	AWB BOTTOM DOWN	AWB tracking/beam bottom lower value	0C	0C								
51	AWB MIDDLE UP	AWB tracking/beam middle upper value	A2	A2								
52	AWB MIDDLE DOWN	AWB tracking/beam middle lower value	75	75								
53	AWB TOP UP	AWB tracking/beam top upper value	75	75								
54	AWB TOP DOWN	AWB tracking/beam top lower value	60	60								
47	AWB KIN02	AWB tracking/beam movement light output lower value	00	00								
55	AWB KIN03 DOWN	AWB tracking/beam movement light lower value	00	00								
54	AWB B TOP LIMIT	AWB tracking/beam B-top upper value	00	00								
55	AWB B DOWN LIMIT	AWB tracking/beam B-bottom lower value	20	20								
55	AWB B TOP LIMIT	AWB tracking/beam B-top upper value	03	03								
56	AWB B BT TOP	AWB tracking/beam B-top	07	07								
56	AWB B BT MAX	AWB tracking/beam B-top	2C	2C								
56	AWB B OUT UP	AWB tracking/beam B-top	2C	2C								
57	AWB B OUT DOWN	AWB tracking/beam B-top	4A	4A								
56	AWB B DOWN LIMIT	AWB tracking/beam B-bottom lower value	00	10								
56	AWB LL LIMIT	Low luminance intensity limiter	00	00								
56	AWB T MIDDLE	AWB tracking/beam upper, middle lower value	00	00								
56	AWB B MIDDLE	AWB tracking/beam middle, lower lower value	20	20								
5C	AWB DELAY TM	AWB tracking speed <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Case</th> <th>Adjustment mode</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>High speed tracking mode</td> </tr> <tr> <td>01</td> <td>Normal</td> </tr> </tbody> </table>	Case	Adjustment mode	00	High speed tracking mode	01	Normal	00	00		
Case	Adjustment mode											
00	High speed tracking mode											
01	Normal											
5D	AWB FAST TM	AWB initial high speed tracking mode	00	00								
5E	AWB OUT SYS OFF	AWB output system off detection	0C	0C								
5F	AWB OUT B SYS	AWB output system error	00	00								
60	AWB WIDE	AWB adjustment mode <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Case</th> <th>Adjustment mode</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Normal</td> </tr> <tr> <td>01</td> <td>AWB adjusted mode</td> </tr> <tr> <td>02</td> <td>All area tracking mode</td> </tr> </tbody> </table>	Case	Adjustment mode	00	Normal	01	AWB adjusted mode	02	All area tracking mode	00	00
Case	Adjustment mode											
00	Normal											
01	AWB adjusted mode											
02	All area tracking mode											
61	AL B00L	Reference value (zero) for AE	00	00								
62	AL B00R	Reference value (zero) for AE	01	1E								
63	ASC MEN	ASC MEN value (zero) setting, (0) is not adjustment	00									
64	AL MINL	Low luminance intensity side limiter (zero) adjustment	11									
65	AL MAXL	High luminance intensity side limiter (zero)	00	00								
66	TRG OFFSET	1/2 CCD width/CFWD side off set	00	00								
67	AL B00D	Correction coefficient during detection weighting	00	00								
68	AL PLGATION	0/1 for setting with AE function ON and OFF	00	00								

Table 1-2 (2)

Address	Name	Function [] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
69	BL HOSEIH	Forcible back light level setting (upper)	40	40
6A	JITEISU DOWN	Constant during loop response DOWN side	30	30
6B	JITEISU UP	Constant during loop response UP side	10	10
6C	AE KNEE	KNEE setting value for AE	FF	FF
6D	ORETEN SET	Variable point due to time constant error amount	13	13
6E	OMOMIOUT	Outer frame weighting amount	40	40
6F	AFC WIDE	Coefficient required for the ANF integral loop	03	03
70	AFC GAIN	Loop gain of the flickerless loop	01	01
71	AFC LIMIL	Limiter corresponding to the error rate (Lower)	60	60
72	HIST P KEISU	Histocomp level setting P for counter light determination	20	20
73	HIST H KEISU	Histocomp level setting H for counter light determination	E0	E0
74	HIST L KEISU	Histocomp level setting L for counter light determination	90	90
75	GYAKOU JITEISU	Constant during auto back light response	08	08
76	SABUN LIMIT	Limiter for counter light determination	40	40
77	FUZZY RULE1	Correction amount 1 for auto back light	A0	A0
78	FUZZY RULE2	Correction amount 2 for auto back light	D0	D0
79	FUZZY RULE3	Correction amount 3 for auto back light	E0	E0
7A	FUZZY RULE4	Correction amount 4 for auto back light	B0	B0
7B	FUZZY RULE5	Correction amount 5 for auto back light	70	70
7C	FUZZY RULE6	Correction amount 6 for auto back light	90	90
7D	FUZZY RULE7	Correction amount 7 for auto back light	B0	B0
7E	FUZZY RULE8	Correction amount 8 for auto back light	B8	B8
7F	FUZZY RULE9	Correction amount 9 for auto back light	98	98
80	FUZZY RULE10	Correction amount 10 for auto back light	78	78
81	IRIS MIN L	Iris limit value (lower)	42	42
82	IRIS MIN H	Iris limit value (upper)	02	02
83	DELTA SHUT GAIN	Shutter smoothing value setting	04	04
84	AE WAKUH	Frame data for AE detection (vertical line)	0F	0F
85	AE WAKUV	Frame data for AE detection (horizontal line)	4F	4F
86	WIDE LIMIT	ZOOM limiter WIDE (lower)	DE	
87	WIDE LIMITH	ZOOM limiter WIDE (upper)	02	
88	TELE LIMIT	ZOOM limiter TELE (lower)	22	
89	TELE LIMITH	ZOOM limiter TELE (upper)	1D	
8A	STEP ZERO	Flange back value	90	
8B	STEP ZERO SPAN	Flange back value 2	A0	
8C	ZOOM SPD FAST	Zoom speed (fast)	60	60
8D	ZOOM SPD SUPER	Zoom speed (For adjustment)	59	59
8E	ZS INIT SLOW	Zoom speed initial value (slow)	59	59
8F	ZS INIT FAST	Zoom speed initial value (fast)	59	59
90	ZMSPD DAMIN	Zoom speed D/A MIN value	3D	3D
91	ZS K	Zoom servo coefficient K	11	11
92	ZS L	Zoom servo coefficient L	04	04

Table 7-2 (4).

Address	Name	Function Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Menu code/Bit
84	BL (DOWN)	Front back light level setting (upper)	40	40
8A	STRONG (DOWN)	Constant during loop response (DOWN) side	30	30
8B	STRONG (UP)	Constant during loop response (UP) side	30	30
8C	AS (DOWN)	EMERGENCY setting value for ALL	20	20
8D	EMERGENCY	Variable value due to time constant error removal	12	12
8E	EMERGENCY	Onion flavor weighting amount	40	40
8F	APC (DOWN)	Correction required for the APC (strong loop)	05	05
79	APC (DOWN)	Loop gain of the feedback loop	11	11
71	APC (LIMIT)	Limiting corresponding to the error rate (Lower)	40	40
72	FAST (P (DOWN))	Fastness level setting P for constant light determination	30	30
74	FAST (P (DOWN) ?	Fastness level setting P for constant light determination	30	30
76	FAST (L (DOWN))	Fastness level setting L for constant light determination	30	30
7E	DRAG (STRONG)	Constant during rate back light response	08	08
7B	DRAG (LIMIT)	Limiting for constant light determination	40	40
77	FUZZY (RUL2)	Correction amount 1 for rate back light	70	70
78	FUZZY (RUL3)	Correction amount 2 for rate back light	70	70
7A	FUZZY (RUL4)	Correction amount 3 for rate back light	80	80
7C	FUZZY (RUL5)	Correction amount 4 for rate back light	80	80
7D	FUZZY (RUL6)	Correction amount 5 for rate back light	80	80
7E	FUZZY (RUL7)	Correction amount 6 for rate back light	80	80
7F	FUZZY (RUL8)	Correction amount 7 for rate back light	80	80
80	FUZZY (RUL9)	Correction amount 8 for rate back light	80	80
81	MR (DOWN) L	MR back value (lower)	40	40
82	MR (DOWN) H	MR back value (upper)	60	60
83	DR (L.A. SPLIT (DOWN))	Speaker weighting value setting	04	04
84	AS (WALL) H	Phase data for ALL detection (vertical line)	0F	0F
84	AS (WALL) L	Phase data for ALL detection (horizontal line)	0F	0F
86	WALL (LIMIT)	EXEM (factor W) (lower)	} Phase back adjustment	00
87	WALL (LIMIT)	EXEM (factor W) (upper)		02
88	WALL (LIMIT)	EXEM (factor T) (lower)		02
89	WALL (LIMIT) H	EXEM (factor T) (upper)		02
8A	STEP (LIMIT)	Phase back value		04
8C	STEP (LIMIT) (DOWN)	Phase back value L		04
8C	STEP (LIMIT) (UP)	Phase back value H		04
8D	EXEM (LIMIT) (DOWN)	Exem speed (for adjustment)	04	04
8E	EXEM (LIMIT) (UP)	Exem speed (initial value) (lower)	04	04
8F	EXEM (LIMIT) (UP)	Exem speed (initial value) (high)	04	04
8C	EMERGENCY (DOWN)	Exem speed (EMERGENCY) value	00	00
89	EMERGENCY	Exem error coefficient H	11	11
8E	EMERGENCY	Exem error coefficient L	04	04

Table 7-4 (2/4)

Address	Name	Function [] Indicate the adjustment voltage output terminal	Adjustment data																	
			Initial value	Memo column																
93	ZP HYS	Zoom potential hysteresis	03	03																
94	ZOOM SPD SLOW	Zoom speed (slow)	22	22																
95	AF MD2THL	MODE2 THR	20	20																
96	MAXCHG THR	MAX value renewal THR	1A	1A																
97	ERR THRL	Wobbling width THR	18	18																
98	WOB INTV	Wobbling second interval	04	04																
99	ERRPOL THR	MODE2 error possible THR	13	13																
9A	MAXCHK THR	MAX CHECK THR	12	12																
9B	REWOB THR	Wobbling second THR	0A	0A																
9C	MODE2 INOUT	MODE2 speed switchover	8B	8B																
9D	SMLWD THR	Small frame THR	0A	0A																
9E	ZOOM PULSE LIMIT	Maximum zoom pulse value	C6	C6																
9F	ZOOM RIZE	Zoom rise minimum speed time	0A	0A																
A0	FB CURVEPEAKL	Constant for flange back adjustment	F5	F5																
A1	FB CURVEPEAKH	Constant for flange back adjustment	0B	0B																
A2	FB ZOOMSL	Constant for flange back adjustment	02	02																
A3	FB ZOOMSH	Constant for flange back adjustment	07	07																
A4	LIMITREST WIDE	Zoom limiter WIDE side	14	14																
A5	LIMITREST TELE	Zoom limiter TELE side	17	17																
A6	FB PEAKTHR	Constant for flange back adjustment	FF	FF																
A7	FB ZOOM SLOW	Constant for flange back adjustment	1C	1C																
A8	DET IRIS ALT	Iris variation check THR	02	02																
A9	DET AGC ALT	AGC variation check THR	02	02																
AA	LIMIT INSURANCE	Focus limiter insurance value	02	02																
AB	FOCUS MODE	Focus mode <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Data</th> <th>Adjustment mode</th> </tr> </thead> <tbody> <tr> <td>08</td> <td>Zoom, Focus fixed</td> </tr> <tr> <td>00</td> <td>Normal</td> </tr> </tbody> </table>	Data	Adjustment mode	08	Zoom, Focus fixed	00	Normal	00	00										
Data	Adjustment mode																			
08	Zoom, Focus fixed																			
00	Normal																			
AC	LENS ADJ MODE	Flange back adjustment mode <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Data</th> <th>Adjustment mode</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Nomal</td> </tr> <tr> <td>01</td> <td>Flange back adjustment</td> </tr> </tbody> </table>	Data	Adjustment mode	00	Nomal	01	Flange back adjustment	00	00										
Data	Adjustment mode																			
00	Nomal																			
01	Flange back adjustment																			
AD	LENS EMRG	Lens emergency	00	00																
AE	NTSC PAL/H DEF DELAY	DELAY bit=0: NTSC, 1: PAL, bit4-7=CCD correction delay	20	20																
AF	FT SW	DDS display mode switchover <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Data</th> <th>DDS display mode</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Y sampling display</td> </tr> <tr> <td>02</td> <td>R-Y display</td> </tr> <tr> <td>40</td> <td>HALL data display</td> </tr> <tr> <td>82</td> <td>R ratio display</td> </tr> <tr> <td>83</td> <td>B ratio display</td> </tr> <tr> <td>91</td> <td>R, B ratio (M) display</td> </tr> <tr> <td>B0</td> <td>Focus step display</td> </tr> </tbody> </table>	Data	DDS display mode	00	Y sampling display	02	R-Y display	40	HALL data display	82	R ratio display	83	B ratio display	91	R, B ratio (M) display	B0	Focus step display	00	00
Data	DDS display mode																			
00	Y sampling display																			
02	R-Y display																			
40	HALL data display																			
82	R ratio display																			
83	B ratio display																			
91	R, B ratio (M) display																			
B0	Focus step display																			

Table 7-2 (5).

Address	Name	Function [] indicates the adjustment voltage output level	Adjustment data																	
			Initial value	Minimum value																
00	SP/VS	Spindle speed (rpm)	00	00																
01	ZOOM SPD SLOW	Spindle speed (slow)	00	00																
02	AP MOTOR	AP MOTOR TDR	00	00																
03	MAX SPD TDR	MAX speed motor TDR	1A	1A																
07	TRN TRFL	Trailing width TDR	1B	0B																
08	WDR SPV	Trailing speed interval	0B	0A																
09	TRNPS TDR	TRNPS motor position TDR	1C	1C																
0A	MAXPS TDR	MAX-CRACK TDR	1C	1B																
0B	SPDRS TDR	Trailing speed TDR	0A	0A																
0C	SECSG INDT	SECSG speed reference	00	00																
0D	SEALS TDR	Spindle TDR	0A	0A																
0E	ZOOM PSD LSHFT	Lockdown speed plus value	0B	0B																
0F	ZOOMRSD	Zoom rate maximum speed time	0A	0A																
AD	FR CUR OFF/ON	Control for fringe lock adjustment	FF	FF																
AE	FR CUR OFF/ON	Control for fringe lock adjustment	0B	0B																
AF	FR CUR OFF/ON	Control for fringe lock adjustment	0B	0B																
A0	FR CUR OFF/ON	Control for fringe lock adjustment	0F	0F																
A1	LEAD/STRT WDR	Spindle motor WDR rate	14	14																
A2	LEAD/STRT TDR	Spindle motor TDR rate	17	17																
A3	FR FRNCT B	Control for fringe lock adjustment	FF	FF																
A7	FR ZOOM SLOW	Control for fringe lock adjustment	0C	0C																
A8	OFF DRN AL1	Dr. reference clock TDR	0B	0B																
A9	TRN ACC AL1	ACC reference clock TDR	0B	0B																
AA	LEAD TRN BLNDR	Spindle motor maximum value	0B	0B																
AB	FOCUS MODE	Focus mode <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Hex</th> <th>Adjustment mode</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Lock, Focus lock</td> </tr> <tr> <td>01</td> <td>Normal</td> </tr> </tbody> </table>	Hex	Adjustment mode	00	Lock, Focus lock	01	Normal	00	00										
Hex	Adjustment mode																			
00	Lock, Focus lock																			
01	Normal																			
AC	LEAD ADJ MODE	Fringe lock adjustment mode <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Hex</th> <th>Adjustment mode</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Normal</td> </tr> <tr> <td>01</td> <td>Fringe lock adjustment</td> </tr> </tbody> </table>	Hex	Adjustment mode	00	Normal	01	Fringe lock adjustment	00	00										
Hex	Adjustment mode																			
00	Normal																			
01	Fringe lock adjustment																			
AD	LEAD (SAFE)	Low emergency	00	00																
AE	NTSC PAL/RGB/DRPLAY	DRPLAY/NTSC/NTSC, L, PAL, and TRC/CCD correction delay	00	00																
AF	PT DR	CCD display mode reference <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Hex</th> <th>CCD display mode</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>Vertical display</td> </tr> <tr> <td>01</td> <td>4:3 display</td> </tr> <tr> <td>02</td> <td>Full size display</td> </tr> <tr> <td>03</td> <td>4:3 size display</td> </tr> <tr> <td>04</td> <td>4:3 size display</td> </tr> <tr> <td>05</td> <td>4:3 size, 4:3 display</td> </tr> <tr> <td>06</td> <td>Full size display</td> </tr> </tbody> </table>	Hex	CCD display mode	00	Vertical display	01	4:3 display	02	Full size display	03	4:3 size display	04	4:3 size display	05	4:3 size, 4:3 display	06	Full size display	00	00
Hex	CCD display mode																			
00	Vertical display																			
01	4:3 display																			
02	Full size display																			
03	4:3 size display																			
04	4:3 size display																			
05	4:3 size, 4:3 display																			
06	Full size display																			

Table 7-4-05.

Address	Name	Function [] indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
B0	CORE OTHER	CORE MODE DATA 13 byte	12	12
B1	CORE Y GAIN	CORE FIELD DATA 0 byte	3F	3F
B2	E LOW LIGHT START	Low light chroma suppress start point	30	30
B3				
B4	YAKEI LEVEL	YAKEI mode gain setting value	40	40
B5				
B6	ZOOM DROP 1	F-No. dropping (1) by Zoom lens	60	60
B7	ZOOM DROP 2	F-No. dropping (2) by Zoom lens	75	75
B8				
B9				
BA	AWB IN B HYS	Hysteresis of AWB indoor BLUE	04	04
BB	AWB IN R HYS	Hysteresis of AWB indoor RED	02	02
BC	AWB KAKE NORM R	ADD: 35 NORM R × 1000H	20	20
BD	AWB KAKE NORM B	ADD: 36 NORM B × 1000H	20	20
BE	MF STEP CHNGE	Coefficient of MODE 2 THR	46	46
BF	MD2 LOWCON SPD	Speed for Low-contrast at MODE 2	07	07
C0	MAX CHECK NG CNT	MAX CHECK NG count	1E	1E
C1	AF CONTROL FLAG		0E	0E
C2	AE Y THR	Low light AE fluctuation THR 1	28	28
C3	AE Y MIN	Low light AE fluctuation THR 2	20	20
C4	MD2 SPD	Focus speed at MODE 2	61	61
C5	AE CHECK	Re-start up AE THR	10	10
C6	LOW CON THR	THR 1 for judging Low-contrast at MODE 2	10	10
C7	LOW CON THR2	THR 2 for judging Low-contrast at MODE 2	20	20
C8~EF		Not used		
F0		Input column of the unit ID No., etc. Not related to unit 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 (6).

Address	Name	Function [] indicates the adjustment voltage output terminal	Adjustment data	
			Initial value	Range (minimum)
87	CORE OVER	CORE MODE DATA 1 (Step)	12	12
88	CORE Y GAIN	CORE MODE DATA 2 (Step)	20	20
89	SLANT LIGHT SLANT	Low light slant angle output (step)	50	50
8A				
8A	YAKE LEVEL	YAKE mode gain setting value	40	40
8B				
8B	EXOM DRIP 1	F-No. dropping (1) to focus lens	80	80
8F	EXOM DRIP 2	F-No. dropping (2) to focus lens	70	70
8E				
8E				
8A	AWB IN 0-VYS	Response of AWB index BLUE	04	04
8B	AWB IN 0-VYS	Response of AWB index RED	01	01
8C	AWB GAIN/WHITE	AGC-01 MEMO 0 + 10000	10	20
8D	AWB GAIN/WHITE	AGC-04 MEMO 0 + 10000	10	20
8E	MF STEP CORRE	Coefficient of MCMC 2 (100)	44	44
8F	MAX LOOP/COH SPD	Speed for Low-contrast at MCMC 2	07	07
8B	MAX CORRE (M) CNT	Max. CORRE (M) count	10	10
8C	AP-DRAWER S. FLAG		00	00
8C	AE Y TH0	Low light AE Detection TH0.1	10	10
8D	AE Y TH1	Low light AE Detection TH0.1	30	30
8E	MDG SPD	Focus speed at MCMC 2	11	11
8E	AE DRICK	Resistor of AE TH0	10	10
8E	LOPW CLR TH0	TH0.1 for judging Low-contrast at MCMC 2	50	10
8F	LOPW CLR TH02	TH0.1 for judging Low-contrast at MCMC 2	30	30
8B-8F		Reserved		
8F		Input voltages of the unit IC No., etc. Not related to unit operation.	FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	
8F			FF	

Table 7-4-10.

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

The camera adjustment mode can be set by performing the following data settings at page: 6 or page: 1. (These page data can be set temporary, but when the main power (6.3V) is turned off, the original value (normal value) will be returned.

Therefore, these adjustment modes can be released very simply by turning the main power off.)

(Example) The camera adjustment mode (1) is set by setting data: 01 to page: 6, address: 00. The F page write protect will also be released.

1. Page 6

Address	Adjustment Mode	Data	Function
00	Camera adjustment mode	01	Camera adjustment mode (1), F page write protect released
		10	Normal
		11	Camera adjustment mode (2), F page write protect released
01	Camera adjustment switch Note: To set this address adjustment mode, it is necessary to press the PAUSE button of the adjusting remote control unit after setting the data.	00	Normal
		01	IRIS OPEN, AGC HOLD
		03	IRIS CLOSE1, AGC HOLD
		05	IRIS CLOSE2, AGC MIN
		07	IRIS CLOSE3, AGC MAX
		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 take in
		0F	WB 3200K PRESET: Indoor white balance mode
		11	AWB PRESET2: Preparation of 3200K PRESET DATA take in
		13	ZOOM HUNTING1 ZOOM SPDSLOW
		15	ZOOM HUNTING2 ZOOM SPDFAST
		17	AE FB adjustment mode (IRIS: OPEN, AGC: REF, SHUTTER: 1/100 (NTSC), 1/120 (PAL))
1D	EEPROM PRE WRITE: Page F initial data write		
05	Shutter mode	00	NTSC=1/60, PAL=1/50
		19	1/2000
06	FOCUS limiter ON/OFF	00	FOCUS limiter ON (Normal)
		01	FOCUS limiter OFF
07	ZOOM limiter ON/OFF	00	ZOOM limiter ON (Normal)
		01	ZOOM limiter OFF
08	ZOOM speed SLOW/FAST	00	Normal
		01	ZOOM speed SLOW
		02	ZOOM speed FAST
		03	ZOOM speed SUPER SLOW
09 ★	COMPLETED FLAG	00	Camera Adjustment not completed
		01	Camera adjustment completed
11 ★	ROM VERSION	03	Camera micro processor ver3
0C ★	LENS INITIAL END	00	During the initial operation of the lens
		01	Lens initial operation completed

Addresses with ★ are exclusively for reading.

Table 7-3.

7-1-4. 8 Page, 1 Page Address List

The camera adjustment mode can be set by performing the following data settings on page 8 or page 9. (These page data can be set temporarily, but when the main power (MAIN) is turned off, the original value (preset value) will be returned.)

Therefore, these adjustment modes can be returned very simply by turning the main power OFF.

(Example) The camera adjustment mode (C) is set by setting item 01 in page 8, address 05. The F page write protect will also be cleared.

1. Page 8

Address	Adjustment Mode	Data	Function
00	Camera adjustment mode	00	Camera adjustment mode (C), F page write protect released
		01	Normal
		02	Camera adjustment mode (C), F page write protect released
01	Camera adjustment write NOTE: To set this address adjustment mode, it is necessary to press the [MENU] button of the adjusting keypad several times after writing the data.	00	Normal
		01	SHOOT/OPEN, AUTO/SHOOT
		02	SHOOT/CLOSED, AUTO/SHOOT
		03	SHOOT/CLOSED, AUTO/SHOOT
		04	SHOOT/CLOSED, AUTO/SHOOT
		05	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8)
		06	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8)
		07	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be
		08	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be
		09	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be
		10	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be
		11	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be
		12	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be
13	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be		
14	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be		
15	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be		
16	SHOOT/SHUTTER (PAL-L/1/8, NTSC-L/1/8) to be		
17	All F8 adjustment mode		
18	SHOOT/OPEN, AUTO/SHOOT, SHUTTER: 1/80 (NTSC), 1/50 (PAL)		
19	SHOOT/OPEN, AUTO/SHOOT, SHUTTER: 1/80 (NTSC), 1/50 (PAL)		
02	Status mode	00	NTSC/LINE, PAL-L/1/80
		01	XXXXX
03	FOCUS Indictor/ON/OFF	00	FOCUS Indictor ON (Normal)
		01	FOCUS Indictor OFF
04	ZOOM Indictor/ON/OFF	00	ZOOM Indictor ON (Normal)
		01	ZOOM Indictor OFF
05	ZOOM speed SLOW/FAST	00	Normal
		01	ZOOM speed SLOW
		02	ZOOM speed FAST
		03	ZOOM speed SLOW/FAST
06	COMPLETED FLAG	00	Camera Adjustment not completed
		01	Camera adjustment completed
07	LOW BATTERY	00	Camera release processor wait
		01	
0C	LENS INITIAL END	00	During the initial operation of the lens
		01	Lens initial operation completed

Addresses with @ are exclusively for setting.

Table 7-3.

2. Page 1

Address	Adjustment Mode	Data	Function
E6	VH address L		Title horizontal/vertical position (L)
E7	VH address H		Title horizontal/vertical position (H)

Table 7-4.

7-1-7. Adjustment Connector

Most of the measuring points for the camera section adjustment are concentrated on CN701 of the VC-147 board. Connect the oscilloscope and etc. via the measuring pin (J-6082-139-A). The following table lists the terminal numbers and the signal names of CN701.

Terminal Number	Signal Name	Terminal Number	Signal Name
1	D5V	2	NC
3	NC	4	CAM SI
5	NC	6	CAM SO
7	$\overline{\text{CS OPD}}$	8	$\overline{\text{CAM SCK}}$
9	$\overline{\text{CS CORE}}$	10	GND
11	IRIS OUT	12	NC
13	V SUB CHK	14	CAM C
15	PG CONT	16	GND
17	NC	18	CAM Y

Table 7-5.

8. Page 1

Address	Adjustment Mode	State	Function
08	VW address 1		1 On (indicated/forced position 1)
0F	VW address 11		1 On (indicated/forced position 2)

Table 7-4.

7-1-7. Adjustment Connector

Wires of the connecting points for the camera encoder adjustment are connected to CN02 of the VC-147 board. Connect the oscilloscope and so on, via the connecting pin (J-4003-09-A). The following table lists the terminal numbers and the signal names of CN02.

Terminal Number	Signal Name	Terminal Number	Signal Name
1	EXP	1	NC
2	NC	4	CAM 0
3	NC	4	CAM 90
4	ON CAM	4	CAM 180
4	ON CAM	10	OND
6	IRIS OUT	11	NC
11	V BLK CHC	14	CAM C
11	PO COMT	14	OND
17	NC	18	CAM T

Table 7-5.

7-1-8. Data Processing

The calculation of the DDS display and the adjusting remote control unit display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 7-6. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation																
The lower digits of the hexadecimal notation The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
											(R)	(b)	(c)	(d)	(E)	(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	80	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 (R)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① → B (b)	176	177	178	179	180	180	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: () indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (b d).

As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 7-6.

2.4.6. Data Processing

The calculation of the CCM display and the adjusting matrix control unit display data (transmission control) are carried by obtaining the adjustment data of some adjustment items. In the case, after converting the transmission relation to decimal fraction, calculation and control the result to hexadecimal notation, and use it as the adjustment data. Table 7.6. indicates the transmission control the decimal fraction adjustment data.

Transmission notation-Decimal notation

The lower digit of the transmission notation The upper digit of the transmission notation	Transmission notation															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	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 (16)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B (32)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (48)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (64)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (80)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (96)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: () indicate the adjusting matrix control display.

(Example) In the case for the CCM display and the adjusting matrix control unit display are 00 (0) to 0F (15) as the upper digit of the transmission notation is 0 (0), and the lower digit is 0 (0), the transmission "00" of the 0 (0) and 0 (0) is the adjustment data (decimal fraction) to be selected.

Table 7.6.

7-2. CAMERA SYSTEM ADJUSTMENT

1. Power Supply Voltage Check (DD-67 board)

Subject	Option
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ⑤ and ⑧ of CN901
Specified value	4.92 ± 0.15 Vdc
D4V check	
Measurement point	Pin ④ of CN901
Specified value	3.98 ± 0.15 Vdc
CAM 5V check	
Measurement point	Pins ⑦ and ⑩ of CN901
Specified value	$4.86 \begin{matrix} +0.15 \\ -0.11 \end{matrix}$ Vdc
CAM 15V check	
Measurement point	Pin ⑫ of CN901
Specified value	15.05 ± 0.4 Vdc
CAM -9V check	
Measurement point	Pin ⑨ of CN901
Specified value	-8.5 ± 0.4 Vdc

Checking method:

- 1) Check that each power supply voltage satisfies the specified value.

2. Page F Data Initialization

Note: It is necessary to perform all adjustments of the camera section from the beginning again if the data of page F has been initialized.

Initializing method:

- 1) Check that the data of page: 6, address: 09 is 00.
(Display indicating that page F data can be initialized)
- 2) Check that the data of page: 6, address: 01 is 00.
- 3) Set data: 1D to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Page F data initialization execution.
(The data of all addresses of page F will be initialized.)
- 4) Check that the data of page: 6, address: 09 is 01.
(Displays that the initialization of page F data has been completed)
- 5) Set data: 00 to page: 6, address: 01. and press the PAUSE button of the adjusting remote control unit.
(Releases the page F data initialization mode)
- 6) After performing "Page F data modification", perform all the adjustments of the camera section (page F).

3. Page F Data Modification

The data (initial data) that is automatically written on page F after the initialization of the page F data will differ according to some camera micro processor versions. Change the data by manual input, and arrange it.

Note: When changing the data, to write the data to the non-volatile memory, press the PAUSE button of the adjusting remote control unit every time the new data is set.

Address	Data
00 (ID)	3D
0A (LOW LIGHT CS)	C0
A2 (FB ZOOM SL)	02
A3 (FB ZOOM SH)	07
B2 (E LOW LIGHT START)	30

[Distinguishing the Camera Micro Computer (IC709) Versions]

Each version can be distinguished by looking at the part name of the camera micro processor or the data of page: 6, address: 11.

Version	Part Name	Page: 6 Address: 11
Ver.3	CXP80624-434R	03

4. 28 MHz Original Oscillation Adjustment (VC-147 board)

Subject	Not required
Measurement Point	Pin ⑰ of IC706 (14 MHz)
Measuring Instrument	Frequency counter
Adjusting Element	CT801
Specified Value	14318181 ± 71 Hz

Adjusting method:

- 1) Use CT801 to adjust the oscillation frequency to 14318181 ± 71 Hz.

7-2. CAMERA SYSTEM ADJUSTMENT

1. Power Supply Voltage Check (20-47 board)

Subject	Option
Measuring Instrument	Digital voltmeter
DIP check	
Measurement point	Pin ② and ③ of C1001
Specified value	4.92 ± 0.11 Vdc
DIP check	
Measurement point	Pin ② of C1002
Specified value	3.08 ± 0.11 Vdc
CAM-IV check	
Measurement point	Pin ② (Start) of C1001
Specified value	4.90 ± 0.15 Vdc -0.11
CAM-IV check	
Measurement point	Pin ② of C1002
Specified value	3.05 ± 0.1 Vdc
CAM-IV check	
Measurement point	Pin ② of C1001
Specified value	-0.1 ± 0.1 Vdc

Checking method

- Check that each power supply voltage satisfies the specified value.

2. Page F Data Initialization

NOTE: It is necessary to perform all adjustments of the camera section from the beginning again if the data of page F has been initialized.

Initializing method

- Check that the data of page F, address 09 is 05.
(Display indicating that page F data can be initialized.)
- Check that the data of page F, address 01 is 02.
- Set data 12 in page F, address 01, and press the FAULT button of the adjusting remote control unit.
(Page F data initialization completes.)
(The data of all addresses of page F will be initialized.)
- Check that the data of page F, address 01 is 01.
(Display that the initialization of page F data has been completed.)
- Set data 09 in page F, address 01, and press the FAULT button of the adjusting remote control unit.
(Resumes the page F data initialization mode.)
- After performing "Page F data modification", perform all the adjustments of the camera section (page 7).

3. Page F Data Modification

The data (initial data) that is automatically written on page F after the initialization of the page F data will differ according to some camera image processor versions. Change the data by manual input, and average it.

NOTE: When changing the data, to write the data to the non-volatile memory, press the FAULT button of the adjusting remote control unit every time the new data is set.

Address	Data
01 (02)	02
06 (LOW LIGHT CO)	03
03 (WB EXCESS SL)	02
04 (WB EXCESS SH)	02
05 (LOW LIGHT START)	02

(Initializing the Camera Menu Computer (C1001) Version)

Such routines can be discontinued by loading in the part area of the camera when processed in the data of page F, address 01.

Version	Part Name	Page F Address: 01
Ver.2	C0070024-040	04

4. 20 MHz Original Oscillation Adjustment (20-47 board)

Subject	Not applied
Measurement Point	Pin ② of C1001 (1.5 MHz)
Measuring Instrument	Frequency counter
Adjusting Element	C1001
Specified Value	1400000 ± 11 Hz

Adjusting method

- Use C1001 to adjust the oscillation frequency to 1400000 ± 11 Hz.

5. V SUB Adjustment (VC-147 board)

Subject	Not required
Measurement Point	Pin ⑬ of CN701 (V SUB CHK)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	04 (V SUB)
Specified Value	(Imager display voltage) \pm 0.1 Vdc

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Change the data of page: F, address: 04, and adjust the voltage of pin ⑬ of CN701 to (imager display voltage) \pm 0.1 Vdc.
- 3) Press the PAUSE button of the adjusting remote control unit.

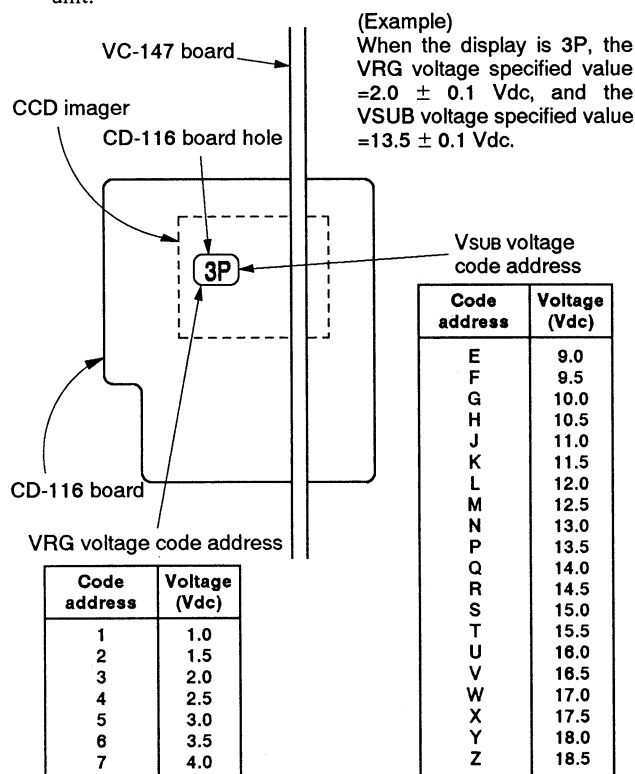


Fig. 7-7.

6. VRG Adjustment (VC-147 board)

Subject	Not required
Measurement Point	Pin ⑮ of CN701 (PG CONT)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	05 (VRG)
Specified Value	(Imager display voltage) \pm 0.1 Vdc

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Change the data of page: F, address: 05, and adjust the voltage of pin ⑮ of CN701 to (imager display voltage) \pm 0.1 Vdc.
- 3) Press the PAUSE button of the adjusting remote control unit.

7. CCD Imager Correction Data Write

Subject	Not required
Adjustment Page	F
Adjustment	1D to 2C (CCD-DEFECT)

Perform CCD imager correction data write in the following cases.

1. When the CCD imager has been replaced
2. The occasion of exchanging a camera micro processor or EEPROM (IC712).
3. When the page F data has been initialized

In the case of 1, as the correction data is not required for the CCD imager for repair, adjust all data of addresses 1D to 2C to "00".

In the case of 2 and 3, write the correction data attached to the shield case of VC-147 board to addresses 1D to 2C.

If the correction data are not attached, adjust all data of addresses 1D to 2C to "00".

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Write the correction data to page: F, addresses: 1D to 2C.
Note: To perform write to the non-volatile memory, press the PAUSE button of the adjusting remote control unit before changing addresses.

Processing after completing adjustments

- 1) If the CCD imager has been replaced, remove the old correction data label attached on the shield case (UPPER) of VC-147 board.

8. V BIAS Adjustment (VC-147 board)

Subject	Not required
Measurement Point	The E_2 of C0001 (V BIAS-C0001)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	04 (V BIAS)
Specified Value	(Imager display voltage) ± 0.1 Vdc

Adjusting method

- Release the printer.
- Page F, address 04, data 00
- Change the data of page F, address 04, and adjust the voltage of pin E_2 of C0001 to (Imager display voltage) ± 0.1 Vdc.
- Press the (POWER) button of the adjusting remote control unit.

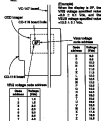


Fig. 210.

9. VBIAS Adjustment (VC-147 board)

Subject	Not required
Measurement Point	The E_2 of C0001 (V BIAS-C0001)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	04 (VBIAS)
Specified Value	(Imager display voltage) ± 0.1 Vdc

Adjusting method

- Release the printer.
- Page F, address 04, data 00
- Change the data of page F, address 04, and adjust the voltage of pin E_2 of C0001 to (Imager display voltage) ± 0.1 Vdc.
- Press the (POWER) button of the adjusting remote control unit.

7. CCD Imager Correction Data Write

Subject	Not required
Adjustment Page	F
Adjustment	10 to 3C (CCD-CORRECT)

Perform CCD imager correction data write in the following cases.

- When the CCD imager has been replaced.
- The operation of transferring a correction data parameter to EEPROM (PC715).
- When the page F data has been initialized.

In the case of 1, in the correction data is not required for the CCD imager the specific, adjust all data of addresses 10 to 3C to "00".

In the case of 2 and 3, write the correction data attached to the manual case of VC-147 board to addresses 00 to 0C.

If the correction data are not attached, adjust all data of addresses 00 to 3C to "00".

Adjusting method

- Release the printer.
- Page F, address 00, data 00
- Write the correction data to page F, addresses 00 to 3C.
Notes: To perform write in the non-volatile memory, press the (POWER) button of the adjusting remote control unit before changing addresses.

Processing after completing adjustments

- If the CCD imager has been replaced, transfer the old correction data (data) attached to the manual case (SP700) of VC-147 board.

8. HALL Adjustment

Subject	Not required
Measurement Point	DDS display of EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	08 (HALL GAIN) 09 (HALL OFFSET)
Specified Value	31 to 35 during IRIS OPEN B1 to B5 during IRIS CLOSE

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Set data: 40 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
(HALL output display mode setting)
- 3) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS CLOSE mode setting)
- 4) Set data: 40 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
- 5) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and set to W₂.
- 6) Set data: 30 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
- 7) Read the DDS display data, and set to W₁.
- 8) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS OPEN mode setting)
- 9) Read the DDS display data, and set to K₁.
- 10) Set data: 40 to page: F, address: 08, and press the PAUSE button.
- 11) Read the DDS display data, and set to K₂.
- 12) Convert W₁, W₂, K₁, K₂ to decimal notation, and obtain W₁', W₂', K₁', K₂'. (Refer to Table 7-6. "Hexadecimal notation-decimal notation conversion table".)
- 13) Calculate X₁' using the following equations (decimal notation calculation).

$$A' = W_2' + K_1' - W_1' - K_2' \dots \dots \dots \text{Equation 1}$$

$$B' = W_1' - K_1' \dots \dots \dots \text{Equation 2}$$

$$X_1' = \frac{2048 + (48 \times A') - (16 \times B')}{A'} \dots \dots \dots \text{Equation 3}$$
- 14) Convert X₁' to hexadecimal notation, and obtain X₁.
(Round off to one decimal place)
- 15) Set data: X₁ to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
- 16) Change the data of page: F, address: 09, and adjust the DDS display data to "33".
- 17) Press the PAUSE button of the adjusting remote control unit.
- 18) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS CLOSE mode setting)
- 19) Read the DDS display data, and set to W₀. If W₀ lies within the "B1" to "B5" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
- 20) Convert W₀ to hexadecimal notation, and obtain W₀'.
- 21) Calculate X₂' using the following equations (decimal notation calculation).

$$C' = W_0' - B' - 51 \dots \dots \dots \text{Equation 4}$$

$$X_2' = \frac{(128 - B') \times (X_1' - 48) + 48 \times C'}{C'} \dots \dots \dots \text{Equation 5}$$

(X₁' and B' are values obtained from equations 2 and 3)
- 22) Convert X₂' to hexadecimal notation and obtain X₂.
(Round off to one decimal place)
- 23) Set data X₂ to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
- 24) Change the data of page: F, address: 09, and adjust the DDS display data to "B3".
- 25) Press the PAUSE button of the adjusting remote control unit.
- 26) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS OPEN mode setting)
- 27) Check that the DDS display data lies within the "31" to "35" range.

Processing after Completing Adjustments

- 1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS NORMAL mode setting)

B. BALL ADJUSTMENT

Subject	Not required
Measurement Point	ODS display of SVY or number TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	M<BALL,GAZE M<BALL,OFFSET
Specified Value	0 to 99 during 000-0999 01 to 99 during 000-CL000

Adjusting method

- Release the potentiometer.
- Page 8, address 00, data 00
- Set data 00 to page F, address AF, and press the FADJST button of the adjusting remote control unit.
(FADJ, remote display mode setting)
- Set data 01 to page 4, address 01, and press the FADJST button of the adjusting remote control unit.
(ODS CL000 mode setting)
- Set data 02 to page F, address 02, and press the FADJST button of the adjusting remote control unit.
- Read the ODS display data, and set to 00.
- Set data 03 to page 0, address 03, and press the FADJST button of the adjusting remote control unit.
- Read the ODS display data, and set to 00.
- Set data 04 to page 4, address 04, and press the FADJST button of the adjusting remote control unit.
(ODS OPEN mode setting)
- Read the ODS display data, and set to 00.
- Set data 05 to page F, address 05, and press the FADJST button.
- Read the ODS display data, and set to 00.
- Control 00, 01, 02, 03 to declination position, and obtain 00', 00', 00', 00' (Static to Table 1-6 "Theoretical position-theoretical position corresponding table").
- Calculate 00' using the following equation (theoretical position calculation).

$$A = 00' + 00' = 00' \quad \text{Equation 1}$$

$$B = 00' - 00' \quad \text{Equation 2}$$

$$X = \frac{00' + 00' + 00' + 00' + 00'}{5} \quad \text{Equation 3}$$
- Control 00' to theoretical position, and obtain 00.
(Round off to one decimal place)
- Set data 01 to page F, address 01, and press the FADJST button of the adjusting remote control unit.
- Change the data of page F, address 01, and adjust the ODS display data to "00".
- Press the FADJST button of the adjusting remote control unit.
- Set data 02 to page 4, address 02, and press the FADJST button of the adjusting remote control unit.
(000-CL000 mode setting)

10) Read the ODS display data, and set to 00. If 00 has within the "00" to "99" range, perform "Proceeding after completing adjustment". If 00 has within the range, perform the following adjustment.

20) Control 00 to theoretical position, and obtain 00'.

21) Calculate 00' using the following equation (theoretical position calculation).

$$C = 00' - 00' = 00' \quad \text{Equation 4}$$

$$D = \frac{00' + 00' + 00' + 00' + 00'}{5} \quad \text{Equation 5}$$

(00' and 00' are values obtained from equations 4 and 5)

22) Control 00' to theoretical position, and obtain 00.
(Round off to one decimal place)

23) Set data 02 to page F, address 02, and press the FADJST button of the adjusting remote control unit.

24) Change the data of page F, address 02, and adjust the ODS display data to "00".

25) Press the FADJST button of the adjusting remote control unit.

26) Set data 03 to page 4, address 03, and press the FADJST button of the adjusting remote control unit.
(ODS OPEN mode setting)

27) Check that the ODS display data has within the "00" to "99" range.

Proceeding after Completing Adjustment

- Set data 03 to page 4, address 03, and press the FADJST button of the adjusting remote control unit.
(ODS NORMAL mode setting)

9. Flange Back Adjustment

Subject	Chart for flange back adjustment (1998 ± 5mm from the front side of) (the lens Luminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	86 (WIDE LIMIT), 87 (WIDE LIMIT H), 88 (TELE LIMIT), 89 (TELE LIMIT H), 8A (STEP ZERO), 8B (STEP ZERO SPAN)

Adjusting method:

- 1) Turn the auto focus off. (Note 1)
- 2) Adjust the focus. (Note 1)
- 3) Check that the flange back adjustment chart center and the exposure display center coincide at both zoom lens TELE end and WIDE end.
- 4) Release the protect.
Page: 6, address: 00, data: 01
- 5) Check that the data of page: 6, address: 09 is 00.
(Flange back adjustment possible display)
- 6) Check that the page: F, address: 86 to 8B data is at the initial value. (Refer to Table 7-2. "Page F address list")
- 7) Set data: 01 to page: F, address: AC.
(This causes automatic adjustment to be performed. 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: 86 to 8B.)
- 8) Check that the data of page: 6, address: 09 is 01.
(Display indicating flange back adjustment completion)

Note 1: Use the adjustment remote control unit.
(HOLD switch: OFF)

Processing after completing adjustments

- 1) Set data: 00 to page: F, address: AC.
- 2) Turn off the main power supply (6.3V).

10. Flange Back Check

Subject	Siemens star (2m (or 1.4m) from the front of the lens)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Specified Value	$D_2 = D_1 \pm 5$

Checking method:

- 1) Set data: 01 to page: 6, address: 00. (Camera adjustment mode)
- 2) Set data: B0 to page: F, address: AF. (Focus step display mode)
- 3) Place the Siemens star 2m (or 1.4m) from the front of the lens.
- 4) 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.
- 5) Turn off the auto-focus. (Note 1)
- 6) Shoot the Siemens star with the zoom TELE end.
- 7) Adjust the focus. (Note 1)
- 8) Adjust to the zoom WIDE end.
- 9) Read the focus step value (4 digits) displayed on the TV monitor, and take the value as D1.
- 10) Adjust the focus. (Note 1)
Read the focus step value here, and take the value as D2.
- 11) Check that $D_2 = D_1 \pm 5$.

Note 1: Use the adjustment remote control unit.
(HOLD switch: OFF)

Process after checking

- 1) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.

8. Flange Neck Adjustment

Subject	Check the flange neck adjustment (100% ± 5mm from the front side of ϕ Life Test Limitation (X)) in 02 for ϕ
Measurement Point	Check the operation on the TV monitor
Measuring Instrument	
Adjustment Page	07
Adjustment Address	04 (WICH LIMIT), 07 (WICH LIMIT) 02, 04 (TICKS LIMIT), 07 (TICKS LIMIT) 02, 04 (STEP COUNT), 07 (STEP COUNT) 02(03)

Adjusting method

- 1) Turn the main power off (State 1)
- 2) Adjust the focus (State 1)
- 3) Check that the flange neck adjustment chart center and the exposure display center coincide at both ends, from TELF end and WICH end.
- 4) Release the printer.
Page 4, address 02, data 01
- 5) Check that the data of page 4, address 02 is 02.
(Flange neck adjustment pointer display)
- 6) Check that the page 7, address 04 to 07 data is as the initial value. (Refer to Table 1-1, "Page 7 address list")
- 7) Set item 04 in page 7, address AC.
(This screen automatic adjustment is to be performed).
Adjustments are performed in the order from TELF end and that of the WICH end. The adjustment data is automatically input to page 7, address 04 to 07.
- 8) Check that the data of page 4, address 02 is 02.
(Display indicating flange neck adjustment completion)

Note 1) Use the adjustment master control unit.
(RCLG value: 000)

Processing after completing adjustments

- 1) Set data 02 in page 7, address AC.
- 2) Turn off the main power supply (State 1)

10. Flange Neck Check

Subject	Measure star (Star for Life) from the front of the lens
Measurement Point	(04) display of TV/F or TV monitor
Measuring Instrument	
Specified Value	0x02 ± 5

Checking method

- 1) Set data 02 in page 4, address 02 (Camera adjustment mode)
- 2) Set data 02 in page 7, address AC (Focus step display mode)
- 3) Place the Measure star (Star for Life) from the front of the lens.
- 4) To open the SL2, decrease the brightness intensity to the Measure star up to a point (before center appears on the fringe displayed on the monitor TV screen).
- 5) Turn off the main power (State 1)
- 6) Reset the Measure star with the same TELF end.
- 7) Adjust the focus (State 1)
- 8) Adjust to the screen (WICH end)
- 9) Read the focus step value (2 digits) displayed on the TV monitor, and take the value as 01.
- 10) Adjust the focus (State 1)
- 11) Read the focus step value here, and take the value as 02.

Note 1) Check that 0x02 is 5.

Note 2) Use the adjustment master control unit.
(RCLG value: 000)

Process after checking

- 1) Set data 02 in page 7, address AC, and press the PUL/SEL button of the adjustment master control unit.

11. SYNC Level Adjustment (VC-147 board)

Subject	Not required
Measurement Point	Pin ⑩ of CN701 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	06 (VREF-Y)
Specified Value	$A=140 \pm 5 \text{ mV}$

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS CLOSE mode setting)
- 3) Change the data of page: F, address: 06, and adjust so that the SYNC level (A) becomes the specified value.
- 4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Release of IRIS CLOSE mode)

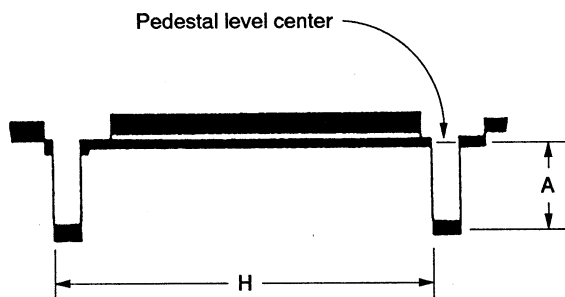


Fig. 7-8.

12. BURST Level Adjustment (VC-147 board)

Subject	Not required
Measurement Point	Pin ⑩ of CN701 (CAM C)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	07 (VREF-C)
Specified Value	$A=140 \pm 5 \text{ mVp-p}$

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS CLOSE mode setting)
- 3) Change the data of page: F, address: 07, and adjust so that the burst level (A) becomes the specified value.
- 4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Release of IRIS CLOSE mode)

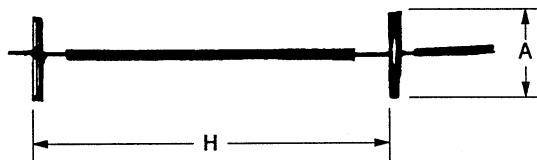


Fig. 7-9.

11. BYNG Level Adjustment (PC-147 board)

Subject	Not required
Informational Page	Pin #2 of CP201 (JAM T)
Measuring Instrument	Levelmeter
Adjustment Page	T
Adjustment Address	W-7 (W2-C)
Specified Value	±0.00 ± 0.02

Adjusting method

- 1) Release the printer.
Page 8, address (X) data (I)
- 2) Set data (I) to page 8, address (I), and press the FALLEN button of the adjusting remote control unit.
(BUSH CLOSED mode setting)
- 3) Change the data of page 7, address (X), and adjust so that the CP201 level (X) becomes the specified value.
- 4) Press the FALLEN button of the adjusting remote control unit.

Processing after completing adjustment

- 1) Set data (I) to page 8, address (I), and press the FALLEN button of the adjusting remote control unit.
(Release of BUSH CLOSED mode)



Fig. 7-8

12. BUSHY Level Adjustment (PC-147 board)

Subject	Not required
Informational Page	Pin #2 of CP201 (JAM C)
Measuring Instrument	Levelmeter
Adjustment Page	T
Adjustment Address	W-7 (W2-C)
Specified Value	±0.00 ± 0.02 in/100

Adjusting method

- 1) Release the printer.
Page 8, address (X) data (I)
- 2) Set data (I) to page 8, address (I), and press the FALLEN button of the adjusting remote control unit.
(BUSH CLOSED mode setting)
- 3) Change the data of page 7, address (T), and adjust so that the level (X) becomes the specified value.
- 4) Press the FALLEN button of the adjusting remote control unit.

Processing after completing adjustment

- 1) Set data (I) to page 8, address (I), and press the FALLEN button of the adjusting remote control unit.
(Release of BUSH CLOSED mode)



Fig. 7-9

13. A/D Offset Adjustment

Subject	Not required
Measurement Point	DDS display on the EVF or the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	0C (AD REF)
Specified Value	46 to 47

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS CLOSE AGC MIN mode setting)
- 3) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
(Y sampling output mode setting)
- 4) Set data: 35 to page: 1, address: E6.
(Setting 1 of the sampling position)
- 5) Set data: 6D to page: 1, address: E7.
(Setting 2 of the sampling position)
- 6) Change the data of page: F, address: 0C, and adjust the average value of the DDS display (the bottom two digits of the display data at the bottom right of the EVF or the TV monitor display) to 46 to 47.
(Set the data of address 0C to the maximum value)
satisfying the specification.
- 7) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Turn the main power supply (6.3V) off.

14. Carrier Balance Adjustment

Subject	Not required
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	03 (CS SL)
Specified Value	The center of the black luminance point should lie within the 1ϕ circle whose center is the principle point.

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01.
- 2) Set data: 07 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS CLOSE, AGC MAX mode setting)
- 3) Change the data of page: F, address: 03, and adjust so that the center of the black luminance point coincides with the principle point.
- 4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(IRIS NORMAL mode setting)

The center of the black luminance point should be within this circle

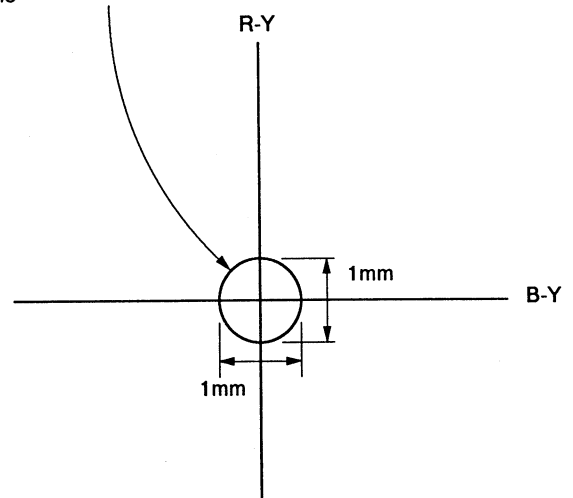


Fig. 7-10.

13. AG Offset Adjustment

Subject	Not required
Measurement Point	RGB display on the RFP or the TV monitor
Measuring Instrument	None
Adjustment Page	F
Adjustment Address	0C (AG OFF)
Specified Value	0 to 47

Adjusting method

- 1) Release the panel.
- 2) Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit. (RGB CLOSE (AG) mode setting)
- 3) Set data 00 to page F, address 0C, and press the PAUSE button of the adjusting remote control unit. (TV sampling-output mode setting)
- 4) Set data 00 to page 1, address 0A. (Setting 1 of the sampling position)
- 5) Set data 00 to page 1, address 0B. (Setting 2 of the sampling position)
- 6) Change the data of page F, address 0C, and adjust the average value of the RGB display (the bottom row right of the display data at the bottom right of the RFP or the TV monitor display) to 0 to 47.
(Set the data of address 0C to the maximum value) satisfying the specification.
- 7) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Turn the main power supply (A-DC) off.

14. Border Balance Adjustment

Subject	Not required
Measurement Point	Video-output terminal
Measuring Instrument	Waveform
Adjustment Page	F
Adjustment Address	0E (CB BL)
Specified Value	The center of the black luminance peak should lie within the 1 ϕ circle whose center is the principle point.

Adjusting method

- 1) Release the panel.
- 2) Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit. (RGB CLOSE, AGC HOLD mode setting)
- 3) Change the data of page F, address 0E, and adjust so that the center of the black luminance peak coincides with the principle point.
- 4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit. (RGB HOLD/AGC, mode setting)

The center of the black luminance peak should lie within the 1 ϕ circle.



Fig. 3-45

15. Picture Frame Setting

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

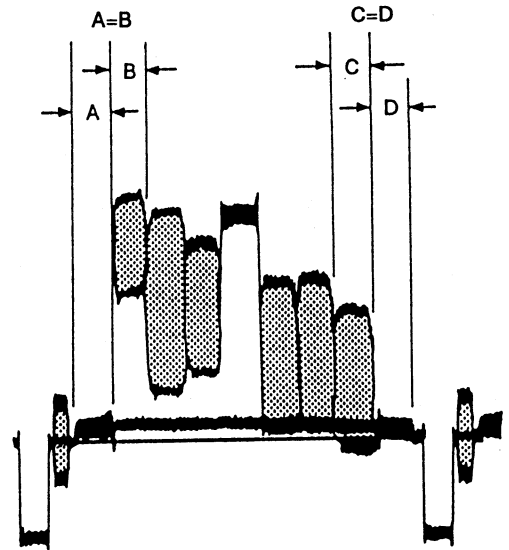
Setting method:

- 1) Turn the auto focus off. (Note 1)
- 2) Adjust the focus. (Note 1)
- 3) Adjust the zoom and the camera direction, and set to the specified position.
- 4) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame".

Note 1: Use the adjustment remote control unit.
(HOLD switch: OFF)

Check on the oscilloscope

1. horizontal period



2. Vertical period

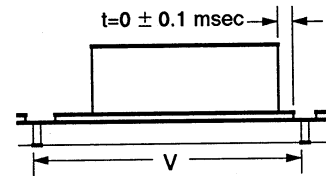


Fig. 7-11.

Check on the TV monitor

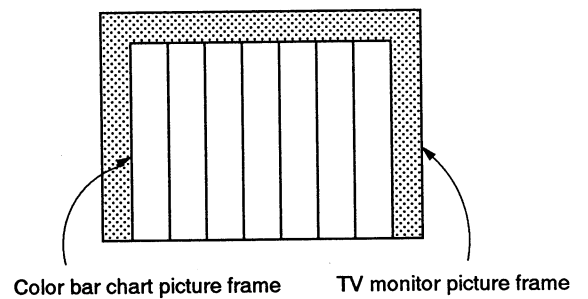


Fig. 7-12.

18. Picture Frame Setting

Subject	Color bar chart standard picture frame
Measurement Value	Value output required
Measuring Instrument	Callipers and TV monitor
Specified Value	ANILCO-8, I-0.7 R.L. spec.

Setting method

- 1) Turn the zero-focus-off. (Note 1)
- 2) Adjust the focus. (Note 2)
- 3) Adjust the screen and the camera direction, and set to the specified position.
- 4) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustment using "color bar chart standard picture frame".

Note 1) Use the adjustment remote-control unit.
(ANILCO switch OFF)

Check on the callipers

1. horizontal period



2. vertical period



Fig. 7-11

Check on the TV monitor



Fig. 7-12

16. IRIS Level Adjustment (VC-147 board)

Subject	Color bar standard picture frame
Measurement Point	Pin ⑩ of CN701 (IRIS OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	63 (AGC MIN)
Specified Value	$A=200 \pm 5 \text{ mV}$

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Change the data of page: F, address: 63, and adjust so that the IRIS OUT signal level (A) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.

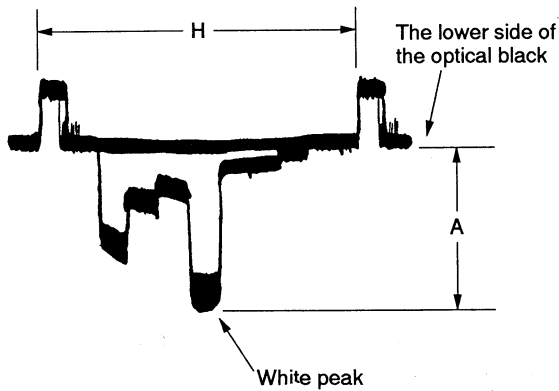


Fig. 7-13.

17. MAX GAIN Adjustment (VC-147 board)

Subject	Color bar standard picture frame
Filter	ND filter 1.0 (2 sheets) and 0.4 (1 sheet), 0.1 (1 sheet)
Measurement Point	Pin ⑩ of CN701 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64 (AE MIN L)
Specified Value	$A=260 \pm 5 \text{ mV}$

Adjusting method:

- 1) Place the ND filter 2.5 (1.0+1.0+0.4+0.1) on the lens.
- 2) Release the protect.
Page: 6, address: 00, data: 01
- 2) Change the data of page: F, address: 64, and adjust so that the CAM Y signal level (A) becomes the specified value.
- 4) Press the PAUSE button of the adjusting remote control unit.

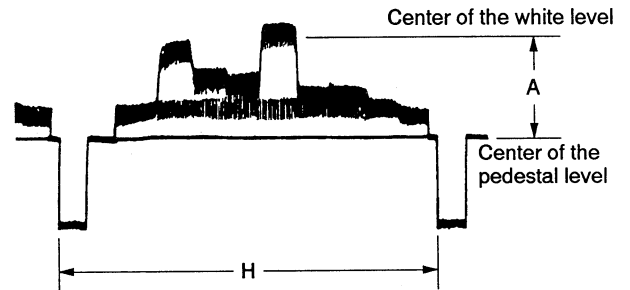


Fig. 7-14.

16. IIR3 Level Adjustment (PC-14F board)

Subject	Order for stocked printed boards
Measurement Point	No. (#) of CH201 (IIR3-DUT)
Measuring Instrument	Oscilloscope
Adjustment Page	2'
Adjustment Address	43 (ADC MEM)
Specified Value	A=200 ± 1 mV

Adjusting method

- 1) Release the printer.
Page 5, address (0) data (0)
- 2) Change the data of page 5, address 43, and adjust so that the IIR3 DUT signal level (A) becomes the specified value.
- 3) Press the [F4] key of the adjusting remote control unit.



Fig. 7-13

17. IIR3 GAIN Adjustment (PC-14F board)

Subject	Order for stocked printed boards
Filter	FD-Filter L1 (2 above) and D4 (1 above) D1 (1 above)
Measurement Point	No. (#) of CH201 (CODE Y)
Measuring Instrument	Oscilloscope
Adjustment Page	2'
Adjustment Address	44 (IIR3 MEM L)
Specified Value	A=200 ± 1 mV

Adjusting method

- 1) Place the FD-Filter L1 (1, 2, 4, 5, 6, 7) on the lens.
- 2) Release the printer.
Page 5, address (0) data (0)
- 3) Change the data of page 5, address 44, and adjust so that the CODE Y signal level (A) becomes the specified value.
- 4) Press the [F4] key of the adjusting remote control unit.



Fig. 7-14

18. IRIS IN/OUT Adjustment

Subject	White pattern standard picture frame
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	39 (AWB IRIS IN) 3A (AWB IRIS OUT)

Adjusting method:

- 1) Set data: 11 to page: 6, address: 00.
(Camera adjustment mode 2 setting)
- 2) Set data: 40 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
(HALL data display)
- 3) Set data: 0B to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(ND0.8 shutter mode setting)
- 4) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the TV monitor), and set to D39.
- 5) Set data: D39 to page: F, address: 39, and press the PAUSE button of the adjusting remote control unit.
- 6) Set data: 09 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(ND0.5 shutter mode setting)
- 7) Read the DDS display data and set to D3A.
- 8) Set data: D3A to page: F, address: 3A, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Release of the ND0.5 shutter mode)

19. Pre-white Balance Adjustment

Subject	White pattern standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	33 (R CONT REF), 34 (B CONT REF)
Specified Value	The center of the white luminance point should lie within the circle with a diameter of 1mm and whose center is the principle point

Adjusting method:

- 1) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(WB 3200K preset mode setting)
- 2) Set data: 11 to page: 6, address: 00.
(Camera adjustment mode 2 setting)
- 3) Change the data of addresses:33 and 34 of page: F alternately, and coincide the white luminance point to the principle point.
Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses.
If not, the new data will not written to the memory.
- 4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Release of the preset mode)
- 2) Set data: 10 to page: 6, address: 00.
(Protect mode setting)

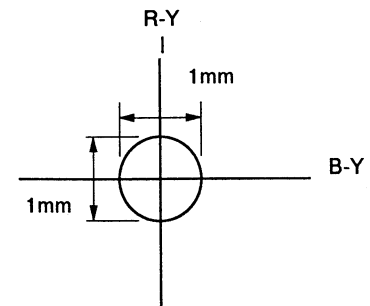


Fig. 7-15.

18. B/W BRIGHT Adjustment

Subject	White picture standard picture frame
Measurement Point	CRS display of the B/W at TV monitor
Measuring Instrument	meter
Adjustment Page	7
Adjustment Address	34 (A/WB B/W B/W) 34 (A/WB B/W B/W)

Adjusting method

- Set data 11 to page 4, address 00.
(Cursor adjustment mode 1 setting)
- Set data 01 to page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
(HOLD status mode setting)
- Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit.
(HOLD status mode setting)
- Read the CRD display data (the bottom two digits of the display data of the bottom digit of the B/W at the TV monitor), and set to 00.
- Set data 00 to page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
- Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit.
(HOLD status mode setting)
- Read the CRD display data and set to 00.
- Set data 00 to page 0, address 00, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustment

- Set data 00 to page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
(Release of the HOLD status mode)

19. Paper-to-Black Adjustment

Subject	White picture standard picture frame
Measurement Point	White picture terminal
Measuring Instrument	Yestoscope
Adjustment Page	7
Adjustment Address	33 (P-CORR B/W), 34 (P-CORR B/W)
Specified Value	The center of the white balance point should be within the circle with a diameter of 1mm and whose center is the principle point.

Adjusting method

- Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit.
(HOLD status mode setting)
- Set data 11 to page 4, address 00.
(Cursor adjustment mode 1 setting)
- Change the data of addresses 00 and 04 of page 0 alternately, and relocate the white balance point to the principle point.
Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses. If not, the pen data will not return to the factory.
- Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustment

- Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit.
(Release of the pen mode)
- Set data 00 to page 4, address 00.
(Reset mode setting)



Fig. 7-15

20. Color Reproduction Adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	18 (CORE B-Y GAIN), 19 (CORE R-Y GAIN), 1A (CORE R-Y HUE), 1B (CORE B-Y HUE)
Specified Value	All color luminance points should settle within each color reproduction frame.

Adjusting method:

- 1) Release the protect.
Page: 6, address: 00, data: 01
- 2) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Indoor white balance mode setting)
- 3) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
- 4) Change the data of addresses 18 to 1B of page: F, and settle each color luminance point in each color reproduction frame.
Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses.
If not, the new data will not be written to the memory.
- 5) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: 6, address: 01 and press the PAUSE button of the adjustment remote control unit.
(Release of the adjustment mode)
- 2) Set data: 10 to page: 6, address: 00.
(Protect mode setting)

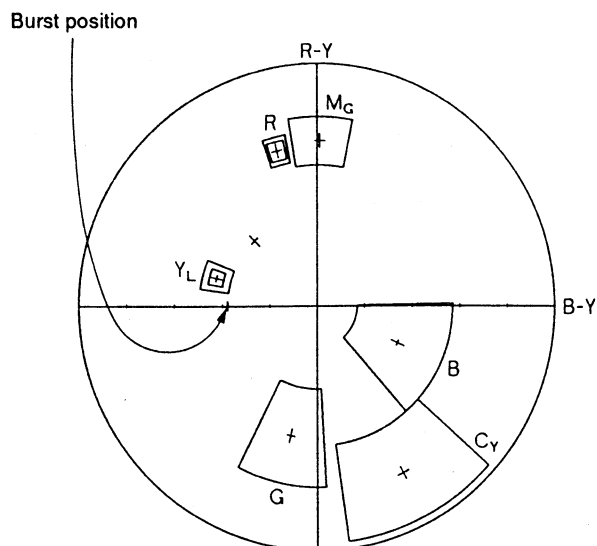


Fig. 7-16.

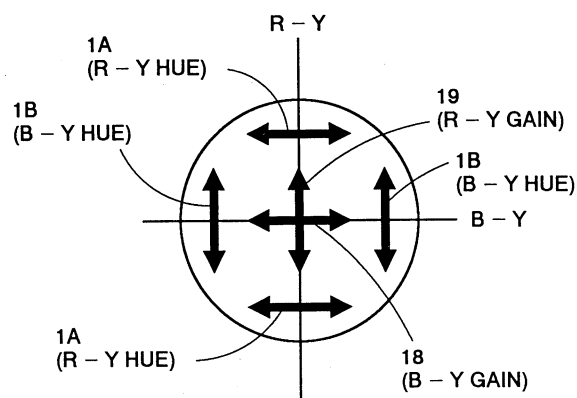


Fig. 7-17. Direction of the Movements of the Adjustment Address and Luminance Point

III. Color-Representation Adjustment

Subject	Color bar chart attached (shown above)
Instrument/Tool	Video output monitor
Measuring Instrument	Video scope
Adjustment Page	F
Adjustment Address	16 (COLOR R-Y GAIN), 17 (COLOR B-Y GAIN), 18 (COLOR-Y GAIN), 19 (COLOR-Y GAIN)
Specified Value	All color luminance points should match white with each color representation frame.

Adjusting method

- 1) Release the picture.
Page 4, address 16, data 00
- 2) Set data 00 to page 4, address 01, and press the PAUSE button of the adjusting remote control unit.
(Picture white luminance mode setting)
- 3) Adjust the GAIN and PHASE of the color scope, and adjust the input luminance point to the best position of the color reproduction frame.
- 4) Change the data of addresses 16 to 19 of page 4, and make each color luminance point to each color representation frame.
Warning: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses.
If not, the new data will not be written to the memory.
- 5) Press the PAUSE button of the adjusting remote control unit.

Precaution after completing adjustment

- 1) Set data 00 to page 4, address 01 and press the PAUSE button of the adjusting remote control unit.
(Release of the adjustment mode)
- 2) Set data 10 to page 4, address 00.
(Picture mode setting)



Fig. 7-16.



Fig. 7-17. Direction of the Movements of the Adjustment Address and Luminance Point

21. Auto White Balance Preset Adjustment

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	2D (R REF L), 2E (R REF H), 2F (G REF L), 30 (G REF H), 31 (B REF L), 32 (B REF H)

Adjusting method:

- 1) Turn the power of the unit OFF/ON.
- 2) Check that the data of page: 6, address: 09 is 00.
(Auto white balance preset adjustment possible display)
- 3) Set data: 11 to page: 6, address: 00, and wait at least 2 seconds.
(Camera adjustment mode 2 setting)
- 5) Set data: 11 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(3200K preset data take in preparation mode)
- 6) Set data: 0D to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(When the 3200K preset data is taken in, the data will be automatically input to addresses 2D to 32 of page F.)
- 7) Check that the data of page: 6, address: 09 is 01.
(Auto white balance preset adjustment completion display)

Processing after completing adjustments

- 1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Release of the auto white balance preset mode)
- 2) Set data: 10 to page: 6, address: 00.
(Release of camera adjustment mode 2)

22. 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	35 (AWB NORM R) 36 (AWB NORM B)
Specified Value	R ratio $2A80 \pm 40$ B ratio $5A80 \pm 40$

Note: Check that "Auto White Balance Preset Adjustment" have been completed.

Adjusting method:

- 1) Place the C14 filter for color temperature correction on the lens.
- 2) Set data: 11 to page: 6, address: 00.
(Camera adjustment mode 2 setting)
- 3) Set data: D0 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
(Auto white balance adjustment mode setting)
- 4) Set data: 82 to page: F, address: AF.
(R ratio display mode setting)
- 5) Change the data of page: F, address: 35, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to $2A80 \pm 40$.
- 6) Press the PAUSE button of the adjusting remote control unit.
- 7) Set data: 83 to page: F, address: AF.
(B ratio display mode setting)
- 8) Change the data of page: F, address: 36, and adjust the average value of the DDS display data to $5A80 \pm 40$.
- 9) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
(Release of the white balance adjustment mode)
- 2) Set data: 10 to page: 6, address: 00.
(Release of camera adjustment mode 2)

21. Auto White Balance/Presets Adjustment

Subject	White picture standard picture frame
Adjustment Page	F
Adjustment Address	00 (0: 00FF 1), 01 (0: 00FF 0), 02 (0: 00FF 1), 03 (0: 00FF 0), 04 (0: 00FF 1), 05 (0: 00FF 0)

Adjusting method

- Turn the power of the unit OFF/ON.
- Check that the date of page 0, address 00 is 00.
(Auto white balance/presets adjustment/picture display)
- Set date 11 in page 0, address 00, and wait at least 2 months.
(Camera adjustment mode 1 writing)
- Set date 01 in page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
(0000) (press into rear in preparation mode)
- Set date 02 in page 0, address 01, and press the PAUSE button of the adjusting remote control unit.
(When the 0000 (press into rear) is taken in, the date will be automatically input to address 00 to 04 of page 0.)
- Check that the date of page 0, address 00 is 00.
(Auto white balance/presets adjustment completion display)

Proceeding after completing adjustment

- Set date 00 in page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
(Release of the auto white balance/presets mode)
- Set date 00 in page 0, address 00.
(Release of camera adjustment mode 1)

22. Auto White Balance Adjustment

Subject	White picture standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the 000 display on the DTV or TV monitor
Adjustment Page	F
Adjustment Address	00 (A:00:0000) 0, 01 (A:00:0000) 0
Specified Value	0 (0: 000 0 ± 40) 0 (0: 000 0 ± 40)

Note: Check that "Auto White Balance/Presets Adjustment" item has been completed.

Adjusting method

- Place the C14 filter for color temperature correction on the lens.
- Set date 11 in page 0, address 00.
(Camera adjustment mode 1 writing)
- Set date 00 in page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
(Auto white balance adjustment mode writing)
- Set date 00 in page 0, address 00.
(0: auto display mode writing)
- Change the date of page 0, address 00, and adjust the average value of the 000 display data (the display data on the bottom right of the DTV or the TV monitor) to 000 ± 40.
- Press the PAUSE button of the adjusting remote control unit.
- Set date 00 in page 0, address 00.
(0: auto display mode writing)
- Change the date of page 0, address 00, and adjust the average value of the 000 display data (the display data on the bottom right of the DTV or the TV monitor) to 000 ± 40.
- Press the PAUSE button of the adjusting remote control unit.

Proceeding after completing adjustment

- Set date 00 in page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
(Release of the white balance adjustment mode)
- Set date 00 in page 0, address 00.
(Release of camera adjustment mode 1)

23. White Balance Check

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 7-18. A to C

Checking method:

- 1) Check that the lens is not covered with either filter.
- 2) Set data: 11 to page: 6, address: 00.
(Camera adjustment mode 2 setting)
- 3) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Indoor white balance mode setting)
- 4) Check that the center of the white luminance point is within the circle shown in Fig. 7-18.A.
(Indoor white balance check)
- 5) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Auto white balance mode setting)
- 6) Set data: 01 to page: F, address: 5C, and press the PAUSE button of the adjusting remote control unit.
(Auto white balance high speed tracking mode setting)
- 7) Set data: 91 to page: F, address: AF (R, B ratio (M) display mode setting), and check that the top 2 digits and bottom 2 digits of the DDS display are 3D to 43. Or check that the center of the white luminance point is within the circle shown in Fig. 7-18. A.
- 8) Place the C14 filter on the lens.
- 9) Check that the center of the white luminance point settles in the circle shown in Fig. 7-18. B.
(Auto white balance outdoor mode check)
- 10) Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) on the lens.
- 11) Check that the center of the white luminance point settles in the circle shown in Fig. 7-18. C.
(Auto white balance outdoor mode check)

Processing after completing adjustments

- 1) Set data: 10 to page: F, address: 5C, and press the PAUSE button of the adjusting remote control unit.
(Release of the auto white balance fast tracking mode)
- 2) Set data: 10 to page: 6, address: 00.
(Release of camera adjustment mode 2)
- 3) Set data: 00 to page: 6, address: 01, and press the PAUSE button.

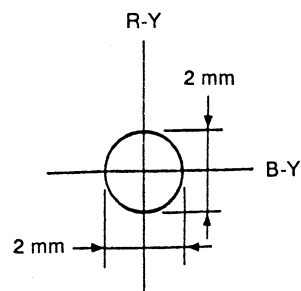


Fig. 7-18. A

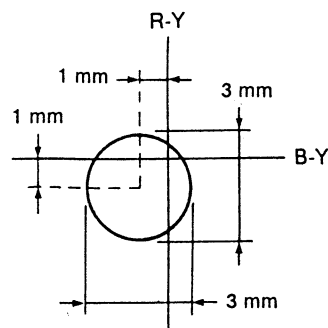


Fig. 7-18. B

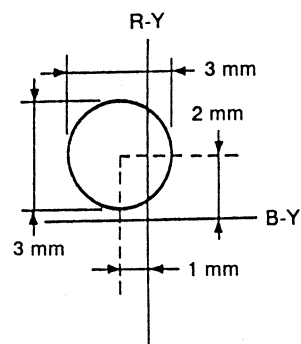


Fig. 7-18. C

25. White Balance Check

Subject	White balance standard (printer lines)
Filter	Filter C14 for color temperature correction FD-Filter 1.0 and 0.3
Measurement Point	View output terminal
Measuring Instrument	ColorChecker
Specified Value	Fig. 7-18, A to C

Checking method

- Check that the line is unobscured with other lines.
- Set data 11 to page 4, address 00.
(Factory adjustment mode 1 setting)
- Set data 0F to page 6, address 03, and press the PAUSE button of the adjusting remote control unit.
(Color white balance mode setting)
- Check that the center of the white balance point is within the circle shown in Fig. 7-18, A.
(Color white balance check)
- Set data 03 to page 6, address 03, and press the PAUSE button of the adjusting remote control unit.
(Auto white balance mode setting)
- Set data 03 to page 7, address 0C, and press the PAUSE button of the adjusting remote control unit.
(Auto white balance high speed tracking mode setting)
- Set data 03 to page 7, address 4F (03, 03) (03) (03) (display mode setting), and check that the top 1 digit and bottom 3 digits of the 0303 display are 00 to 03. Or check that the center of the white balance point is within the circle shown in Fig. 7-18, A.
- Place the C14 filter on the lens.
- Check that the center of the white balance point falls in the circle shown in Fig. 7-18, B.
(Auto white balance outdoor mode check)
- Remove the C14 filter, and place the FD-Filter 1.0 (0.3) (0.3) on the lens.
- Check that the center of the white balance point falls in the circle shown in Fig. 7-18, C.
(Auto white balance outdoor mode check)

Processing after completing adjustment

- Set data 0F to page 03, address 00, and press the PAUSE button of the adjusting remote control unit.
(Release of automatic white balance (auto tracking) mode)
- Set data 0F to page 5, address 00.
(Release of manual adjustment mode 2)
- Set data 03 to page 6, address 03, and press the PAUSE button.



Fig. 7-18, A



Fig. 7-18, B



Fig. 7-18, C

24. Linear Matrix Adjustment

Subject	Color bar standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3D (DMAT HUE) 3E (DMAT GAIN)

Note 1: Check that position that was set in the color bar chart picture frame "15. Picture Frame Setting" is maintained, before beginning adjustments.

Adjusting method:

- 1) Remove the filter C14 for color temperature correction.
- 2) Release the protect.
Page: 6, address: 00, data: 01
- 3) Color bar data sampling mode setting
 1. Set data: F1 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
 2. Set data: 2E to page: F, address: 14, and press the PAUSE button of the adjusting remote control unit.
(Check that the colors on the monitor display at the color modulation stop mode have disappeared)
- 4) Specifying the Yellow position
 1. Set data: C9 to page: 1, address: E6.
 2. Set data: B6 to page: 1, address: E7.
- 5) Set data: 02 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
(R-Y data display mode setting)
- 6) Read the average value of the DDS display data (Note 2), and set to Y1.
- 7) Specifying the Red position
 1. Set data: 59 to page: 1, address: E6.
 2. Set data: 6D to page: 1, address: E7.
- 8) Select page: F and read the average value of the DDS display data (Note 2), and set to R1.
- 9) Place the filter C14 for color temperature correction on the lens. (Ensure that the picture frame of the chart does not shift at this time.)
- 10) Specifying the yellow position.
 1. Set data: C9 to page: 1, address: E6.
 2. Set data: B6 to page: 1, address: E7.
- 11) Select page: F and read the average value of the DDS display data (Note 2), and set to Y2.
- 12) Specifying the Red position
 1. Set data: 59 to page: 1, address: E6.
 2. Set data: 6D to page: 1, address: E7.
- 13) Select page: F and read the average value of the DDS display data (Note 2), and set to R2.

- 14) Convert Y1, R1, Y2, R2 to decimal notation to obtain Y1', R1', Y2' and R2'.

(Refer to Table 7-6. "Hexadecimal notation-decimal notation conversion table")

- 15) Calculate X1' from the following equation (decimal notation calculation).

$$X1' = Y2' - Y1'$$

- 16) Calculate D3D from the following table (D3D is hexadecimal notation)

X1' value	D3D
$-1 \leq X1' \leq 1$	F0
$X1' > 1$	F1
$X1' < -1$	FF

- 17) Set data: D3D to page: F, address: 3D, and press the PAUSE button of the adjusting remote control unit.

- 18) Calculate X2' from the following equation (decimal notation calculation).

$$X2' = R2' - R1'$$

- 19) Calculate D3E from the following table.

X2' value	D3E
$X2' \geq 0$	00
$0 > X2' \geq -1$	01
$-1 > X2'$	02

- 20) Set data: D3E to page: F, address: 3E, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- 1) Set data: 00 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
(Release of the sampling mode)
- 2) Set data: 2C to page: F, address: 14, and press the PAUSE button of the adjusting remote control unit.
(Color modulation ON mode setting)
- 3) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
(Release of the R-Y data display mode)
- 4) Turn the main power supply (6.3V) off.

Note 2: The right two digits of the display data at the bottom right of the EVF or monitor TV. The R-Y data is above 80. When the DDS display data is below 80, set data: 01 to page F, address: AF and press the PAUSE button of the adjusting remote control unit.

28. Linear Scale Adjustment

Subject	Color bar standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	ODS display on the DVP or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	80 (GAIN FURT) 80 (DIRECT GAIN)

Note 1: Check that position that has set in the color bar chart picture frame "L1. Picture Frame Setting" is maintained, before beginning adjustments.

Adjusting method

- Remove the filter C14 for color temperature correction.
- Release the picture.
(Page 5, address 02, data 0)
- Color bar data sampling mode setting
 - Set data 07 in page F, address 80, and press the PAUSE button of the adjusting remote control unit.
 - Set data 00 in page F, address 04, and press the PAUSE button of the adjusting remote control unit.
(Check that the value on the monitor display of the color bar addition display mode has disappeared.)
- Specifying the Yellow position
 - Set data 05 in page 1, address 00.
 - Set data 04 in page 1, address 07.
- Set data 02 in page 0, address AF, and press the PAUSE button of the adjusting remote control unit.
(On TV data display mode.)
- Read the average value of the ODS display data (Data 2), and set to 70.
- Specifying the Red position
 - Set data 00 in page 1, address 04.
 - Set data 00 in page 1, address 07.
- Select page F and read the average value of the ODS display data (Data 2), and set to 80.
- Place the filter C14 for color temperature correction on the lens. (Check that the picture frame of the chart data set shift to the lens.)
- Specifying the yellow position.
 - Set data 02 in page 1, address 04.
 - Set data 00 in page 1, address 07.
- Select page F and read the average value of the ODS display data (Data 2), and set to 70.
- Specifying the Red position
 - Set data 00 in page 1, address 04.
 - Set data 00 in page 1, address 07.
- Select page F and read the average value of the ODS display data (Data 2), and set to 80.

- Control Y, B, G, R in desired position to obtain YV, BV, GV and RV.

(Refer to Table 1-6, "Structural matrix-derived colorimetric conversion table".)

- Calculate B' from the following equation (Structural matrix calculation).

$$B' = YV / R'$$

- Calculate R' from the following table (Data is normalized value).

R' value	Data
$-1 \leq R' \leq 1$	PR
$R' > 1$	RI
$R' < -1$	RF

- Set data 06 in page F, address 00, and press the PAUSE button of the adjusting remote control unit.

- Calculate G' from the following equation (Structural matrix calculation).

$$G' = 60 - R'$$

- Calculate G' from the following table.

G' value	Data
$G' \geq 0$	GR
$0 > G' \geq -1$	GI
$-1 > G' > -2$	GG

- Set data 04 in page F, address 00, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

- Set data 00 in page 0, address 00, and press the PAUSE button of the adjusting remote control unit.
(Return to the sampling mode.)
- Set data 00 in page F, address 04, and press the PAUSE button of the adjusting remote control unit.
(Color calibration/CM mode setting.)
- Set data 00 in page F, address 00, and press the PAUSE button of the adjusting remote control unit.
(Return to the 3-D data display mode.)
- Turn the unit power supply (DVP) off.

Note 2: The right two digits of the display data at the bottom right of the DVP or monitor TV. The 0-9 data is shown 00. When the ODS display data is below 00, set Data 00 in page F, address 40 and press the PAUSE button of the adjusting remote control unit.

25. VIDEO OUT Level Check

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal (Terminated at 75 Ω)
Measuring Instrument	Oscilloscope
Specified Value	Y level=680 \pm 40 mV SYNC level=285 \pm 20 mV BURST level=280 \pm 30 mVp-p

Checking method:

- 1) Check that the Y level, SYNC level and BURST level satisfy the specified values.

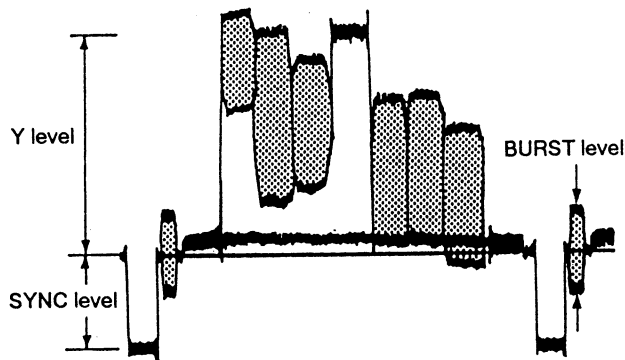


Fig. 7-19.

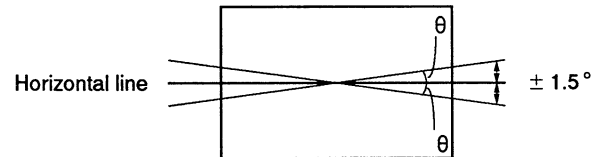
7-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

7-3-1. Horizontal Slant Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Monoscope section
Specified Value	Refer to Fig. 7-21.

Adjusting method:

- 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.
(Do not tighten it too tightly.)



Specified value: The image should be within $\pm 1.5^\circ$ of the horizontal line.

Fig. 7-21.

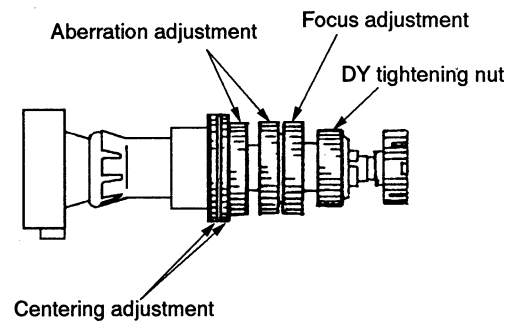


Fig. 7-22.

23. VIDEO CRT Level Check

Subject	Color for characteristic picture frame
Measurement Point	Video output terminal (connected to TV SET)
Measuring Instrument	Oscilloscope
Specified Value	Y level: 480 ± 40 mV SYNC level: 380 ± 30 mV* BURST level: 300 ± 30 mV**

Checking method

- 1) Check that the Y level, SYNC level and BURST level satisfy the specified values.



Fig. 7-15

7-8. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

7-8-1. Horizontal View Adjustment

Mode	Project
Signal	Alignment tape For checking operation (VHS-C/HSR) Minimums number
Specified Value	Refer to Fig. 7-16.

Adjusting method

- 1) Adjust EV504 (BRIGHT) so that the CRT can be seen easily and clearly.
- 2) Loosen the CV1 (deflection yoke) tightening nut.
- 3) Rotate CV1, and adjust the image so that it is horizontal.
- 4) Tighten the CV1 tightening nut.
 [Do not tighten it too tightly.]



Specified value: The image should be within $\pm 1.5^\circ$ of the horizontal line.

Fig. 7-16



Fig. 7-17

7-3-2. Centering Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Monoscope section
Specified Value	Refer to Fig. 7-23.

Adjusting method:

- 1) Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. (Refer to Fig. 7-22.)

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.

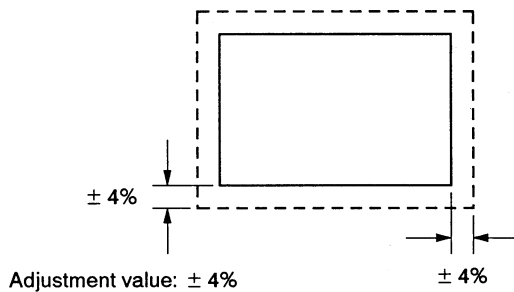


Fig. 7-23.

7-3-3. Focus Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Monoscope section

Adjusting method:

- 1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 7-22.)

7-3-4. Aberration Adjustment

Model	E-E
Signal	Dot pattern
Specified Value	Refer to Fig. 7-24.

Adjusting method:

- 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.

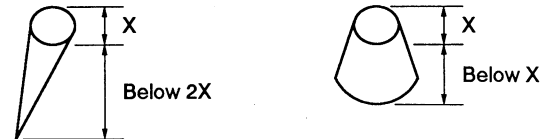


Fig. 7-24.

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

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP)
Measurement Point	Positive pole terminal of C516
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	RV501
Specified Value	2.60 ± 0.05 Vdc

Adjusting method:

- 1) Adjust to 2.60 ± 0.05 Vdc using RV501.

7-3-3. Centering Adjustment

Model	Features
Signal	Alignment type: For checking operations (WPI-0000) Measurement method
Specified Value	Ratio in Fig. 7-23.

Adjusting method

- Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. (Refer to Fig. 7-22.)

Note: As the centering position changes due to earth expansion, create a 200° in the horizontal direction, and adjust with the center section of the modifying profile.



Fig. 7-23.

7-3-4. Focus Adjustment

Model	Features
Signal	Alignment type: For checking operations (WPI-0000) Measurement method

Adjusting method

- Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 7-22.)

7-3-4. Alignment Adjustment

Model	Feature
Signal	For pattern
Specified Value	Ratio in Fig. 7-24.

Adjusting method

- Adjust the alignment adjustment ring so that the tracing of the fine lines are less than twice the diameter of the dot, or the fine alignment becomes less than the diameter of the dot.
- If the remaining becomes displaced less, perform the centering adjustment from the beginning again.



Fig. 7-24.

7-3-4. Horizontal Oscillation Frequency Adjustment (WPI-01 series)

Model	Features
Signal	Alignment type: For checking operations (WPI-0000)
Measurement Pole	Positive pole constant of 100 V
Measuring instrument	Digital voltmeter or oscilloscope (DC coupling)
Adjustment Parameter	EX-01
Specified Value	1.40 ± 0.01 V/s

Adjusting method

- Adjust to 1.40 ± 0.01 V/s using EX-01.

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

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Monoscope section
Adjusting Element	C504
Specified Value	$6 \pm 2\%$

Adjusting method:

- 1) Rotate RV502, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
- 2) Rotate RV504 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). (Refer to Fig. 7-26.)

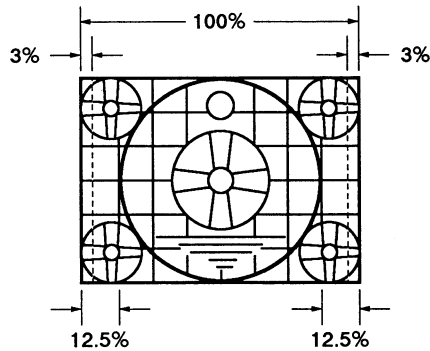
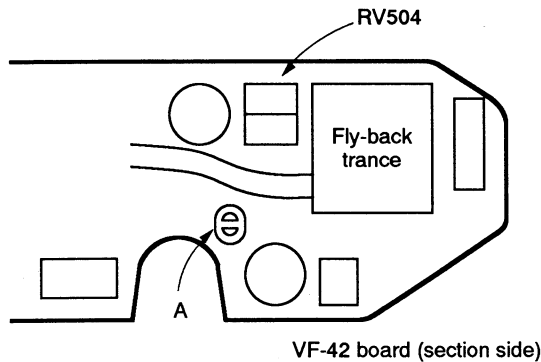


Fig. 7-25.



Section A	Size H
Open	Small
Short	Big

Fig. 7-26.

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

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Monoscope section
Adjusting Element	RV502
Specified Value	$5 \pm 2\%$

Adjusting method:

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

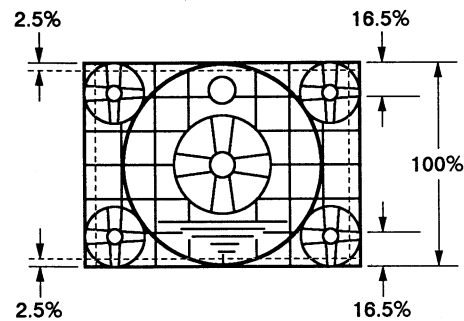


Fig. 7-27.

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

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Monoscope section
Adjusting Element	Brightness: RV504 Contrast: RV503

Adjusting method:

- 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 be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till 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".

7-2-6. Horizontal Amplitude Adjustment (VF-42 board)

Model	Playback
Signal	Alignment tape For checking operation (WJL-0700) Microscope section
Adjusting Element	V704
Specified Value	$\pm 0.2\%$

Adjusting method

- 1) Rotate V704, and adjust the top and bottom sides of the microscope image to the top and bottom edges of the display.
- 2) Rotate V704 so that the brightness is the normal level.
- 3) Adjust the pattern (A) of the H size adjustment capacitor (V704) to "dark" or "light", so that the horizontal distance error rate becomes $\pm 0.2\%$ (Left and right sides). (Refer to Fig. 7-26.)



Fig. 7-26.



VF-42 board (backside)

Section A	Size H
Open	Dark
Close	Light

Fig. 7-26.

7-2-7. Vertical Amplitude Adjustment (VF-42 board)

Model	Playback
Signal	Alignment tape For checking operation (WJL-0700) Microscope section
Adjusting Element	V705
Specified Value	$\pm 0.2\%$

Adjusting method

- 1) Adjust V705 so that the vertical distance error rate becomes $\pm 0.2\%$ (Top and bottom ends).



Fig. 7-27.

7-2-8. Brightness, Contrast Adjustments (VF-42 board)

Model	Playback
Signal	Alignment tape For checking operation (WJL-0700) Microscope section
Adjusting Element	Brightness: V706 Contrast: V705

Adjusting method

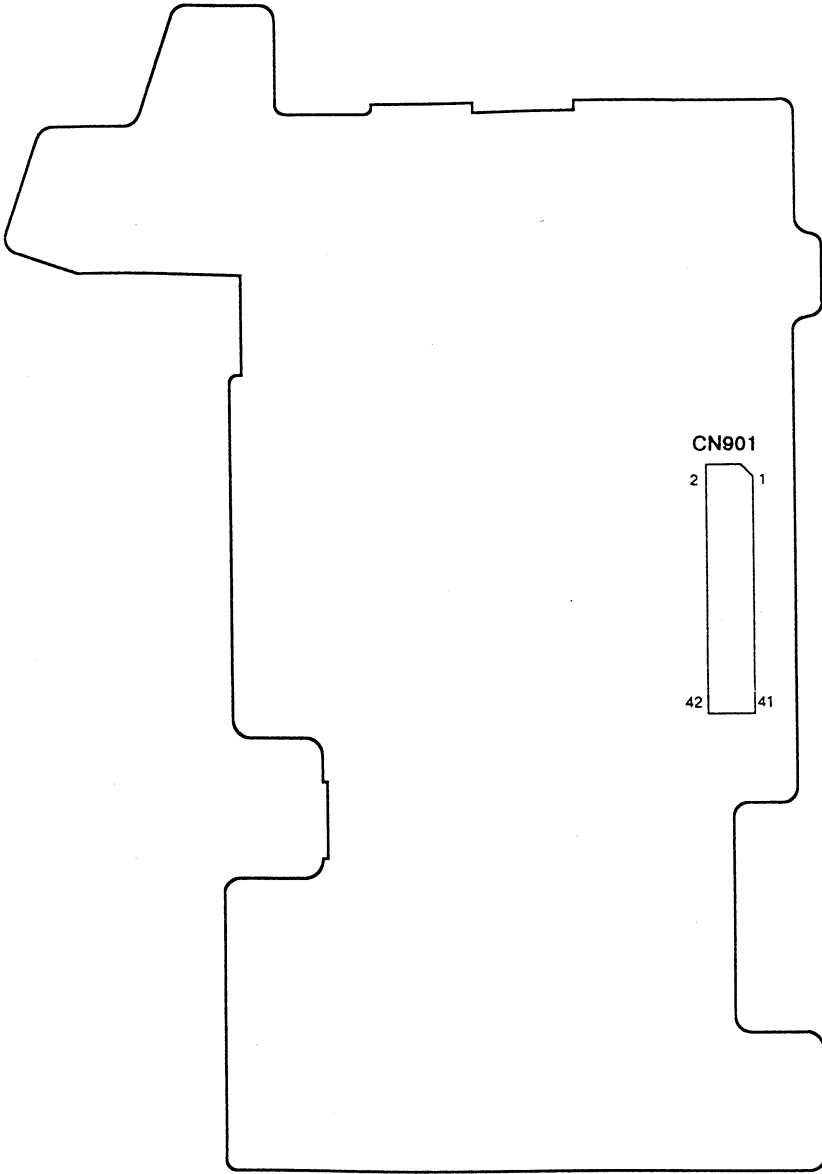
- 1) Rotate V706 and V705 alternately, and adjust so that the brightness section of the gray scale are displayed correctly. (The light section should be consistently all the same level across edges in the microscope slide. The dark section should be consistently all the darkest section and the second darkest section of the gray scale must be differentiated.)

7-2-9. Horizontal Amplitude, Vertical Amplitude, Focus Check

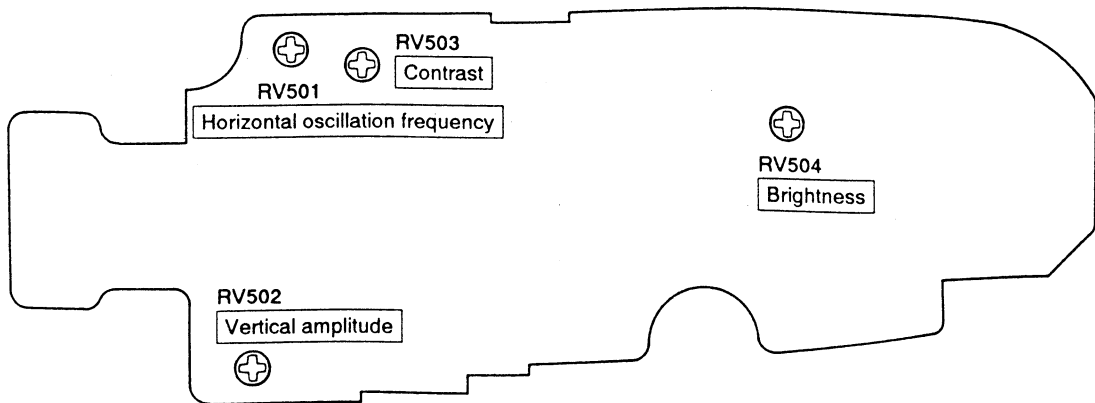
"7-2-6. Horizontal Amplitude Adjustment" and "7-2-7. Vertical Amplitude Adjustment" should both satisfy the specified values. First, perform the adjustments from the beginning again. In this case, perform "7-2-8. Brightness, Contrast Adjustments" again. Moreover, check the focus, and if it found to be vague, perform "7-2-5. Focus Adjustment" and "7-2-4. Aberration Adjustment".

7-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

DD-67 BOARD (COMPONENT SIDE)



VF-42 BOARD (COMPONENT SIDE)



1-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

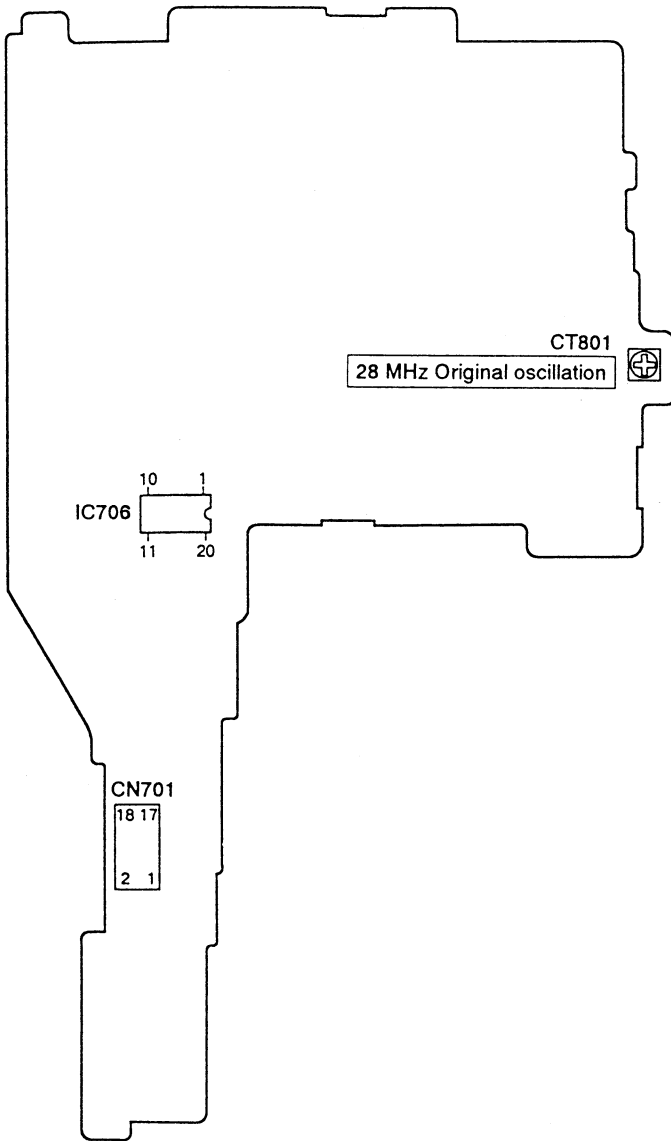
DD-67 BOARD (COMPONENT SIDE)



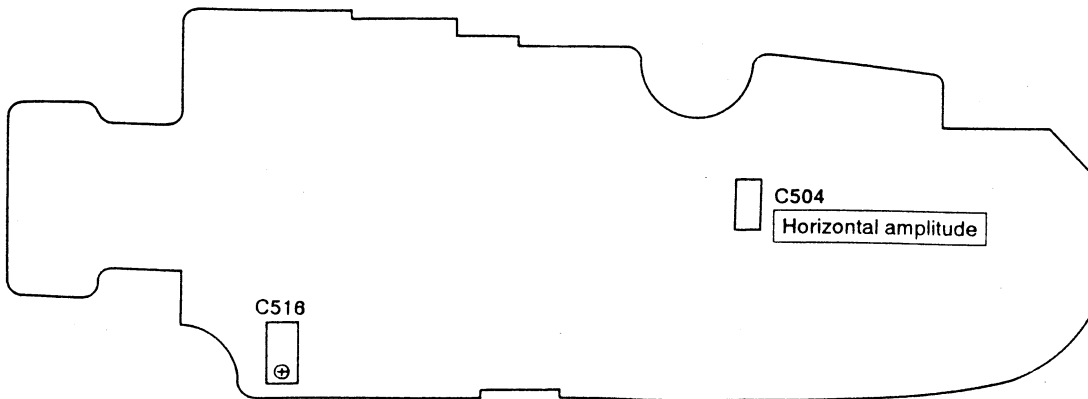
WF-42 BOARD (COMPONENT SIDE)



VC-147 BOARD (CONDUCTOR SIDE)



VF-42 BOARD (CONDUCTOR SIDE)



VF-147 BOARD (CONDUCTOR SIDE)



VF-148 BOARD (CONDUCTOR SIDE)



SECTION 8 MECHANICAL SECTION ADJUSTMENTS

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)

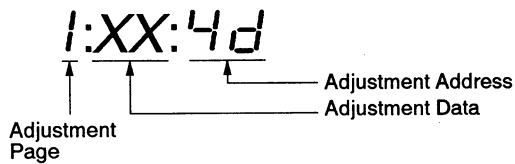
For setting of the track shift mode, however, refer to the following.

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-116 board CN002 pin ③ (PB RF)
 CH2: VS-116 board CN002 pin ④ (SWP)
- 3) Play back the tracking alignment tape (WR5-1NP: 8-967-995-02).
- 4) Check that the RF waveform of the oscilloscope is flat at both inlet and outlet sides. If not flat, make adjustment as follows. (Refer to Fig. 8-1 and 8-2)

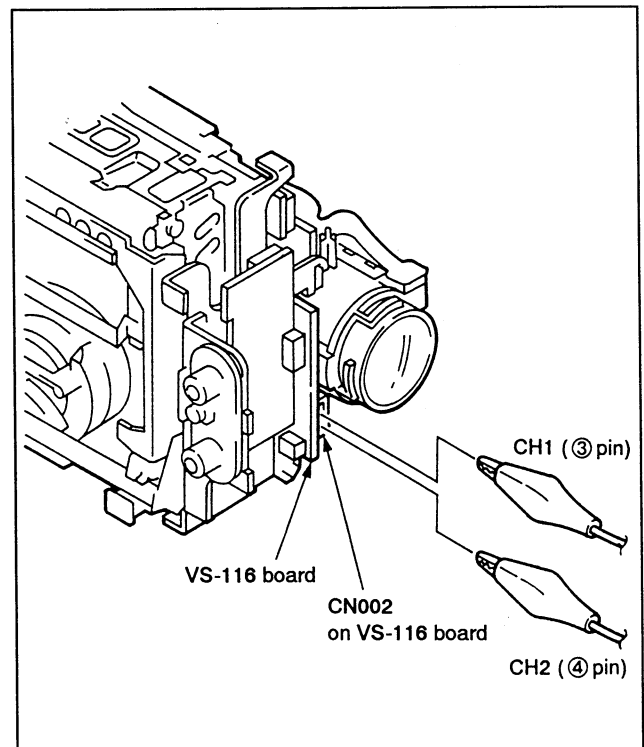


Fig.8-1.

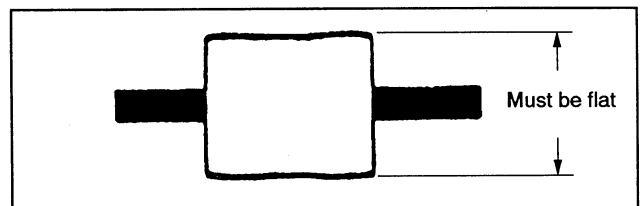


Fig.8-2.

SECTION 8 MECHANICAL SECTION ADJUSTMENTS

For Mechanical Adjustments

Refer to the separate volume of mechanical adjustment "8 see Video MECHANICAL ADJUSTMENTS MANUAL IN A Momentary" for the adjustments and checks of cassette section and the mechanical parts replacement (8-101-101-11).
For setting of the track shift mode, however, refer to the following.

8-1. SETTING THE TRACK SHIFT MODE

Notes: Cassette per unit ribbon per should have been installed.

(Setting Method)

- 1) Set the adjustment commander to the HOLD OFF side.
- 2) Set page 1, address 01 and data 01, and then release the printer.
- 3) Set page 1 and address 04.
- 4) Set adjustment data to 01 (see mode 0) by **PLAY** or **STOP** button.
 (When HOLD OFF mode 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 2).
- 5) Set to the HOLD OFF side in order to set the normal mode.



8-2. PREPARATION FOR ADJUSTMENT

- 1) Clean the tape moving surface (tape guides, drum, capstan shaft, pinch rollers).
- 2) Connect the well-known
 CCR to V6118 board (CR02 pin 01-08 8-P)
 CCR to V6118 board (CR01 pin 01-08 8-P)
- 3) Fly back the tracking alignment tape (TR02-100: 0-901-990-02).
- 4) Check that the HF markings of the well-known is flat at both side and center sides. If not flat, make adjustment as follows. (Refer to Fig. 8-1 and 8-2)

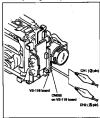


Fig. 8-1



Fig. 8-2

SECTION 9 VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 226.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

9-1-1. Equipments to be 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 (WR5-1NP)
Part Code: 8-967-995-02

For video frequency characteristics adjustment (WR5-6N)

Part Code: 8-967-995-12

For checking operations (WR5-4NL)^{Note 1}

Part Code: 8-967-995-51

(WR5-5NSP)^{Note 2}

Part Code: 8-967-995-42

Note: The following alignment tapes can also be used.

- 1) WR5-3NL (8-967-995-31)
- 2) WR5-4NSP (8-967-995-41)
- 12) Remote control unit for adjustment (J-6082-053-B)
- 13) DD-67 board extension cord (42P, 0.8 mm)
Part Code: J-6082-195-A
- 14) AU-171 board, Cabinet (R) extension cord (20P, 0.8 mm)
Part Code: J-6082-196-A
- 15) Mecha deck extension cord (30P, 0.8 mm)
Part Code: J-6082-167-A

9-1-2. Connecting the equipments

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

- Camera/player power switchPosition of the player
- Connect the adjusting remote control unit to the remote terminal (DD-67 board CN902).

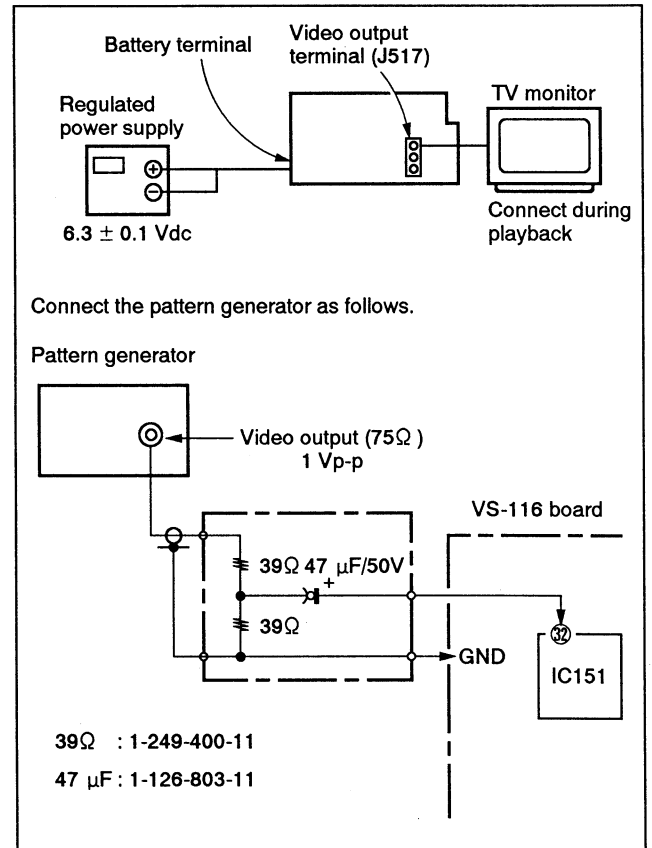


Fig. 9-1.

SECTION 9 VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 106.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

9-1-1. Equipments to be used

- 1) TV monitor
- 2) Oscilloscope (2 channels, total 20 MHz or wider, with delay mode. [See a. 10-1] probe unless specified otherwise.)
- 3) Oscilloscope
- 4) Pattern generator with video output terminal
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio oscilloscope
- 10) Regulated power supply
- 11) Alignment tape

For tracking adjustment (TRC-07F)
Part Code: 6-067-995-02

For video frequency characteristic adjustment (TRC-08)
Part Code: 6-067-995-12

For identifying operation (TRC-49L)
Part Code: 6-067-995-01

(TRC-500P)
Part Code: 6-067-995-03

Notes: The following alignment tapes are also to be used.

- 1) TRC-090, (S-067-995-01)
 - 2) TRC-090P (S-067-995-01)
- 12) Resistor control unit for adjustment (1-000-003-01)
 - 13) 130-07 board extension board (30P, 0.8 mm)
Part Code: 1-000-105-01
 - 14) All-FT board/Chassis (S) extension board (30P, 0.8 mm)
Part Code: 1-000-105-01
 - 15) Module dock extension board (30P, 0.8 mm)
Part Code: 1-000-107-01

9-1-2. Connecting the equipments

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

- Camera/lens power switch ——— Position of the player
- Connect the adjusting remote control unit to the remote control (30-07 board/ONR).

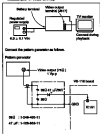


Fig. 9-1.

9-1-3. How to Set the REC Mode

1. REC key forbidden accept mode cancel
 1. Connect the adjustment remote controller to the REMOTE terminal.
 2. Turn on the power.
 3. Turn on the HOLD switch of the adjustment remote controller.
 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 4B [6B].^{Note 1} (REC key forbidden accept mode cancel)
 6. Press PAUSE button on the adjustment remote controller. (Write to the non-volatile memory)

The REC key is accepted through the above procedure.

2. REC mode setting
 1. Connect the collector of Q200 on the VS-116 board and GND with a jumper wire. (CCD delay (IC154) active mode setting)
 2. Turn on the HOLD switch of the adjustment remote controller.
 3. Select the page: 1 address: A3, and set data to 01.
 4. Select the page: 1 address: 0B, and set data to C8. (Line input mode setting)
 5. Turn off the HOLD switch of the adjustment remote controller.
 6. Press REC buttons of the adjustment remote controller.
 7. Remove the jumper wire and perform "3. Procedure after completed the adjustment", after completing adjustment.
3. Procedure after completed the adjustment
Be sure to return the mode to REC key forbidden accept mode after adjustment.
 1. Connect the adjustment remote controller to the REMOTE terminal.
 2. Turn on the power.
 3. Turn on HOLD switch of the adjustment remote controller.
 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 4A [6A].^{Note 1} (Setting of the REC key forbidden accept mode)
 6. Press PAUSE button on the adjustment remote controller. (Write to the non-volatile memory)

Note 1: No mark : CCD-TR28/TR30
[] : CCD-TR350/TR350PK

9-1-4. Precautions upon adjustment

The EVF (Electronic viewfinder) is not required for adjusting the video section.

Remove the following connector when removing the EVF section.

1. VS-116 board CN102 (6 PIN)

The front panel section assembly is required for adjusting the video section. Remove the following connectors when removing the front panel section assembly.

1. AU-171 board CN601 (5 PIN)

The cabinet (R) is required for adjusting the video section. Use the extension cord (J-6082-196-A) when adjusting the video section.

9-1-5. Set-up during Adjustment

As the video signal obtained from the pattern generator is used as an adjustment signal during electric adjustments, ensure that this video output signal is within the specification. Connect the oscilloscope to pin ② of IC151 on the VS-116 board, and check that the amplitude of the sync signal of the video signal is approximately 0.15V, the amplitude of the video section is approximately 0.35V, the amplitude of the burst signal is approximately 0.15V and flat, and that the level ratio of the burst signal and the [red] signal is 0.30: 0.66. The video signal (color bar) used for electric adjustments is shown in Fig. 9-2.

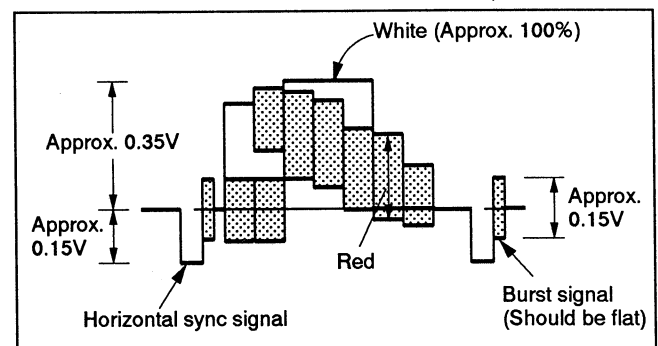


Fig. 9-2. Color Bar Signal of the Pattern Generator

8-4-3. How to Set the REC Mode

1. REC key (forbidden except mode reset)
 1. Connect the adjustment remote controller to the REMOTE terminal.
 2. Turn on the power.
 3. Turn on the HOLD switch of the adjustment remote controller.
 4. Select the page 1 address 00, and set the data to 01. (Press mode reset)
 5. Select the page 2 address 01, and set the data to 00. (REC key (forbidden except mode reset))
 6. Press (HOLD) button on the adjustment remote controller. (Write to the non-volatile memory)

The REC key is accepted through the above procedure.

2. REC mode setting

1. Connect the collector of Q400 to the VS-124 board and Q401 with a jumper wire. (ECLP delay (ECLAP) active mode setting)
 2. Turn on the HOLD switch of the adjustment remote controller.
 3. Select the page 1 address AD, and set the data to 01.
 4. Select the page 1 address 00, and set the data to 00. (Line type mode setting)
 5. Turn off the HOLD switch of the adjustment remote controller.
 6. Press REC button of the adjustment remote controller.
 7. Remove the jumper wire and pulling "0". Proceed after completed the adjustment, after completing adjustment.

3. Procedure after completed the adjustment

In case to return the mode to REC key (forbidden except mode after adjustment).

1. Connect the adjustment remote controller to the REMOTE terminal.
2. Turn on the power.
3. Turn on HOLD switch of the adjustment remote controller.
4. Select the page 1 address 00, and set the data to 01. (Press mode reset)
5. Select the page 2 address 01, and set the data to 00. (REC key)
6. (Setting of the REC key (forbidden except mode))
4. Press (HOLD) button on the adjustment remote controller. (Write to the non-volatile memory)

Note 1: No mark : CCC-TR0475E
[] : CCC-TR0007E000E.

8-4-4. Precautions upon adjustment

The ECV (Electronic viewfinder) is not supplied for adjusting the video mode.

Remove the following connector when inserting the ECV module.

1. VS-124 board (P004) (E-770)

The front panel module assembly is required for adjusting the video section. Remove the following connector when inserting the front panel module assembly.

1. AD-111 board (P006) (E-780)

The resistor (R) is required for adjusting the video section. Use the resistor used (J-4000 (R-2)) when adjusting the video section.

8-4-5. Setup during adjustment

As the video signal obtained from the pattern generator is used as an adjustment signal during remote adjustments, ensure that this video output signal is within the specification. Connect the multimeter to pin ② of ECV1 on the VS-124 board, and check that the amplitude of the sync signal of the video signal is approximately 0.15V, the amplitude of the burst signal is approximately 0.15V, the amplitude of the burst signal is approximately 0.15V and 75 Ω , and that the level ratio of the burst signal over the (sync) signal is 0.50-0.60. The video signal (color bar) used for electric adjustments is shown in Fig. 8-2.



Fig. 8-2. Color Bar Signal of the Pattern Generator

9-1-6. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment.

If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Recording mode	Tape type	Tape speed	Recording contents		Usage
				Video area	PCM area	
Tracking WR5-1NP	L	MP	SP	CH2: Signal for 1 MHz tape path adjustment		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-6N	L	MP	SP	RF sweep 0 to 10 MHz Marker 1, 3.58, 5.5, 7 MHz		Frequency characteristics adjustment
Operation check (SP mode) WR5-5NSP	L	MP	SP	<ul style="list-style-type: none"> Video signal Color bar 4 minutes Monoscope 4 minutes Audio signal (AFM) 400 Hz 60% modulation 	<ul style="list-style-type: none"> Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. 14 kHz 20 sec. } Color bar section Repeated 4 times 1 kHz 4 minutes 	Checking operations
Operation check (LP mode) WR5-4NL	L	MP	LP	<ul style="list-style-type: none"> Video signal Color bar 4 minutes Monoscope 4 minutes Audio signal (AFM) 400 Hz 60% modulation 		

Note: Recording mode

- L Conventional mode
- E hi8 (hi band) mode

Tape type

- MP Particle type metal tape
- ME Evaporated type metal tape

Table 9-1.

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

Note: Measure using the video input/output terminal (Terminated at 75 Ω)

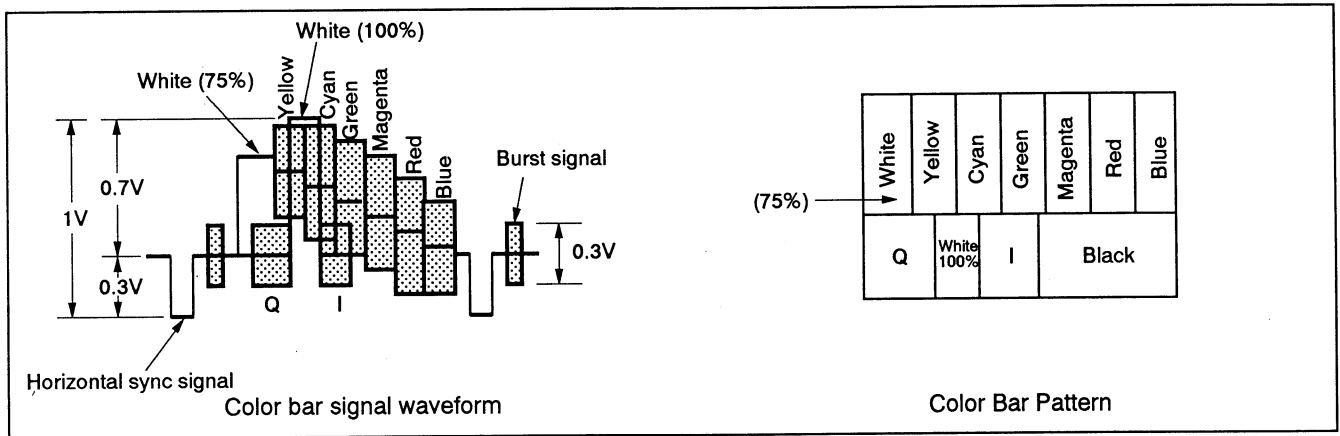


Fig. 9-3. Color Bar Signals of the Alignment Tape

9-1-7. Output Level and Impedance

- Video output Phono jack, 1 Vp-p, 75Ω
unbalanced, sync negative
- Audio output Phono jacks -7.5 dBs (at load
impedance 47 kΩ) impedance less
than 2.2 kΩ

8-1-6. Alignment Taps

The following table lists alignment taps which are available. Use the taps specified in the signal column for each adjustment.

If the type of tap to be used for checking operations is not specified, use white-tape type.

Name	Recorder ring mode	Tape type	Tape speed	Recording conditions		Usage
				Video area	PCM area	
Tracking WPS-LSP	L	MP	SP	CIS signal for 1 MHz tape path adjustment		Tape path adjustment (including position adjustment)
Video frequency characteristic WPS-SP	L	MP	SP	MP usage in 100MHz Modulator L, S, M, S, S, T (H)H		Frequency characteristic adjustment
Operative check (SP mode) WPS-SPSP	L	MP	SP	<ul style="list-style-type: none"> Video signal Color bar 4 minutes Monochrome 4 minutes Audio signal (A/FM) 100Hz 60Hz modulation 	<ul style="list-style-type: none"> Audio signal (PCM) Monochrome 4 minutes SPHS 30sec SPHS 30sec SPHS 30sec SPHS 30sec Reproduced 4 times 1 MHz 4 minutes 	Checking operations
Operative check (LP mode) WPS-SPL	L	MP	LP	<ul style="list-style-type: none"> Video signal Color bar 4 minutes Monochrome 4 minutes Audio signal (A/FM) 100Hz 60Hz modulation 		

Note: Recording mode

- L Operational mode
S Still (M) function mode

Tape type

- MP Multiple tape speed type
ML Monochrome type speed type

Table 8-1.

Fig. 8-5 shows the TTR color bar signals recorded on the alignment tape.

Note: Measure using the video tape/wiretap terminal (Terminal 21 (2)).

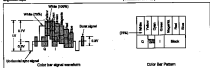


Fig. 8-5. Color Bar Signals on the Alignment Tape

8-1-7. Output Level and Impedance

Video output: Phase lock, 1 Type, TBC
enhancement, zero signal

Audio output: Phase lock -1.5 dB (at level)
Impedance 67 Ω | Impedance loss
See 2.2.12

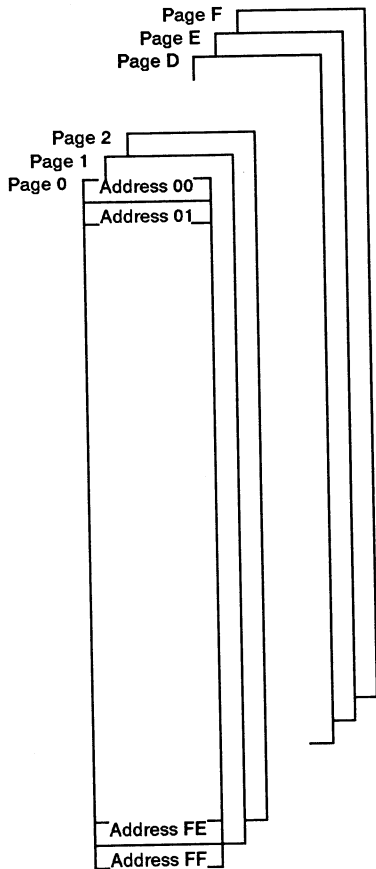
9-1-8. Service Mode

1. Setting the Service mode

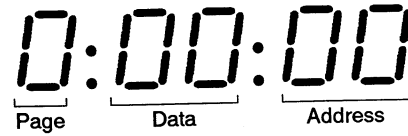
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which displays the condition of the unit.

The unit can be shifted into the test mode and adjustment mode by connecting the adjusting remote control unit (set the HOLD switch to the HOLD side).

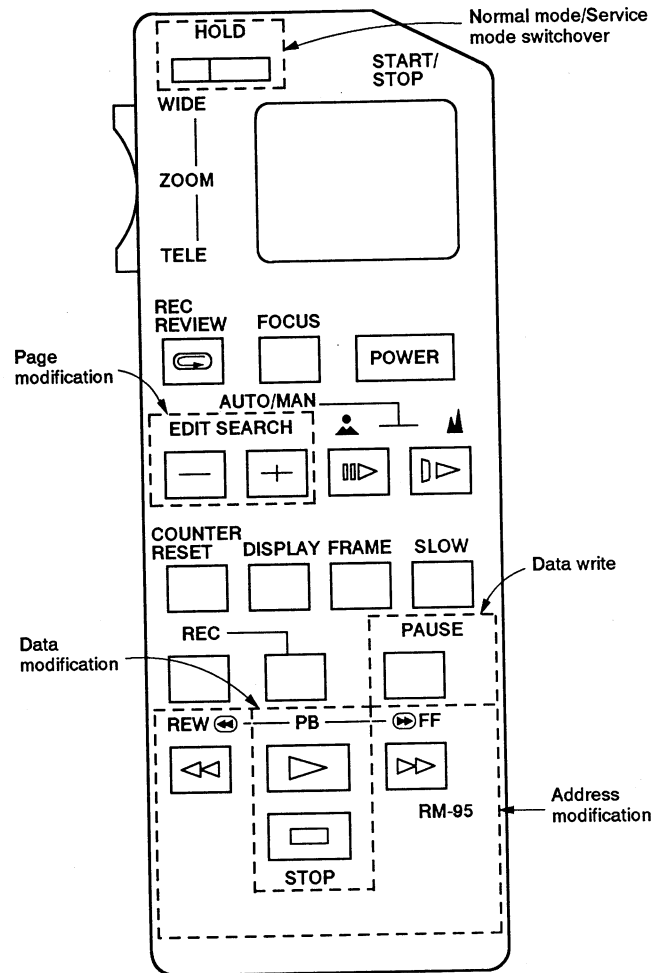
(1) Service LANC memory map



Adjusting Remote Control Unit LCD Display

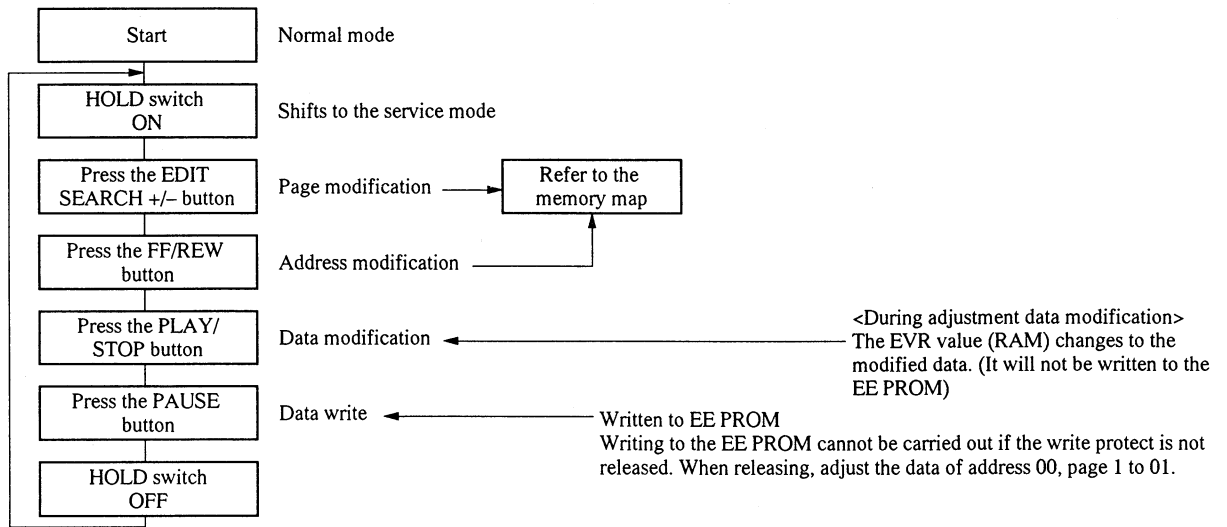


Adjusting remote control unit RM-95 (J-6082-053-B)



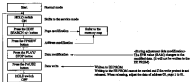
Page	Page allocation	Description
0	Not used	
1	Mode Control RAM, I/O	RAM and I/O interface data memory area required for operating the mode controller. Data is not held when the power is turned off because this area is not ROM.
2~4	Mechanical Control RAM, I/O	RAM and I/O memory area of the mechanical controller.
5	Not used	
6~8	Camera Control RAM, I/O	RAM and I/O memory area of the camera control.
9	Not used	
A	Camera Control RAM, I/O	RAM and I/O memory area of the camera control.
B, C	Not used	
D	VTR EE-PROM	ROM memory area of the VTR part. Data of this area is held by EE-PROM when the power is turned off. Releasing protect is required for changing data.
E	Not used	
F	Camera EE-PROM	ROM memory area of the camera part. Data of this area is held by EE-PROM when the power is turned off.

(2) Shifting to the Service Mode Using the Adjusting Remote Control Unit



Command Name	Command Function	Normal LANC command
Page Up	Page +1	Edit Search +
Page Down	Page -1	Edit Search -
Direc Page Set	Sets 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	Write the data to the EE PROM. RAM	Pause

(2) Shifting to the Service Mode Using the Adjusting Remote Control Unit



Command Name	Command Function	Normal LAMP command
Page Up	Page +1	Dim Level +
Page Down	Page -1	Dim Level -
Clear Page Set	Clear the specified page	Clear Code
Address Up	Address +1	Page Forward
Address Down	Address -1	Reverse
Data Up	Data +1	Play Stop
Data Down	Data -1	Play
Power	Write the data to the EEPROM RAM	Power

2. Types of Self-diagnostic Feature

MODE		Contents
TEST	Camera adjustment	Refer to Camera Adjustment
	Switching position adjustment	Refer to each adjustment page
	Battery DOWN adjustment	
	Video, Audio adjustment	
ADJUST	Pass Adjustment track shift	When adjusting tape pass, set this mode and shift the tracking.
	Emergency STOP inhibition	Detection of emergency is inhibited. This allows the following items. <ul style="list-style-type: none"> • Power is not turned off when the battery is ended. • SP/LP is not automatically distinguished. • Emergence is not detected except for TOP/END detection of the TAPE.
	Read of emergence code	The following functions are added to the emergency display function currently in use. <ol style="list-style-type: none"> ① The lithium battery is not required because to memorize into EE-PROM is allowed. ② The first emergency and the last emergency are memorized. ③ The mode when the emergency is generated is memorized, in addition to the emergency contents.
	Motor single check	Rotating in forward direction, reverse direction, stopping of each motor can be separately controlled. <ul style="list-style-type: none"> • Drum motor • Capstan motor • Loading motor
	Function switch check	The acceptance of the function switch of the unit can be confirmed by designating an address. On the contrary, RM-95 can command the substitution for the function switch of the unit.
	Mechanical switch check	The contents of the mechanical switch and the mode switch can be confirmed.
	Sensor check	The following sensor is input by performing A/D converting, and the A/D converted value can be confirmed. TOP sensor, End sensor, S REEL FG, T REEL FG, Thermistor for SWP correction, DEW sensor.
	Reception contents check of wireless remote control	The received code contents of the remote control code can be confirmed.

3. Page D Write Protect

Release/set the page D write protect.

Page 1	Address 00
--------	------------

Data	Function
00	Normal (Write protect condition)
01	Write protect release

4. Page F Write Protect

Release/set the page F write protect.

Page 6	Address 00
--------	------------

Data	Function
10	Normal (Write protect condition)
01	Write protect release

B. Types of Self-Diagnostic Features

	Feature	Contents
TEXT	Current adjustment	Refer to Current Adjustment
	Tracking position adjustment	
	Inventory (ICM) adjustment	Refer to seal adjustment page
	Video, Audio adjustment	
AUDIO	Free Adjustment (read, 4-8)	When adjusting tape path, or film-track and still the tracking.
	Emergency STOP function	Operation of emergency is inhibited. This allows the following items. <ul style="list-style-type: none"> • Emergency is not turned off when the battery is recharged. • EDPF is not automatically distinguished. • Emergency is not cleared except for TOPPROC-Initiation of the TVG.
	Kind of emergency mode	The following functions are added to the emergency display function currently in use. <ul style="list-style-type: none"> ① The battery battery is not required because of continuous low-LEVEL is allowed. ② The low-emergency and the full-emergency are controlled. ③ The mode when the emergency is generated is controlled, in addition to the emergency content.
	Motor single check	Running in forward direction, reverse direction, stopping of each motor can be separately controlled. <ul style="list-style-type: none"> • Drive motor • Capstan motor • Loading motor
	Function switch check	The emergency of the function switch of the unit can be confirmed by designating an address. On the contrary, RM-01 can command the substitution for the function switch of the unit.
	Mechanical switch check	The contents of the mechanical switch and the mode switch can be confirmed.
	Encoder check	The following items are input by performing A/E connecting, and the A/E connected value can be confirmed. TCP counter, Real counter, 2 FUEL, 10, 1 FUEL, 10, Threshold for SMP correction, LRV sensor.
Exception control (state of wireless remote control)	The received code contents of the remote-control code can be confirmed.	

3. Page 0 Write Protect

Referenced the page 0 write protect.

Page 0	Address (0)
--------	-------------

Data	Function
00	Normal (Write protect condition)
01	Write protect release

4. Page 1 Write Protect

Referenced the page 1 write protect.

Page 1	Address (0)
--------	-------------

Data	Function
00	Normal (Write protect condition)
01	Write protect release

5. Test Mode Setting

Each type of test mode is set/released. 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 Various emergency inhibition and release Drum, capstan, loading motor, reel, tape top, end, DEW SP/LP automatic distinction inhibition, manual switchover 5 minutes pause release inhibition Power off inhibition • release by battery end
02	Test mode 2 1'CH frequency response adjustment (Not used) SP/LP automatic distinction inhibition, manual switchover
03	Test mode 3 Track shift Plays back the track shift Rear lock distinction inhibition during PB SP/LP automatic distinction inhibition, manual switchover
04	Test mode 4 Rear lock mode Rear lock playback is performed SP/LP automatic distinction inhibition, manual switchover
05	Test mode 5 SP/LP automatic distinction inhibition, manual switchover

- * This address data will be recorded on the non-volatile memory by pressing the PAUSE button on the adjusting remote control unit. Take note, as when this happens, the test mode will not be released even if the main power is turned off (6.3 Vdc).
- * Be sure to return the data of this address data to 00 after completing adjustments/repairs.

6. Emergency code

Troubles (errors) can be checked.

Page D	Address 06
--------	------------

First emergency code

.....The first error code generated

Page D	Address 07
--------	------------

Last emergency code

..... The last error code generated (this data will be modified each time an error occurs.)

- * Be sure to rewrite the data of addresses 06 and 07 to 00 after completing repairs/adjustments.
- * When rewriting data, be sure to press the PAUSE button of the remote control unit after resetting the data.

Code	Error condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Other reel errors
04	Capstan error
05	DRUM FG error during drum start up
06	DRUM PG error during drum start up
07	DRUM FG error during drum regular condition
08	DRUM PG error during drum regular condition
09	DRUM Phase error during drum regular

8. Test mode setting

Each type of test mode is operational. Before the ported (page 1, address 02) data (02), before writing the data.

Page 02	Address 02
---------	------------

Code	Function
00	Normal
01	Test mode 1 Various emergency inhibition and release (Over, overtemp, leading motor over, over temp, and 0201) DPLP automatic disturbance inhibition, manual maintenance 3 inhibitor press release inhibition Release all inhibition + release by battery and
02	Test mode 2 FPU frequency response adjustment (See manual) DPLP automatic disturbance inhibition, manual maintenance
03	Test mode 3 Track shift Play back the track shift Over lock disturbance inhibition during 03 DPLP automatic disturbance inhibition, manual maintenance
04	Test mode 4 Overlock mode Over lock playback is performed. DPLP automatic disturbance inhibition, manual maintenance
05	Test mode 5 DPLP automatic disturbance inhibition, manual maintenance

- This address may only be provided as the user is not necessary by pressing the FPC00 button on the adjusting remote control unit. This unit, or when this happens, the test mode will not be released even if the mode press is released (PLI bit).
- Be sure to release the data of this address data to 00 after completing adjustments/repairs.

9. Emergency code

Tracking (error) can be cleared.

Page 02	Address 06
---------	------------

First emergency code

--- The first error code generated

Page 02	Address 07
---------	------------

Last emergency code

--- The last error code generated (this data will be modified each time an error occurs.)

- Be sure to rewrite the data of addresses 06 and 07 to 00 after completing adjustments/repairs.
- When rewriting data, be sure to press the FPC00 button of the remote control unit after rewriting the data.

Code	Error description
00	No error
01	Loading motor error
02	Over error during start/stop
03	Other real error
04	Overtemp error
05	0201, 04 FPU error during drive start/stop
06	0201, 04 FPU error during drive start/stop
07	0201, 04 FPU error during drive reverse condition
08	0201, 04 FPU error during drive reverse condition
09	0201, 04 Phase error during drive reverse

7. Emergency mode

The operation mode during an error outbreak can be checked.

Page D	Address 08
--------	------------

First emergency mode

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

Page D	Address 09
--------	------------

Last emergency mode

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

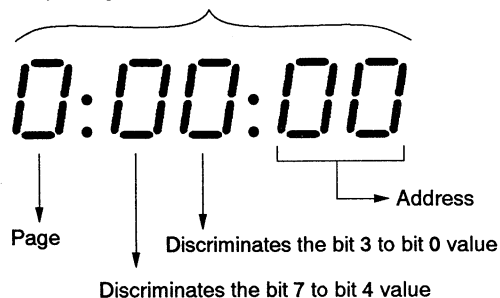
- * Be sure to rewrite the data of addresses 08 and 09 to 00 after completing repairs/adjustments.
- * When rewriting data, be sure to press the PAUSE button of the remote control unit after setting the data.
- * Addresses 08 and 09 of page 0 and addresses 08 and 09 of page D have the same functions.

Code	Error condition
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
36	-X1
37	-1/5 SLOW
46	CUE
47	1/10 SLOW
56	REVIEW
57	-1/10 SLOW
62	STOP TAPE END
66	X2
67	FRAME
72	STOP TAPE TOP
76	-X2
77	-FRAME
83	REWIND
85	REC REVIEW(+)
95	REC REVIEW(-)
A2	EMERGENCY STOP
A5	EDIT SEARCH(+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH(-)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

8. Bit value Discrimination

It is necessary to discriminate the bit value by the adjusting remote control unit display data for the following items. Discriminate if the bit value is "1" or "0" using the following table.

Adjusting remote control unit display



Remote Control Unit 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 (R)	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) When the remote control unit display data is "8E", the bit values of bit 7 to bit 4 can be discriminated from column Ⓐ, and that of bit 3 to bit 0 can be discriminated from column Ⓑ.

2. Emergency mode

The operation mode during an error condition can be checked.

Page 0	Address 00
--------	------------

Start emergency mode

--- The operation mode when the fault error is generated

Page 0	Address 00
--------	------------

Last emergency mode

--- The operation mode when the last error is generated
(This data will be qualified each data on error occur.)

- ① Be sure to provide the data of addresses 00 and 00 to 00 after completing repair/adjustment.
- ② When carrying data, be sure to press the PAUSE button of the remote control unit after setting the data.
- ③ Addresses 00 and 00 of page 0 and addresses 00 and 00 of page 0 show the same functions.

Code	Error condition
00	NOOP DETAIL JOB
01	STOPPED
02	NORMAL STOP
03	FF
04	NORMAL RUN
05	NORMAL PR
07	FEEDBACK
10	LOADING
11	ENC PAUSE
09	SI
20	ON SLOW
21	UNLOADING
26	-SI
27	OFF SLOW
46	CLIP
47	ON SLOW
56	REVERSE
57	OFF SLOW
60	STOP TAKE END
66	SI
67	-PRASE
70	STOP TAKE TOP
76	-SI
77	-PRASE
81	REVERSE
86	ENC REVERSE 1
87	ENC REVERSE 2
A0	EMERGENCY STOP
A1	EMERGENCY STOP
B1	EMERGENCY (PAUSE/STOP)
B2	STOP EMERGENCY 1
B3	EMERGENCY 2
C0	STOP EMERGENCY 2
C2	STOP NO COMMAND
C3	START PAUSE

3. Bit value Distribution

It is necessary to distribute the bit value by the following remote control unit display data for the following items. Distribute it the bit value to "0" or "1" using the following table.

adjusting remote control unit display



Distribute the bit 7 to bit 0 value

Remote Control Unit Display	Bit Value			
	bit 7 or bit 7	bit 6 or bit 6	bit 4 or bit 4	bit 3 or bit 3
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
① 8	1	0	0	0
9	1	0	0	1
A (A)	1	0	1	0
B (B)	1	0	1	1
C (C)	1	1	0	0
D (D)	1	1	0	1
② E (E)	1	1	1	0
F (F)	1	1	1	1

① Example: When the remote control unit display data is "00", the bit value of bit 7 to bit 4 can be distributed from column ①, and that of bit 3 to bit 0 can be distributed from column ②.

9. Check of Tape Distinction Switch, etc.

Page 1	Address 3E
--------	------------

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
				REC PROOF	ME/MP	Hi8/Normal	

"1"=Recording impossible
"0"=Recording possible

"1"=ME tape
"0"=MP tape

"1"=Hi8 mode playback
"0"=Normal mode playback

Page 1	Address 23
--------	------------

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
					CC DOWN		

"0"=During cassette compartment lock

Page 1	Address 3D
--------	------------

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
V MUTE	A MUTE	VA PB MODE	JOG	PB CLOG	REC CLOG	SYNC DET	LP/SP

"1"=LP mode playback
"0"=SP mode playback

"1"=SYNC is detected
"0"=SYNC is not detected

"1"=CLOG is detected
"0"=Normal

"1"=When the PB RF signals are being playback normally
"0"=Others

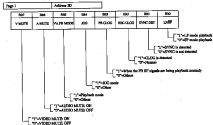
"1"=JOG mode
"0"=Other

"1"=Playback mode
"0"=Others

"1"=AUDIO MUTE: ON
"0"=AUDIO MUTE: OFF

"1"=VIDEO MUTE: ON
"0"=VIDEO MUTE: OFF

8. Check of Tape Distortion Switch, etc.



Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
						DEW	

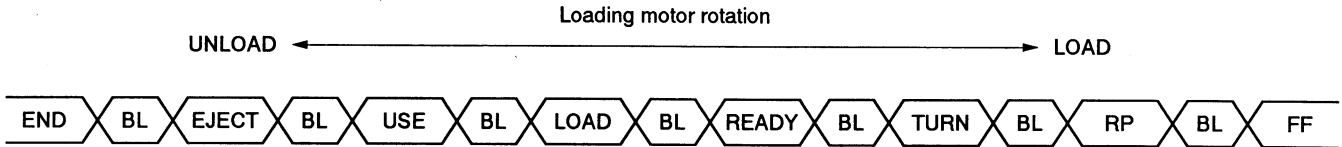
"0"=Dew outbreak
 "1"=Others

10. Mode Switch Check

The mode switch position (mechanical section condition) can be checked.

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
MSW 0	MSW 1	MSW 2					

MSW 0	MSW 1	MSW 2	POSITION	FUNCTION	CC DOWN
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



Page 1 Address 01

000	001	002	003	004	005	006	007	008
							0000	

↑ 00=0000
↑ 01=0000

18. Mode Switch Check

The switch status position (mechanical switch condition) can be checked.

Page 1 Address 01

000	001	002	003	004	005	006	007	008
0000 0	0000 1	0000 2						

			POSITION	FUNCTION	ADDRESS
0	0	0	RL	Release of each position	
0	0	1	RDG	PLG, RDG processing (1 bit/each channel)	1
0	0	1	RSTCT	Classic emergency stopper	1
1	0	1	LSR	SELECTED (Lock-out)	1
0	0	1	LRM	LOCKING (locking)	0
1	0	0	MRM	MOVING STOP position	0
1	0	0	LRM	Lock of gate valve only with P0=RDV (locking pattern)	0
0	0	0	SP	PL, SRC, SWL, SWV, SWP	0
0	0	0	PF	PFCLD	0

Locking valve position

UNLOCK ←-----→ LOCK



11. Mechanism Control A/D Port Input Voltage Check

Page 4	Address 14
--------	------------

Checking method:

- 1) Set data: 02 to page: 4, address: 0E.
(A/D conversion processing active)
- 2) Set the data in the following table to page: 4, address: 13, and select the A/D port to be displayed.

Data	A/D Port
00	Pin ②: AN0 (T REEL FG)
01	Pin ⑥: AN1 (S REEL FG)
02	Pin ⑩: AN2 (ATF ERROR)
03	Pin ⑭: AN3 (BATT SENS)
04	Pin ⑱: AN4 (DEW)

- 3) Check the data of page: 4, address: 14.

Adjusting Remote Control Unit Display Data	A/D Port Input Voltage
FF to 00	Approx. 5 Vdc to 0 Vdc

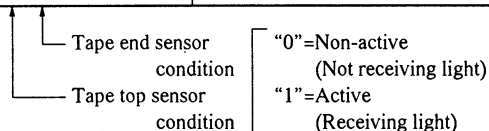
12. Tape Top/End Sensor Condition Check

Page 4	Address 0A
--------	------------

Checking method:

- 1) Set data: 10 to page: 4, address: 0E.
(Tape top/end sensor condition sampling processing active)
- 2) Check the data of page: 4, address: 0A.

Adjusting Remote Control Unit Display Data	Tape Top/End Sensor Condition
0 0	Tape present (Middle of tape)
0 1	Tape end
1 0	Tape top
1 1	No tape



13. Battery Voltage Check

Page 4	Address 10
--------	------------

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

14. Individual Operations of the Drum, Capstan, and Loading Motor

Page 4	Address 11
--------	------------

- 1) Adjust the mechanical section to the loading completion condition.
- 2) Release the protect.
Page: 1, address: 00, data: 01
- 3) Set data: 01 to page: 4, address: 0E.
(Control permission from the adjusting remote control unit of the motor)
- 4) By setting the data in the following table to page: 4, address: 11, the corresponding motors can be operated individually.
- 5) After checking the operations, turn off the main power (6.3 Vdc).

Data	Operation
00	Normal
02	Drum forward rotation
04	Drum reverse rotation
06	Capstan forward rotation
08	Capstan reverse rotation
0A	Loading motor forward rotation
0C	Loading motor reverse rotation
01	All motors stop
03	
05	
07	
09	
0B	
0D	
0F	

11. Mechanical Control A/D Port Input Voltage Check

Page 4	Address 14
--------	------------

Checking method

- Set data 00 to page 4, address 00.
(A/D conversion processing starts)
- Set the data in the following table to page 4, address 10, and observe the A/D port data displayed.

Data	A/D Port
00	Pin 00: A/D (1-PIN), P0
01	Pin 01: A/D (2-PIN), P1
02	Pin 02: A/D (3-PIN), P2
03	Pin 03: A/D (4-PIN), P3
04	Pin 04: A/D (5-PIN), P4
05	Pin 05: A/D (6-PIN), P5

- Check the data of page 4, address 14.

Adjusting Remote Control Unit Display Data	A/D Port Input Voltage
FF to 00	Approx. 0 V to 2.7 V

12. Tape Transport Sensor-Condition Check

Page 4	Address 04
--------	------------

Checking method

- Set data 00 to page 4, address 00.
(Tape transport sensor condition checking processing starts)
- Check the data of page 4, address 04.

Adjusting Remote Control Unit Display Data	Tape Transport Sensor Condition
0 0	Type correct (outside of tape)
0 1	Tape out
1 0	Tape up
1 1	No tape

Tape is correct condition

Tape up error condition

Tape is out condition (the moving tape)

Tape is up condition (loading tape)

13. Battery Voltage Check

Page 4	Address 10
--------	------------

Adjusting Remote Control Unit Display Data	Battery Voltage
FF	Approx. 0 V to 0 V
90	Approx. 0.8 V to 0 V
80	Approx. 0.9 V to 0 V
70	Approx. 1.0 V to 0 V
60	Approx. 1.1 V to 0 V
50	Approx. 1.2 V to 0 V
40	Approx. 1.3 V to 0 V
30	Approx. 1.4 V to 0 V
20	Approx. 1.5 V to 0 V
10	Approx. 1.6 V to 0 V

14. Individual Operations of the Drive, Capstan, and Loading Motor

Page 4	Address 11
--------	------------

- Adjust the mechanical section to the loading completion condition.
- Release the pressure.
Page 1, address 00, data 01
- Set data 01 to page 4, address 00.
(Control permission from the adjusting section created out of the center)
- By setting the data in the following table to page 4, address 11, the corresponding motor can be operated individually.
- After starting the operation, turn off the main power (P.L. Vcc).

Data	Operation
00	None
01	Drive forward rotation
02	Drive reverse rotation
03	Capstan forward rotation
04	Capstan reverse rotation
05	Loading motor forward rotation
06	Loading motor reverse rotation
07	
08	
09	
0A	
0B	
0C	
0D	
0E	
0F	All motors stop

15. Mode control micro processor key matrix check

The key input can be checked.

Page 1		Address 68~6D						
	Bit7	Bit6 (K IN 6)	Bit5 (K IN 5)	Bit4 (K IN 4)	Bit3 (K IN 3)	Bit2 (K IN 2)	Bit1 (K IN 1)	Bit0 (K IN 0)
Address 68 (K OUT 0)		LENS COVER OPEN (MF-214 S973)	VTR POWER (CF-34 S997)		PAUSE (VK-32 S984)		EJECT (DD-67 S901)	
Address 69 (K OUT 1)			CAMERA POWER (CF-34 S997) (SW-223 S519)	FF (VK-32 S983)	PLAY (VK-32 S980)	REW (VK-32 S979)	STOP (VK-32 S976)	
Address 6A (K OUT 2)							COUNTER RESET (CF-34 S995)	
Address 6B (K OUT 3)					TIME (CF-34 S996)	DATE (CF-34 S993)		
Address 6C (K OUT 4)								
Address 6D (K OUT 5)							START/ STOP (SW-223 S520)	REMOTE COMMANDER (ED-37 S990) (TR28/TR30 only)

"1"=key switch ON

"0"=key switch OFF

16. Wireless Remote Control Unit Reception Content Check

Page 1		Address 1E
Wireless remote control unit key pressed	Data	
None	FF	
TELE	9A	
WIDE	9B	
Start/stop	99	
Rewind	1B	
Fast forward	1C	
Stop	18	
Playback	1A	
Data screen	5A	
Pause	19	
SLOW	23	

18. Remote control where processor key matrix check

The key legend can be checked.

Page 1		Address 00-03					
	Key	00 (0.00-0)	01 (0.01-1)	02 (0.02-2)	03 (0.03-3)	04 (0.04-4)	05 (0.05-5)
Address 00 (0.00-0)		STOP/POWER OFF (00-00-00)	VIEW PICTURE (07-04-0000)		PAUSE (05-04-0000)		BACK (04-04-0000)
Address 01 (0.01-1)			CONTRAST ADJUSTMENT (06-04-0000)	FF (05-04-0000)	PLAY (05-04-0000)	REW (06-04-0000)	FFWD (06-04-0000)
Address 02 (0.02-2)							EXIT/POWER OFF (07-04-0000)
Address 03 (0.03-3)					Fast (07-04-0000)	Search (07-04-0000)	
Address 04 (0.04-4)							
Address 05 (0.05-5)							FRONT STOP (08-04-0000)
							REVERSE CONTRAST ADJUSTMENT (09-04-0000)

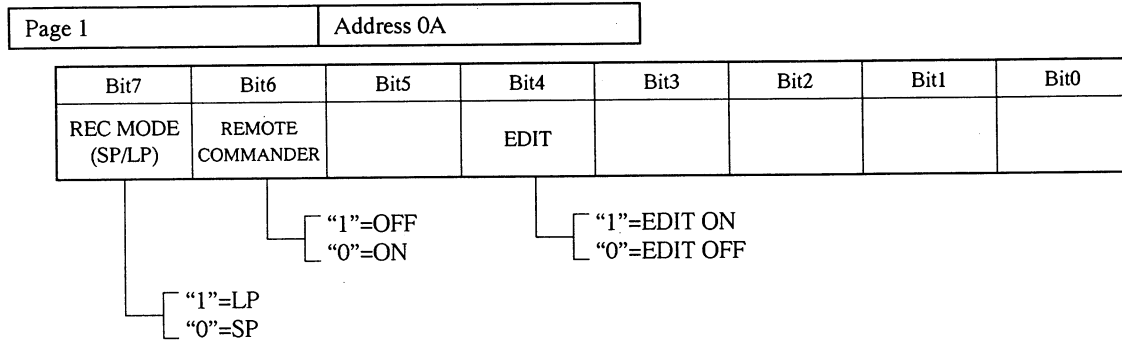
*07-key select OFF

*07-key select ON

**19. Wireless Remote Control Unit Reception
Confirm Check**

Page 1		Address 08	
Wireless remote control unit key pressed		08	09
Power		00	
TEMP		0A	
VIEW		0B	
Play/Pause		0C	
Search		0D	
Fast Forward		0E	
Stop		0F	
Play/Pause		0A	
Reverses		0B	
Power		0C	
SLOW		0D	

17. EDIT Switch, Remote Commander Switch Check



18. White Balance Mode and Focus Mode Display/Switchover

Page 1	Address 9A
--------	------------

The mode can be switched when the data of page: 1, address: A3 is set to 04.

Data	White Balance Mode
* 1	INDOOR
* 2	OUTDOOR
* 3	HOLD
* 6	AUTO

Data	Focus Mode
0 *	Manual
1 *	Automatic

* : 0 to F

19. LCD, LED Check, etc.

Page 1	Address A3
--------	------------

Data	Mode
00	Normal
01	Key input prohibited
04	Camera function renewal prohibited

17. **SDI Switch, Remote Commander Switch Check**

Page 1	Address 0A
--------	------------

Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit
SDI-LOCK (OFF)	SDI-KEY COMMAND		SDI				SDI



18. **White Balance Mode and Focus Mode Display/Behavior**

Page 1	Address 06
--------	------------

The data can be written when the data of page 1, address 03 is set to 06.

Data	White Balance Mode
0 1	SHOOT
0 2	OUTDOOR
0 3	INDOOR
0 4	OFF

Data	Focus Mode
0 0	Manual
1 0	Automatic

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19. **LED, LED Check, etc.**

Page 1	Address 03
--------	------------

Data	Mode
00	Reset
01	Key-type prohibited
04	Camera function reserved prohibited

20. Page D Address List

Note 1: The adjustment data initial value is the data to be input before performing video section adjustment (page D), when the page D data has been erased due to some cause.

Note 2: The data listed in the adjustment data memo column are the fixed data.

*1 No mark : CCD-TR28/TR30
[]: CCD-TR350/TR350PK

Check that these data have not been accidentally rewritten, after completing adjustments.

Address	Name	Function [] Indicate the adjustment voltage output terminal	Adjustment data		
			Initial value	Memo column	
00	Category code	Not used			
01	Test mode		00	00	
02	Destination flag		4A[6A]*1	4A[6A]*1	
03	BATT END	Battery end adjustment	8C		
04	SW POSITION	SW POSITION adjustment	00		
05	SW POSITION	SW POSITION adjustment	0A		
06	EMERGENCY code (FIRST)	Error code and mode are memorized. 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	24	24	
0B	SR DATA (MP Normal LP)	CXA1207 serial data	3E	3E	
0C	SR DATA (ME Hi8 SP)	CXA1207 serial data	24	24	
0D	SR DATA (ME Hi8 LP)	CXA1207 serial data	3E	3E	
0E	SR DATA (ME Normal SP)	CXA1207 serial data	24	24	
0F	SR DATA (ME Normal LP)	CXA1207 serial data	3E	3E	
10	SR DATA (MP Hi8 SP)	CXA1207 serial data	24	24	
11	SR DATA (MP Hi8 LP)	CXA1207 serial data	3E	3E	
12	SR DATA (EDIT ON Normal)	CXA1207 serial data	3E	3E	
13	SR DATA (EDIT ON Hi8)	CXA1207 serial data	3E	3E	
14	CAM TITLE BLU R-Y	Camera titler color adjustment [Blue]. Not used			
15	CAM TITLE BLU B-Y	Camera titler color adjustment [Blue]. Not used			
16	CAM TITLE GRN R-Y	Camera titler color adjustment [Green]. Not used			
17	CAM TITLE GRN B-Y	Camera titler color adjustment [Green]. Not used			
18	CAM TITLE CYN R-Y	Camera titler color adjustment [Light blue]. Not used			
19	CAM TITLE CYN B-Y	Camera titler color adjustment [Light blue]. Not used			
1A	CAM TITLE RED R-Y	Camera titler color adjustment [Red]. Not used			
1B	CAM TITLE RED B-Y	Camera titler color adjustment [Red]. Not used			
1C	CAM TITLE VIO R-Y	Camera titler color adjustment [Violet]. Not used			
1D	CAM TITLE VIO B-Y	Camera titler color adjustment [Violet]. Not used			
1E	CAM TITLE YEL R-Y	Camera titler color adjustment [Yellow]. Not used			
1F	CAM TITLE YEL B-Y	Camera titler color adjustment [Yellow]. Not used			
20	Permission plug		94	94	
21	Adjustment plug	FORCED VTR ON, CAM ON etc	00	00	
		DATA			MODE
		01			FORCED CAMERA POWER ON
		02	FORCED VTR POWER ON		
22~29		Not used			

Table 9-2 (1).

20. Page 0 Address List

Note 1: The adjustment data initial value is the data to be input before performing video source adjustment (page 17), when the page 0 data has been stored due to error state.

Note 2: The data listed in the adjustment data screen returns on the fixed date.

Check that these data have not been accidentally overwritten, after completing adjustments.

- *) No mark : OSD-TIME/TEXT
 | : OSD-TIME/TEXT/TEXT

Address	Name	Function [] Indicate the adjustment voltage-output terminal	Adjustment data	
			Initial value	Menu value
00	Category code	Not used		
01	Text code		00	00
02	Execution flag		SA/SA/71	04/04/71
03	EXT (EXT)	Setting and adjustment	00	
04	SW POSITION	SW POSITION adjustment	00	
05	SW POSITION	SW POSITION adjustment	04	
06	EMERGENCY code (PANEL)	These code and code are cancelled. Enter the data of these addresses to fill other input/adjustments	00	00
07	EMERGENCY code (LAMP)		00	00
08	EMERGENCY code (FRONT)		00	00
09	EMERGENCY code (LAMP)		00	00
0A	SR DATA (SR Normal SP)		CRAL07 serial data	24
0B	SR DATA (SR Normal LP)	CRAL07 serial data	20	20
0C	SR DATA (SR SR SP)	CRAL07 serial data	24	24
0D	SR DATA (SR SR LP)	CRAL07 serial data	20	20
0E	SR DATA (SR Normal SP)	CRAL07 serial data	24	24
0F	SR DATA (SR Normal LP)	CRAL07 serial data	20	20
10	SR DATA (SR SR SP)	CRAL07 serial data	24	24
11	SR DATA (SR SR LP)	CRAL07 serial data	20	20
12	SR DATA (SR SR Normal)	CRAL07 serial data	20	20
13	SR DATA (SR SR SR)	CRAL07 serial data	20	20
14	CAM TITLE SELECT Y	Camera title code adjustment (Title), Not used		
15	CAM TITLE SELECT B-Y	Camera title code adjustment (Title), Not used		
16	CAM TITLE COR B-Y	Camera title code adjustment (Color), Not used		
17	CAM TITLE COR B-Y	Camera title code adjustment (Color), Not used		
18	CAM TITLE COR B-Y	Camera title code adjustment (Light blue), Not used		
19	CAM TITLE COR B-Y	Camera title code adjustment (Light blue), Not used		
1A	CAM TITLE RED B-Y	Camera title code adjustment (Red), Not used		
1B	CAM TITLE RED B-Y	Camera title code adjustment (Red), Not used		
1C	CAM TITLE YD B-Y	Camera title code adjustment (Yellow), Not used		
1D	CAM TITLE YD B-Y	Camera title code adjustment (Yellow), Not used		
1E	CAM TITLE YEL B-Y	Camera title code adjustment (Yellow), Not used		
1F	CAM TITLE YEL B-Y	Camera title code adjustment (Yellow), Not used		
20	Procedure flag		04	04
21	Adjustment flag	FORCE VTR ON, CAM ON ON ON/OFF ON OFF 01 FORCE CAMBEN POWER ON 00 FORCE VTR POWER ON	00	00
22-2F		Reserved		

Table 4-4 (7)

Address	Name	Function [] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
2A	SLOW ADJ (FOWARD)		00	00
2B	SLOW ADJ (REVERSE)		00	00
2C	STILL ADJ		00	00
2D	BATT REMAIN LEVEL 1	Amount of remaining battery 1	A0	
2E	BATT REMAIN LEVEL 2	Amount of remaining battery 2	99	
2F	BATT REMAIN LEVEL 3	Amount of remaining battery 3	94	
30~42		Not used		
43	1-ch M.T NORMAL	1 ch playback frequency characteristic adjustment [IC158 ②]	C0	
44				
45	2-ch M.T NORMAL	2 ch playback frequency characteristic adjustment [IC158 ③]	C0	
46	REC C RF (EE)	REC C RF level adjustment (EE) [IC156 ⑩]	B8	
47	REC C RF (PB)	REC C RF level adjustment (PB) [IC156 ⑩]	00	
48	RF CONT (ME)	ATF RF level (ME) [IC158 ⑤]	64	64
49	RF CONT (MP)	ATF RF level (MP) [IC158 ⑤]	70	70
4A	EE LEVEL	EE level adjustment [IC156 ⑮]	70	70
4B		Not used		
4C	COMB ADJ	Chroma comb filter adjustment [IC156 ③]	A8	
4D	SR-IR	IR adjustment [IC156 ②]	AE	
4E	Y-FM CARRIER (Hi8)			
4F	Y-FM CARRIER (NORMAL)	Y-FM carrier frequency adjustment [IC156 ⑤]	A8	
50	Y-FM DEVIATION (Hi8)			
51	Y-FM DEVIATION (NORMAL)	Y-FM deviation adjustment [IC156 ⑥]	95	
52	REC Y LEVEL (EE Hi8 ME)			
53	REC Y LEVEL (EE Hi8 MP)			
54	REC Y LEVEL (EE NOR ME)	REC Y recording current adjustment (ME) [IC156 ⑦]	95	
55	REC Y LEVEL (EE NOR MP)	REC Y recording current adjustment (MP) [IC156 ⑦]	95	
56	REC Y LEVEL (PB)	Playback REC Y level [IC156 ⑦]	00	00
57	PB Y LEVEL (EE)	EE PB Y level [IC158 ⑮]	00	00
58	PB Y LEVEL (Hi8)			
59	PB Y LEVEL (NORMAL)	Normal PB Y level adjustment [IC158 ⑮]	B0	
5A	EMPHASIS INPUT LEVEL	EE emphasis input level adjustment [IC156 ④]	A5	
5B	PB LINE LEVEL	Playback emphasis input level adjustment [IC156 ④]	AF	
5C~79		Not used		
7A	1.5 IR	1.5 MHz IR adjustment [IC158 ⑥]	A0	
7B	1.5 DEV	1.5 MHz deviation adjustment [IC158 ⑦]	A0	
7C~FF		Not used		

Table 9-2 (2)

Address	Name	Function [] (Indicate the adjustment settings output level)	Adjustment Data	
			Initial value	Max. address
3A	SLOW AXI (NORMAL)		00	00
3B	SLOW AXI (OVERDR)		00	00
3C	Y-FIL AXI		00	00
3D	SAFT BRUSH LEVEL 1	Amount of sweeping battery 1	AJ	
3E	SAFT BRUSH LEVEL 2	Amount of sweeping battery 2	00	
3F	SAFT BRUSH LEVEL 3	Amount of sweeping battery 3	00	
39-3C		Not used		
40	1- ϕ M/T NORMAL	1- ϕ physical frequency characteristic adjustment (C114- ②)	00	
41				
42	1- ϕ M/T NORMAL	1- ϕ physical frequency characteristic adjustment (C114- ②)	00	
44	SEC 1 MP (70)	SEC 1 MP level adjustment (70) (C114- ③)	00	
47	SEC 2 MP (70)	SEC 2 MP level adjustment (70) (C114- ④)	00	
48	SP CONT (MP)	ATP SP level (MP) (C114- ⑤)	00	04
49	SP CONT (MP)	ATP SP level (MP) (C114- ⑤)	70	70
4A	SS LEVEL	SS level adjustment (C114- ⑥)	70	70
4B		Not used		
4C	OSRD AXI	OSRD main filter adjustment (C108- ②)	00	
4D	OS-00	OS adjustment (C114- ⑦)	A0	
4E	Y-FIL CALIB (70)			
4F	Y-FIL CALIB (NORMAL)	Y-Fil center frequency adjustment (C114- ⑧)	A0	
50	Y-FIL DEVIATION (00)			
51	Y-FIL DEVIATION (NORMAL)	Y-Fil deviation adjustment (C114- ⑨)	00	
52	SEC 1 LEVEL (00 NR 00)			
53	SEC 1 LEVEL (00 NR 00)			
54	SEC 1 LEVEL (00 NR 00)	SEC 1 sweeping current adjustment (MP) (C114- ⑩)	00	
55	SEC 1 LEVEL (00 NR 00)	SEC 1 sweeping current adjustment (MP) (C114- ⑩)	00	
56	SEC 1 LEVEL (70)	Physical SEC 1 level (C114- ⑪)	00	00
57	PS 1 LEVEL (00)	PS PS 1 level (C114- ⑫)	00	00
58	PS 1 LEVEL (00)			
59	PS 1 LEVEL (NORMAL)	Physical PS 1 level adjustment (C114- ⑬)	00	
5A	EMPHASIS INPUT LEVEL	00 emphasis input level adjustment (C108- ④)	AJ	
5B	PS LIM LEVEL	Physical emphasis input level adjustment (C114- ⑭)	AJ	
5C-5F		Not used		
7A	L1-00	L1 level adjustment (C108- ⑤)	A0	
7B	L1-00V	L1 level deviation adjustment (C108- ⑥)	A0	
7C-7D		Not used		

Table 9-4-20

9-2. POWER SYSTEM ADJUSTMENTS

1. Oscillator Frequency Check (DD-67 board)

Mode	Camera record
Subject	Arbitrary
Measurement Point	Q903 collector
Measuring Instrument	Frequency counter
Specified Value	510 ± 35 kHz

Adjusting method:

- 1) Check that the oscillator frequency satisfies the specified value.

2. Power Voltage Check (DD-67 board)

Mode	Camera record
Subject	Arbitrary
Measuring Instrument	Digital voltmeter
EVF 5V check	
Measurement Point	Pin ⑪ of CN901
Specified Value	4.93 ± 0.15 Vdc
D5V check	
Measurement Point	Pins ⑤ and ⑧ of CN901
Specified Value	4.92 ± 0.15 Vdc
D4V check	
Measurement Point	Pin ④ of CN901
Specified Value	3.98 ± 0.15 Vdc
VID 5V check	
Measurement Point	Pins ⑰, ⑳ of CN901
Specified Value	4.90 ± 0.15 Vdc
RP 5V check	
Measurement Point	Pin ㉔ of CN901
Specified Value	4.89 ± 0.15 Vdc
AU5V check	
Measurement Point	Pin ⑲ of CN901
Specified Value	4.90 ± 0.15 Vdc
CAM5V check	
Measurement Point	Pins ⑦ and ⑩ of CN901
Specified Value	4.86 $\begin{matrix} + 0.15 \\ - 0.11 \end{matrix}$ Vdc
CAM15V check	
Measurement Point	Pin ⑫ of CN901
Specified Value	15.05 ± 0.4 Vdc
CAM -9V check	
Measurement Point	Pin ⑨ of CN901
Specified Value	-8.5 ± 0.4 Vdc

9-3. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page D Initial Value Input

If the page D data has been erased due to some cause, input the page D initial value before performing adjustments. For details on the initial value, refer to "Page D address list" in "9-1-8. Service Mode".

Mode	E-E
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	00 to 7D

Input method:

- 1) Release the write protect.
Page: 1, address: 00, data: 01
- 2) Select page D, and input the initial value to each address.
(After setting the data (initial value), be sure to press the PAUSE button of the adjusting remote control unit before changing the address.)

9-2. POWER SYSTEM ADJUSTMENTS

1. Oscillator Frequency Check (20-M7 board)

Block	Control signal
Output	Address
Measurement Point	Q001 oscillator
Measuring Instrument	Frequency counter
Specified Value	30.0 ± 0.1 MHz

Adjusting method:

- Check that the oscillator frequency satisfies the specified value.

2. Power Voltage Check (20-M7 board)

Block	Control signal
Output	Address
Measuring Instrument	Digital voltmeter
EVT 2 nd check	
Measurement Point	Pin ① of C2001
Specified Value	4.00 ± 0.01 Vdc
EVT check	
Measurement Point	Pin ② and ③ of C2001
Specified Value	4.00 ± 0.01 Vdc
EVT check	
Measurement Point	Pin ④ of C2001
Specified Value	3.00 ± 0.01 Vdc
V12 1 st check	
Measurement Point	Pin ⑤, ⑥ of C2001
Specified Value	4.00 ± 0.01 Vdc
EP 2 nd check	
Measurement Point	Pin ⑦ of C2001
Specified Value	4.00 ± 0.01 Vdc
A12 nd check	
Measurement Point	Pin ⑧ of C2001
Specified Value	4.00 ± 0.01 Vdc
VAMP1 check	
Measurement Point	Pin ⑨ and ⑩ of C2001
Specified Value	4.00 ± 0.01 Vdc
CAM2 nd check	
Measurement Point	Pin ⑪ of C2001
Specified Value	0.00 ± 0.4 Vdc
CAM - 1 st check	
Measurement Point	Pin ⑫ of C2001
Specified Value	-0.5 ± 0.4 Vdc

9-3. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page Initial Value Input

If the page D data has been erased due to some cause, input the page D initial value before performing adjustments. For details on the initial value, refer to "Page D address list" in "9.3.2. Service Manual".

Block	Bit
Signal	Address
Adjusted Page	D
Adjusted Address	00-01-01

Input method:

- Release the write protect.
 - Page 1, address 00-00-01
- Select page D, and input the initial value to each address.
 - After writing the data (initial value), be sure to press the **FACTORY** button of the adjusting console control unit before changing the address.

2. Battery End Adjustment

Mode	Camera record
Signal	Arbitrary
Measurement Point	LCD display of the adjusting remote control unit
Measuring Instrument	
Adjustment Page	D
Specified Value	03 (BATT END) 2D (BATT REMAIN LEVEL 1) 2E (BATT REMAIN LEVEL 2) 2F (BATT REMAIN LEVEL 3)

Connection:

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

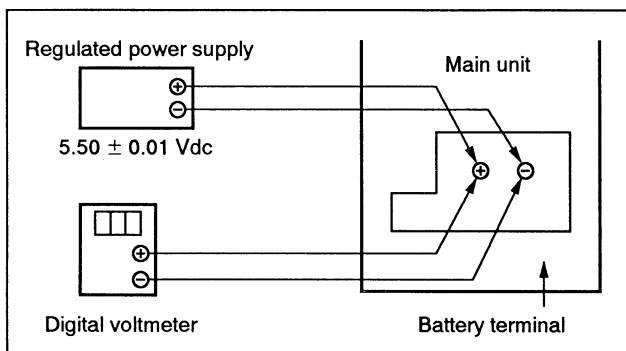


Fig. 9-4.

Adjusting method:

- 1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.3 ± 0.1 Vdc.
 - 2) Release the protect.
Page: 1, address: 00, data: 01
 - 3) Set data: 01 to page: D, address: 01.
(Test mode 1 setting)
 - 4) Set to the camera recording mode.
 - 5) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 5.50 ± 0.01 Vdc.
 - 6) Select page: 4, address: 10, read the adjusting remote control unit display data, and set to DEND.
 - 7) Set data DEND to page: D, address: 03, and press the PAUSE button of the adjusting remote control unit.
 - 8) Convert DEND to decimal to obtain DEND'. (Refer to Table 7-6. "Hexadecimal notation - decimal notation conversion table")
 - 9) Obtain the adjustment data (decimal) by following formula (decimal notation calculation), convert to hexadecimal and enter the data into each adjustment address.
Address: 2D $D2D' = DEND' + 18$
Address: 2E $D2E' = DEND' + 14$
Address: 2F $D2F' = DEND' + 8$
- Note:** After setting the data, be sure to press the PAUSE button of the adjusting remote control unit before changing the address.
- 10) Set data: 00 to page: D, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Test mode 1 release)
 - 11) 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:

Remove the adjusting remote control unit, and perform the following check. If the check is not satisfied, perform from the beginning again.

- 1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 6.3 ± 0.1 Vdc.
- 2) Set to the camera recording mode.
- 3) Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.70 ± 0.01 Vdc.
- 4) Check that the \square mark on the EVF (viewfinder) display is not lighted up. (TALLY lamp lights up).
- 5) Decrease the the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.58 ± 0.01 Vdc.
- 6) Check that the \square mark and the TALLY lamp on the EVF display on the EVF display blinks every second.
- 7) Decrease the the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.42 ± 0.01 Vdc.
- 8) 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.

2. Battery Level Adjustment

Menu	Command
Signal	ADJUST
Measurement Point	LCD display of the adjusting menu control unit
Measuring Instrument	
Adjustment Page	01
Specified Value	01 (BATT BND) 02 (BATT RECHARGE LEVEL 1) 03 (BATT RECHARGE LEVEL 2) 04 (BATT RECHARGE LEVEL 3)

Connections:

- 1) Connect the regulated power supply and the digital voltmeter shown in Fig. 2-4.



Fig. 2-4

Adjusting method:

- 1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 4.0 ± 0.1 Vdc.
- 2) Release the potentiometer.
- 3) Press 1, address 01, data 01.
- 4) Set data 01 to page 01, address 01. (Test mode 1 setting)
- 5) Set to the camera recording mode.
- 6) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 3.80 ± 0.05 Vdc.
- 7) Select page 4, address 01, and the adjusting menu control unit display data, and set to [000].
- 8) Set data 01 to page 01, address 01, and press the PAUSE button of the adjusting menu control unit.
- 9) Connect 01 to 01 to obtain 01 (01). (Refer to Table 2-6, "Manufactured settings - desired relative measurement table")
- 10) Obtain the adjustment data (desired) by following formula (desired relative measurement), convert to hexadecimal and enter the data into each adjustment address.
 Address 01: $01 \times 01 = 01$
 Address 02: $02 \times 01 = 02$
 Address 03: $03 \times 01 = 03$
 Address 04: $04 \times 01 = 04$
Note: After writing the data, be sure to press the PAUSE button of the adjusting menu control unit before changing the address.
- 11) Set data 01 to page 01, address 01, and press the PAUSE button of the adjusting menu control unit. (Test mode 1 release)
- 12) Perform "Battery Level Check".

3. Battery Level Check

Menu	Command
Signal	ADJUST

Connections:

- 1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 2-4.

Checking method:

Remove the adjusting menu control unit, and perform the following check. If the check is not satisfied, perform from the beginning again.

- 1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 4.0 ± 0.1 Vdc.
- 2) Set to the camera recording mode.
- 3) Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes 3.70 ± 0.05 Vdc.
- 4) Check that the 01 mark on the BATT (charge/level) display is not lit (not lit).
- 5) Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes 3.50 ± 0.05 Vdc.
- 6) Check that the 02 mark and the FULLY lamp on the BATT display or the BATT display (BATT) are lit.
- 7) Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes 3.42 ± 0.01 Vdc.
- 8) Check that the 03 mark and the FULLY lamp on the BATT display are lit (not lit), the VTR stops and the power supply runs off.

9-4. SERVO SYSTEM ADJUSTMENTS

1. Switching Position Adjustment (VS-116 board)

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

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Set data: 0A to page: D, address: 05.
- 3) Change the data of page: D, address: 05 and minimize "t₁".
(Coarse adjustment)
- 4) Press the PAUSE button of the remote control unit.
- 5) Change the data of page: D, address: 04, and adjust so that the switching position (t₁) becomes the specified value.
(Fine adjustment)
- 6) Press the PAUSE button of the adjusting remote control unit.

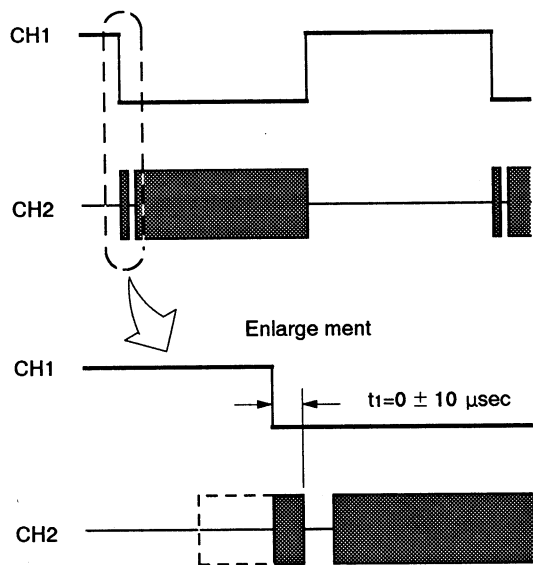


Fig. 9-5.

9-5. VIDEO ADJUSTMENTS

The adjustments of the video system must be performed according to the following adjustment procedure.

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

[Adjusting procedure]

- 1) Playback frequency characteristic adjustment
- 2) Flying erase check
- 3) VXO oscillation frequency check
- 4) EE level adjustment
- 5) IR adjustment
- 6) Y/C separation adjustment
- 7) Emphasis input level adjustment
- 8) PB Y level adjustment
- 9) PB LINE OUT level adjustment
- 10) Y FM carrier frequency adjustment
- 11) Deviation adjustment
- 12) Chroma emphasis f₀ adjustment
- 13) REC Y level adjustment
- 14) REC C level adjustment
- 15) REC ATF level check
- 16) REC AFM level check

8-4. SERVO SYSTEM ADJUSTMENTS

1. Servoing Position Adjustment (P04-P05 board)

Mode	Playback
Signal	Alignment stop No tracking adjustment (P04-P05)
Microcomputer Port	020: P0 (2nd CH00) (P0-10V) 021: P0 (2nd CH00) (P0-10V)
Microingy Component	Discharge
Adjustment Page	0
Adjustment Address	04 (2nd POSITION) 05 (2nd POSITION)
Specified Value	0-0.1 (10 μm)

Adjusting method

- 1) Release the probe.
Page 1, address 04, data 00.
- 2) Set data 04 to page 0, address 05.
- 3) Change the data of page 0, address 05 and minimize "0".
(Close adjustment)
- 4) Press the PAUSE button of the master control unit.
- 5) Change the data of page 0, address 04, and adjust to fit the retarding position (0) because the specified value. (Open adjustment)
- 6) Press the PAUSE button of the adjusting master control unit.



Fig. 8-4.

8-5. ZERO ADJUSTMENTS

The adjustments of the video system must be performed according to the following adjustment procedure.

The video video signal supplied from the position generator is used as the video input signal for adjusting the video system in scanning mode. Check that the type signal and the video frame signal satisfy the specification specified during the adjustment setup shown in Fig. 7-2.

Adjusting procedure

- 1) Playback frequency characteristic adjustment
- 2) Flying start check
- 3) VSLI saturation frequency check
- 4) 80° level adjustment
- 5) H adjustment
- 6) Y0 separation adjustment
- 7) Playback input level adjustment
- 8) PE T level adjustment
- 9) P0-10V CRT level adjustment
- 10) Y PAI master frequency adjustment
- 11) Deviation adjustment
- 12) Chroma capture B adjustment
- 13) SEC-Y level adjustment
- 14) SEC-C level adjustment
- 15) SEC-KY level check
- 16) SEC-KBL level check

1. Playback Frequency Characteristic Adjustment (VS-116 board)

Note 1: The adjusting element for CH2 is shown in parentheses [].

Mode	Playback
Signal	Alignment tape: For frequency characteristic adjustment (WR5-6N)
Measurement Point	CH1: Pin ③ of CN002 EXT TRIG: Pin ④ of CN002
Measuring Instrument	Oscilloscope TRIG SLOPE: +, [-]
Adjustment Page	D
Adjustment Address	43 (MT 1CH) [45 (MT 2CH)]
Specified Value	3.58 MHz level: 5.5 MHz level= 4: (3 ± 0.3)

Adjusting method:

- 1) Confirm that the EDIT switch is OFF position.
- 2) Release the protect.
Page: 1, address: 00, data: 01
- 3) Change the data of address: 43 [45] of page D, and adjust the level ratio of 3.58 MHz and 5.5 MHz of PB RF output waveform to the specified value.

Note 2: After each address adjustment, be sure to press the PAUSE button of the adjusting remote control unit and memorize the data.

Note 3: If the waveform is not stable, set data: 03 to page: D, address: 01. (Test mode 3 setting)
After completing adjustment, set data: 00 to page: D, address: 01.

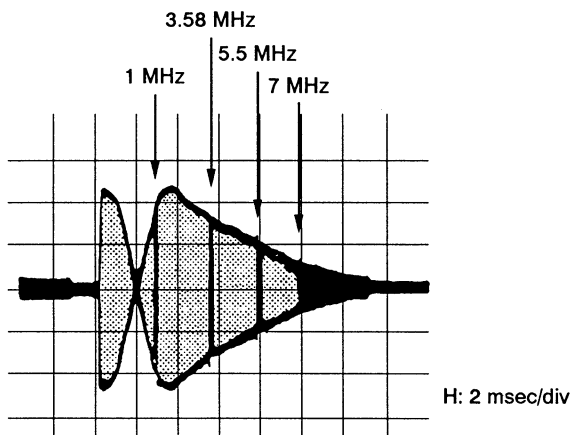


Fig. 9-6.

2. Flying Erase Check (VS-116 board)

Mode	Record
Signal	Arbitrary
Measurement Point	Pin ② of W001 (FE (X))
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: approx. 7.5 MHz Voltage: Above 1.5 Vp-p

Note: Use a MP type tape.

Checking method:

- 1) Check that the oscillation frequency is approx. 7.5 MHz and that the oscillation voltage is above 1.5 Vp-p.

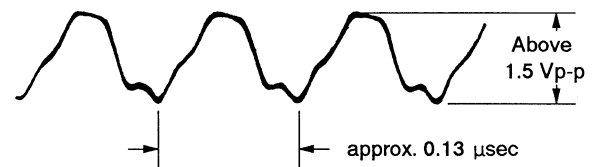


Fig. 9-7.

3. V XO Oscillation Frequency Check (VS-116 board)

Mode	STOP
Signal	Color bar
Measurement Point	Pin ⑩ of IC152
Measuring Instrument	Frequency counter
Specified Value	3579545 ± 70 Hz

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

Adjusting method:

- 1) Check that the oscillation frequency of pin ⑩ of IC152 is 3579545 ± 70 Hz.

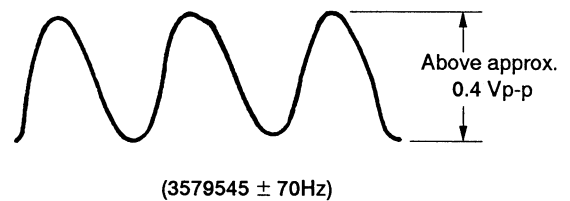


Fig. 9-8.

1. Playback Frequency Characteristic Adjustment (YB-110 board)

Note 1: The adjusting voltage for OAD is shown in parentheses.

Mode	Playback
Signal	Alignment tone Pc (frequency characteristic adjustment) (YB3-09)
Measurement Point	OAD: Pcs (Pc) CH002 OCT: YB3: Pcs (Pc) CH002
Measuring Instrument	Oscilloscope YB3: SLCPN-4, [-]
Adjustment Peg	0
Adjustment Address	43 (AT 10V) (20 (AT 10V))
Specified Value	3.00 MHz (level 3.0 MHz) (level 4 (3 ± 0.5))

Adjusting method:

- 1) Confirm that the **STOP** switch is OFF position.
- 2) Release the panel.
- 3) Page 1, address 00, data 00
- 4) Change the data of address 43 (AT) of page 01, and adjust the level value of 3.00 MHz and 3.0 MHz of YB 07 output waveform to the specified value.

Note 1: After each waveform adjustment, be sure to press the **STOP** button of the adjusting remote control unit and monitor the data.

Note 2: If the waveform is not stable, see data 00 in page 01, address 01, (2-bit mode 1 setting). After completing adjustment, set data 00 in page 01, address 01.



Fig. 8-6

2. Flying Glass Check (YB-110 board)

Mode	Event
Signal	Alignment
Measurement Point	Pcs (Pc) of YB01 (YB 02)
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: approx. 1.0 MHz Voltage: Above 1.0 V _{pp}

Note: Use a 50-ohm tap.

Checking method:

- 1) Check that the oscillator frequency is approx. 1.0 MHz and that the oscillator voltage is above 1.0 V_{pp}.



Fig. 8-7

3. VHS Oscillation Frequency Check (YB-110 board)

Mode	Event
Signal	Color bar
Measurement Point	Pcs (Pc) of YB02
Measuring Instrument	Frequency counter
Specified Value	307642 ± 70 Hz

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

Adjusting method:

- 1) Check that the oscillator frequency of pin 10 of IC352 is 307642 ± 70 Hz.



Fig. 8-8

4. EE Level Adjustment (VS-116 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ② of CN101 (VIDEO OUT) ^{Note}
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (EE LEVEL)
Specified Value	$A=1.00 \pm 0.025V$

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

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 4A, and adjust so that the Y signal level (A) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.

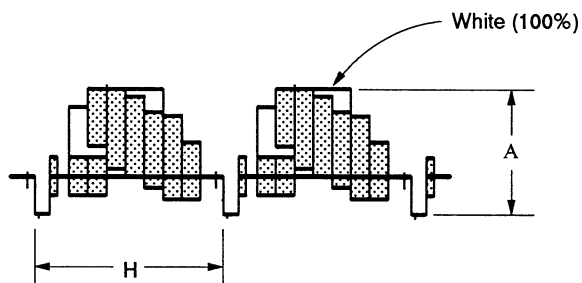


Fig. 9-9.

5. IR Adjustment (VS-116 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑦ of IC151 (Y COMB OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Residual chroma component (A) is minimum (below 80 mVp-p)

Connection

- 1) Connect pin ⑭ of IC151 (VREF: 3.5 Vdc) or pin ② of IC159 to pin ⑤ of IC151 with a jumper wire.

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 4D, and adjust so that the residual chroma component (A) becomes minimum.
- 3) Press the PAUSE button of the adjusting remote control unit.

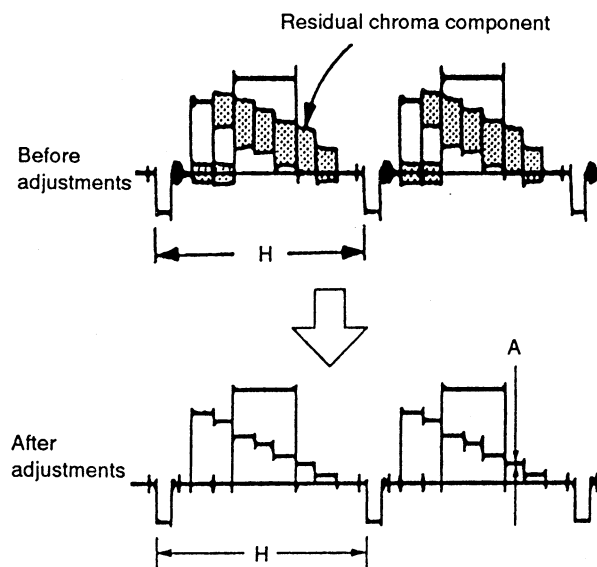


Fig. 9-10.

4. 00 Level Adjustment (70-110 board)

Model	0-0
Signal	Color bar
Measurement Point	Pin ② of IC101 (Y-COMB OUT1)
Measuring Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	44 (00 LEVEL)
Specified Value	1-1.00 ± 0.00V

Note: Measure pin ② of IC101 at 70 ②.

After completing adjustments, return the 70-0 switch.

Adjusting method

- 1) Release the preset, Page 1, address 00, data 01.
- 2) Change the data of page 02, address 44, and adjust so that the Y signal level (X) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.



Fig. 8-8

5. 01 Adjustment (70-110 board)

Model	0-0
Signal	Color bar
Measurement Point	Pin ② of IC101 (Y-COMB OUT2)
Measuring Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	43 (01 00)
Specified Value	Modified chroma component (X) is minimum (below 0.00Vp-p)

Adjusting method

- 1) Connect pin ② of IC101 (Y-COMB OUT1) to pin ② of IC101a (pin ② of IC102) with a jumper wire.

Adjusting method

- 1) Release the preset, Page 1, address 00, data 01.
- 2) Change the data of page 02, address 43, and adjust so that the modified chroma component (X) becomes minimum.
- 3) Press the PAUSE button of the adjusting remote control unit.



Fig. 8-9

6. Y/C Separation Adjustment (VS-116 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ① of IC151 (C+CD)
Adjusting Element	Oscilloscope
Measuring Instrument	RV051 (Phase)
Adjustment Page	D
Adjustment Address	4C (Y/C SEP DL LEVEL)
Specified Value	Residual chroma component (A) is minimum.

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 4C, and adjust the residual chroma component to minimum.
- 3) Adjust RV051 so that the residual chroma component (A) becomes minimum.
- 5) Press the PAUSE button of the adjusting remote control unit.

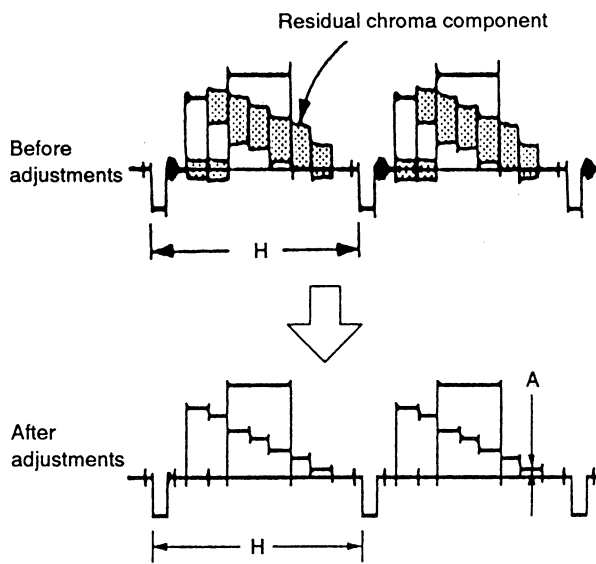


Fig. 9-11.

7. Emphasis Input Level Adjustment (VS-116 board)

Mode	E-E
Signal	Color bar without burst signal
Measurement Point	Pin ③ of IC155 (or Pin ③ of IC151)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5A (EMPHASIS INPUT LEVEL)
Specified Value	$A=0.50 \pm 0.025V$

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 5A, and adjust so that the Y signal level (A) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.

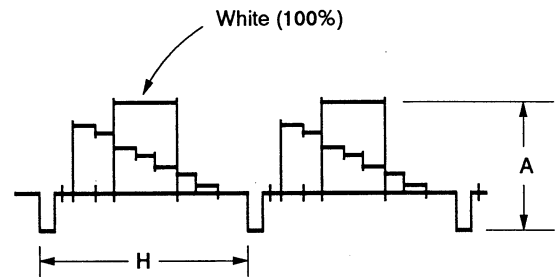


Fig. 9-12.

8. Y/G Separation Adjustment (98-118 board)

Model	210
Signal	Color bar
Measurement Point	Pin-22 of IC301 (Y-G)
Adjusting Element	Capacitor
Measuring Instrument	W-FM1 (Wave)
Adjustment Page	0
Adjustment Address	4C (Y-G SEP ADJ. (FVPR))
Specified Value	Modified chroma component (C) is minimum.

Adjusting method

- 1) Remove the picture.
Page 1, address 00, data 01
- 2) Change the data of page 0, address 4C, and adjust the modified chroma component to minimum.
- 3) Adjust 00701 so that the modified chroma component (A) becomes minimum.
- 4) Press the PAUSE button of the adjusting remote control unit.



Fig. 8-11.

9. Amplitude Input Level Adjustment (98-118 board)

Model	210
Signal	Color bar without both signal
Measurement Point	Pin-22 of IC301 (= Pin-22 of IC114)
Measuring Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	4A (AMPLITUDE INPUT LEVEL)
Specified Value	Level 0.5-0.625V

Adjusting method

- 1) Remove the picture.
Page 1, address 00, data 01
- 2) Change the data of page 0, address 4A, and adjust so that the Y signal level (A) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.



Fig. 8-12.

8. PB Y Level Adjustment (VS-116 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Color bar section
Measurement Point	Pin ② of IC151
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	• Normal mode 59 (NORMAL PB Y LEVEL)
Specified Value	$A=0.50 \pm 0.025V$

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Playback the color bar section of the normal mode alignment tape (WR5-5NSP).
- 3) Change the data of page: D, address: 59, and adjust so that the Y signal level (A) becomes the specified value.
- 4) Press the PAUSE button of the adjusting remote control unit.

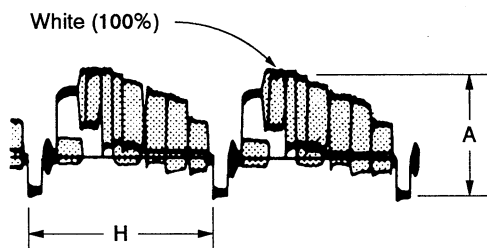


Fig. 9-13.

9. PB LINE OUT Level Adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP) Color bar section
Measurement Point	Video output terminal (terminated at 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5B (PB LINE LEVEL)
Specified Value	$A=1.0 \pm 0.025V$

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 5B, and adjust so that the video signal level (A) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.

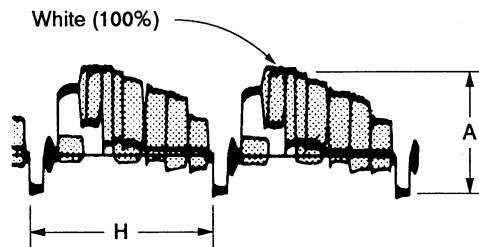


Fig. 9-14.

8. PB Y Level Adjustment (PB-YH Issue)

Mode	Playback
Signal	Alignment tape For checking operation (VHS-DEEP) Color bar section
Measurement Point	Pin (A) (C) (D)
Measuring Instrument	Callipers
Adjustment Page	D
Adjustment Address	+ Fixed code 00 (NORMAL PB-Y LEVEL)
Specified Value	A=0.20 ± 0.02V

Adjusting method

- 1) Release the preset.
- 2) Page 1, address 00, item 00
- 3) Playback the color bar section of the second track alignment tape (VHS-DEEP).
- 4) Change the data of page D, address 00, and adjust so that the Y signal level (A) increases the specified value.
- 5) Press the **PAUSE** button of the adjusting remote control unit.



Fig. 8-18

9. PB LINE-OUT Level Adjustment

Mode	Playback
Signal	Alignment tape For checking operation (VHS-DEEP) Color bar section
Measurement Point	White signal level (measured at B (C))
Measuring Instrument	Callipers
Adjustment Page	D
Adjustment Address	00 (PB LINE-OUT)
Specified Value	A=0.7 ± 0.02V

Adjusting method

- 1) Release the preset.
- 2) Page 1, address 00, item 00
- 3) Change the data of page D, address 00, and adjust so that the white signal level (A) increases the specified value.
- 4) Press the **PAUSE** button of the adjusting remote control unit.



Fig. 8-19

10. Y FM Carrier Frequency Adjustment (VS-116 board)

Mode	E-E
Signal	No signal
Measurement Point	Pin ⑤ of IC003 (REC Y RF OUT)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4F (Y FM CARRIER)
Specified Value	4.38 ± 0.04 MHz

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 4F, and adjust so that the Y FM carrier frequency becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.
- 4) Perform "Deviation Adjustment".

Pin ⑤ of IC003 waveform

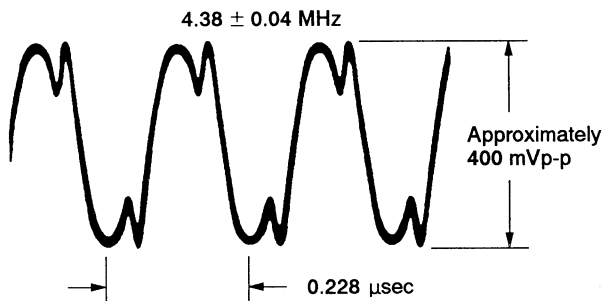


Fig. 9-15.

11. Deviation Adjustment (VS-116 board)

Mode	Record and playback
Signal	Color bar
Measurement Point	Pin ② of IC151
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	51 (Y FM DEVIATION)
Specified Value	$A=0.50 \pm 0.025V$

Note: Check that "Emphasis Input Level Adjustment", "PB Y Level Adjustment" and "Y FM Carrier Frequency Adjustment" have been completed.

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Record the color bar signal.
- 3) Playback the recorded signal.
- 4) Check the playback signal level (A).
Specification: $A=0.50 \pm 0.025V$
- 5) If the specification is not satisfied, change the data of page: D, address: 51, and repeat steps 2) to 4).

Playback signal level	Changing the data
When smaller than the specified value	Increase
When bigger than the specified value	Decrease

- 6) Press the PAUSE button of the adjusting remote control unit.

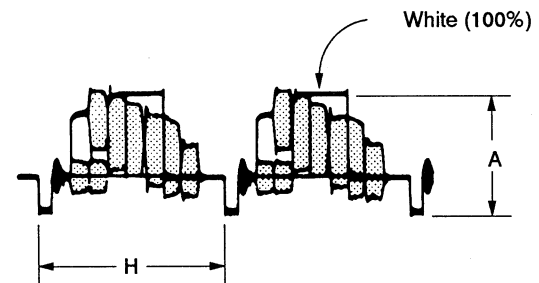


Fig. 9-16.

**10. Y FM Center Frequency Adjustment
(FM-110 board)**

Mode	0-0
Signal	No signal
Measurement Point	Pin ② of IC202(80C1) Y FM OUT1
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4F (Y FM CARREG)
Specified Value	4.081 ± 0.04 MHz

Adjusting method:

- 1) Release the preset.
Page 1, address 80-data/00
- 2) Change the data of page D, address 4F and adjust so that the Y FM carrier frequency becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.
- 4) Perform "Variable Adjustment".

Pin ② of IC202 waveform



Fig. 9-15

11. Deviation Adjustment (FM-110 board)

Mode	Normal and playback
Signal	Color bar
Measurement Point	Pin ② of X111
Measuring Instrument	Counter/timer
Adjustment Page	D
Adjustment Address	51 (Y FM DEVLS (DEV))
Specified Value	4.400 ± 0.005V

Note: Check the "Theatre Light Level Adjustment", "Y FM Level Adjustment" and "Y FM Center Frequency Adjustment" have been completed.

Adjusting method:

- 1) Release the preset.
Page 1, address 80-data/01
- 2) Release the color bar signal.
- 3) Playback the recorded signal.
- 4) Check the playback signal level (V).
Specification: 4.400 ± 0.005V
- 5) If the specification is not satisfied, change the data of page D, address 51, and repeatedly (3 to 4).

Playback signal level	Changing the data
When smaller than the specified value	Increase
When bigger than the specified value	Decrease

- 6) Press the PAUSE button of the adjusting remote control unit.



Fig. 9-16

12. Chroma Emphasis fo Adjustment (VS-116 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑭ of IC152
Measuring Instrument	Oscilloscope
Adjustment Element	FL153
Specified Value	Minimum fo component

Connection:

- 1) Connect pin ⑭ of IC152 to GND with a 3.3 kΩ resistor (1-249-423-11).

Adjusting method

- 1) Adjust FL153 so that the amplitude of the latter section of the chroma signal (yellow section) becomes minimum.

Minimize the amplitude of the latter section of the yellow bar.

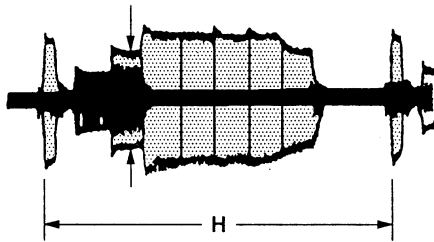


Fig. 9-17.

13. REC Y Level Adjustment (VS-116 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑤ of IC003
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	55 (REC Y LEVEL EE NOR MP) 54 (REC Y LEVEL EE NOR ME)
Specified Value	$A=225 \pm 5 \text{ mVp-p}$

Note: Use a MP type tape.

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 55, and adjust so that the Y signal level (A) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.
- 4) Set the data of page: D, address: 55 to page: D, address: 54.
- 5) Press the PAUSE button of the adjusting remote control unit.

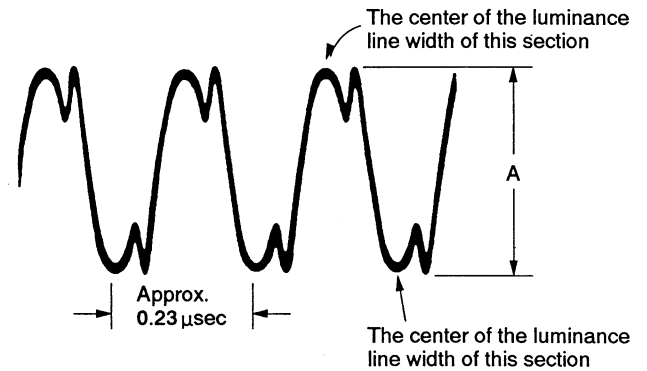


Fig. 9-18.

18. Chroma (Amplitude to Adjustment) (HS-114 Board)

Mode	USE
Signal	Color bar
Measurement Point	Pin ② of K102
Measuring Instrument	Oscilloscope
Adjustment Element	PL123
Specified Value	Minimum 4-impedance

Connections

- Connect pin ② of K102 to GND with a 50- μ F capacitor (1.289-420-11).

Adjusting method

- Adjust PL123 so that the amplitude of the letter section of the chroma signal (yellow section) becomes minimum.

Minimize the amplitude of the letter section of the yellow section.



Fig. 9-17.

19. SEC Y Level Adjustment (HS-114 Board)

Mode	Signal
Signal	Vertical
Measurement Point	Pin ② of K102
Measuring Instrument	Oscilloscope
Adjusted Page	D
Adjustment Address	00 (SEC Y LEVEL) OR 4000 (MP) 24 (SEC Y LEVEL) OR 4000 (MC)
Specified Value	Amplitude 1.1V _{pp} -p

Note: Use a 50 Ω type load.

Adjusting method

- Release the picture.
- Page 1, address 00, line 00
- Change the data of page 0, address 00, and adjust so that the Y signal level (A) becomes the specified value.
- Press the PAUSE button of the adjusting remote control unit.
- Set the data of page 0, address 00 to page 0, address 00.
- Press the PAUSE button of the adjusting remote control unit.

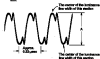


Fig. 9-18.

14. REC C Level Adjustment (VS-116 board)

Mode	Record
Signal	Color bar
Measurement Point	Pin ③ of IC003
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	46 (REC C RF (EE))
Specified Value	$A=120 \pm 10 \text{ mVp-p}$

Note: Use a MP type tape.

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 46, and adjust so that the REC C level (A) becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.

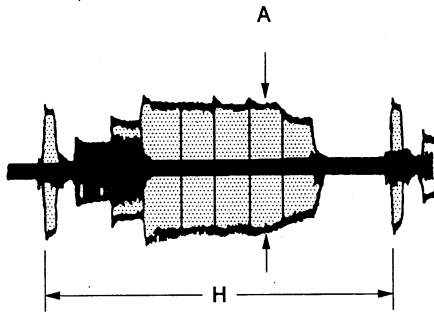


Fig. 9-19.

15. REC ATF Level Check (VS-116 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ④ of IC001 (REC 1CH)
Measuring Instrument	Oscilloscope
Specified Value	$A=8 \pm 2 \text{ mVp-p}$

Note: Use a MP type tape.

Connection:

- 1) Remove the AU-171 board CN602.

Checking method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) To reduce the REC Y signal, set data: 00 to page: D, address: 55.
Note: Don't press the PAUSE button of the adjusting remote control unit.
- 3) Check that the REC ATF signal level (A) satisfies the specified value.
- 4) Turn the main power supply (6.3V) off.

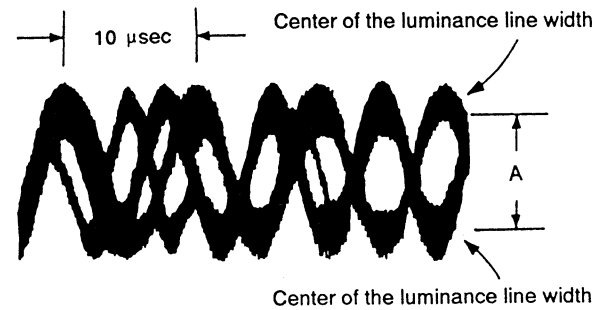


Fig. 9-20.

14. HSC-2 Level Adjustment (796-118 board)

Mode	Reset
Signal	Color Bar
Measurement Point	Pin 2 of X200
Measuring Instrument	Oscilloscope
Adjustment Page	5
Adjustment Address	set HSC 2 (A) (99)
Specified Value	set 20 + 100Vpp

Note: Use a MF type tape.

Adjusting method:

- 1) Release the printer.
- 2) Page 1, address (A) data (D)
- 3) Change the data of page 1, address A, and adjust so that the HSC-2 level (A) increases the specified value.
- 4) Press the PAUSE button of the adjusting remote control unit.



Fig. 4-18

15. HSC-ATF Level Check (796-118 board)

Mode	Reset
Signal	No signal
Measurement Point	Pin 6 of X200 (HSC-ATF)
Measuring Instrument	Oscilloscope
Specified Value	Amplitude 2.0Vpp

Note: Use a MF type tape.

Connection:

- 1) Remove the AU-111 board (2984).

Checking method:

- 1) Release the printer.
Page 1, address (A) data (D)
- 2) To reduce the HSC-2 signal, set data (D) to page 1, address (A).
- Note:** Don't pass the PAUSE button of the adjusting remote control unit.
- 3) Check that the HSC-ATF signal level (A) satisfies the specified value.
- 4) Turn the main power supply (OFF)→(ON).



Fig. 4-19

16. REC AFM Level Check (VS-116 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ②④ of IC001 (REC 1CH)
Measuring Instrument	Oscilloscope
Specified Value	$A=9 \pm 2 \text{ mVp-p}$

Note: Use a MP type tape.

Connection:

- 1) Connect Pin ⑨ of IC404 and GND with a 0.01 μF capacitor (1-101-004-00).

Checking method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) To reduce the REC Y signal, set data: 00 to page: D, address: 55.
Note: Don't press the PAUSE button of the adjusting remote control unit.
- 3) Check that the REC AFM signal level (A) satisfies the specified value.
- 4) Turn the main power supply (6.3V) off.

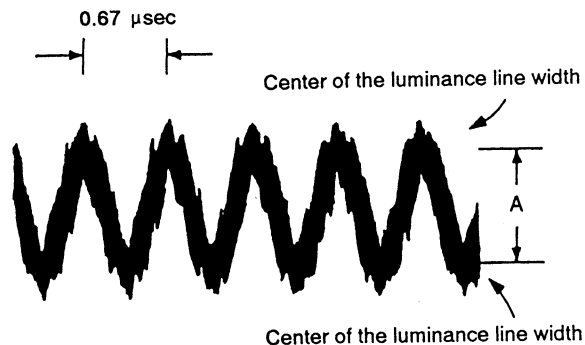


Fig. 9-21.

9-6. AUDIO SYSTEM ADJUSTMENT

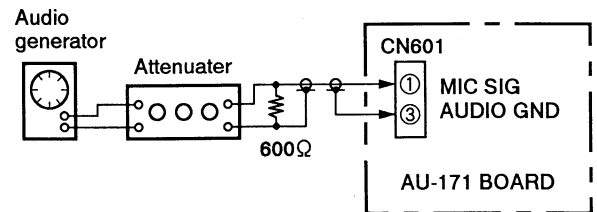
- Perform the adjustment using the color bar signal as a video signal input.

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments besides the video system measuring instruments as shown in Fig. 9-22, and perform adjustments with the power switch [player] position.

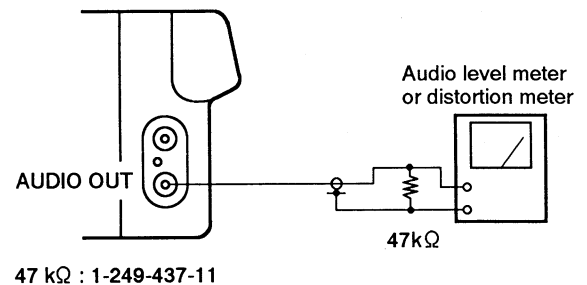
- Connection of Audio generator and attenuator except for "Overall Level Characteristic, Distortion Check" and "Overall Noise Level Check".

Note: Remote the MA-206 board.



600 Ω : 270 (1-249-410-11) + 330 (1-249-411-11)

- Connection of Audio level meter or distortion meter



47 k Ω : 1-249-437-11

Fig. 9-22.

[Adjustment Procedure]

- 1) E-E output level check
- 2) IR adjustment
- 3) Deviation adjustment
- 4) Carrier frequency check
- 5) Record level check
- 6) Overall level characteristics, distortion check
- 7) Overall noise level check

84. RBC AFM Level Check (78-118 Invert)

Make	Model
Signal	P1-Signal
Measurement Point	Fig. 8-21 of 7808 (200-177)
Measuring Instrument	Oscilloscope
Specified Value	Amplitude 1.5Vpp

Note: Use a 50 Ω type tap.

Connections

- Connect the (2) of 7808 and 7810 with a 0.01 μ F capacitor (7-101-004-00).

Checking method

- Follow the pattern.
Page 1, column 03, line 01
- To receive the RBC-Y signal, set data 03 on page 01, column 03.
Note: Don't press the **VALID** button of the adjusting remote controller.
- Check that the RBC AFM signal level (A) satisfies the specified value.
- Turn the main power supply (PLP) off.



Fig. 8-21.

8-6. AUDIO SYSTEM ADJUSTMENT

- Perform the adjustment using the video test signal as a video signal input.

(Connecting the measuring instruments for the work)
Connect the video system measuring instruments (audio or video system measuring instruments as shown in Fig. 8-22) and perform adjustment with the power switch (power) on/off.

- Connection of Audio generator and elements used for "Visual Loss Characteristics, Absence/Check" and "Visual Noise Level Check".
Note: Refer to the 401-001 board.



MIC IN (200-410-11) - SW (200-011-11)

- Connection of Audio level meter or distortion meter



AV-171 (200-001-01)

Fig. 8-22.

(Adjustment Procedure)

- S-01 output level check
- BI adjustment
- Distortion adjustment
- Cutoff-frequency check
- Sound level check
- Visual level characteristics, absence check
- Visual noise level check

1. E-E Output Level Check (AU-171 board)

Mode	Record
Signal	400 Hz, -36.1 dBs, pin ① of CN601
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Specified Value	-7.5 ± 2 dBs

Checking method:

- 1) Check that the 400 Hz signal level satisfies the specified value.

2. IR Adjustment (AU-171 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP)
Measurement Point	+: Pin ⑥ of IC601 -: Pin ④ of IC601 (C629 ⊕)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7A (1.5 IR)
Specified Value	The DC voltage difference between pins ④ and ⑥ is 0 ± 10 mVdc

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 7A and adjust so that the DC voltage becomes 0 ± 10 mVdc.
- 3) Press the PAUSE button of the adjusting remote control unit.

3. Deviation Adjustment

Mode	Playback
Signal	Alignment tape: For checking the operation (WR5-5NSP)
Measurement Point	Audio output terminal
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	-7.5 ± 0.5 dBs

Adjusting method:

- 1) Release the protect.
Page: 1, address: 00, data: 01
- 2) Change the data of page: D, address: 7B, and adjust so that the 400 Hz signal level becomes the specified value.
- 3) Press the PAUSE button of the adjusting remote control unit.

4. Carrier Frequency Check (AU-171 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑩ of CN602 (REC AFM)
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.500 ± 0.002 MHz

Note: Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.

Checking method:

- 1) Check that the 1.5 MHz carrier frequency satisfies the specified value.

5. Record Level Check (AU-171 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑩ of CN602 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	$A=48 \pm 8$ mVp-p

Checking method:

- 1) Check that the 1.5 MHz carrier level satisfies the specified value.
(Read the center of the luminance line width and note down the level read.)

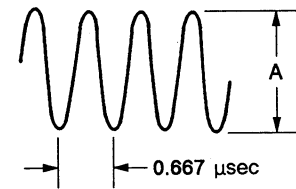


Fig. 9-23.

1. 400 Hz Output Level Check (AA-171 board)

Mode	Reset
Signal	400 Hz, $-36 \pm 0.5\%$, pA (2)
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Specified Value	$-3.4 \pm 0.1\%$

Checking method:

- Check that the 400 Hz signal level satisfies the specified value.

2. 10 kHz Adjustment (AA-171 board)

Mode	Playback
Signal	Alignment tape For checking operations (P101-P102)
Measurement Point	+1 Pin (B) of IC801 -1 Pin (B) of IC801 (A05-②)
Measuring Instrument	Digital voltmeter
Adjustment Page	0
Adjustment Address	76, 7, 1 (02)
Specified Value	The DC voltage difference between pins ② and ③ is $2.1 \pm 0.1\%$.

Adjusting method:

- Release the preset.
Page 1, address 76, data 01
- Change the data of page 02, address 76, and adjust so that the DC voltage between ② & ③ is within.
- Press the PAUSE button of the adjusting remote control unit.

3. Deviation Adjustment

Mode	Playback
Signal	Alignment tape For checking the operation (P101-P102)
Measurement Point	Audio output terminal
Measuring Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	78 (1, 3 (02))
Specified Value	$-1.5 \pm 0.5\%$

Adjusting method:

- Release the preset.
Page 1, address 78, data 01
- Change the data of page 02, address 78, and adjust so that the 400 Hz signal level increases the specified value.
- Press the PAUSE button of the adjusting remote control unit.

4. Center Frequency Check (AA-171 board)

Mode	Reset
Signal	No signal
Measurement Point	Pin (B) of IC801 (P10-AFM)
Measuring Instrument	Frequency counter (Note 1)
Specified Value	$1,000 \pm 0.005\%$

Note: Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.

Checking method:

- Check that the 1.0 MHz center frequency satisfies the specified value.

5. Record Level Check (AA-171 board)

Mode	Reset
Signal	No signal
Measurement Point	Pin (B) of IC801 (REC-AFM)
Measuring Instrument	Oscilloscope
Specified Value	$\pm 0.8 \pm 0.1\%$

Checking method:

- Check that the 1.0 MHz carrier level satisfies the specified value.
(From the center of the waveform, the width and scale across the level read.)



Fig. 9-10

6. Overall Level Characteristic, Distortion Check

Mode	Self recording/playback
Signal	400 Hz, -66 dBs: Ext mic jack
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: -7.5 ± 2 dBs Distortion rate: Below 0.5% (Note 1)

Note: 1) Value when the following filter is used

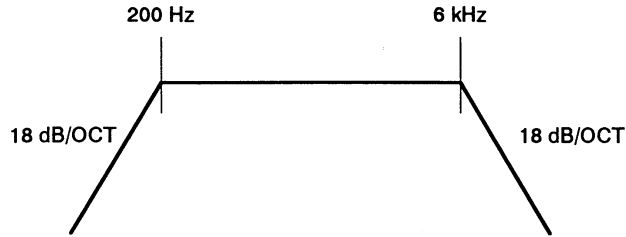


Fig. 9-24.

Checking method:

- 1) Input the 400 Hz, -66 dBs signal to the ext mic jack.
- 3) Remove the input signal.
- 4) Playback the recorded section.
- 5) Check that the 400 Hz signal level of the audio output terminal is -7.5 ± 2 dBs, and that the distortion rate is below 0.5% (Note 1).

7. Overall Noise Level Check

Mode	Self recording
Signal	No signal: Ext mic jack
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below -55.0 dBs

Checking method:

- 1) Insert the shorting plug to the ext mic jack.
- 2) Record.
- 3) Playback the recorded section.
- 4) Check that the noise level of the audio output terminal is below -55.0 dBs.

8. Overall Level Characteristics, Distortion Check

Mode	Self monitoring/standby
Signal	400 Hz, -60 dBm, 100 ms pulse
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: ± 1.0 dB (10%) Distortion rate (below 0.5% (Plus 1))

Note: 1) Value refers to following filter's cut



Fig. 8-44

Checking method:

- 1) Input the 400 Hz, -60 dBm signal to the external jack.
- 2) Measure the input signal.
- 3) Play back the recorded section.
- 4) Check that the 400 Hz signal level of the audio output terminal is ± 1.0 dB (10%), and that the distortion rate is below 0.5% (Plus 1).

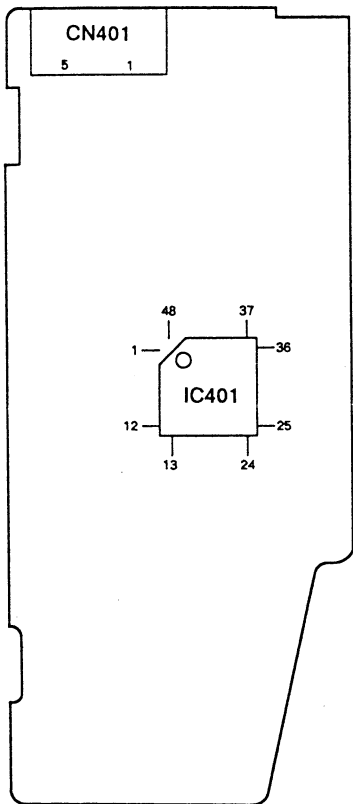
9. Overall Noise Level Check

Mode	Self monitoring
Signal	No signal (external jack)
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter (Use an ICP-A noise auxiliary connection filter)
Specified Value	Below -62.0 dBm

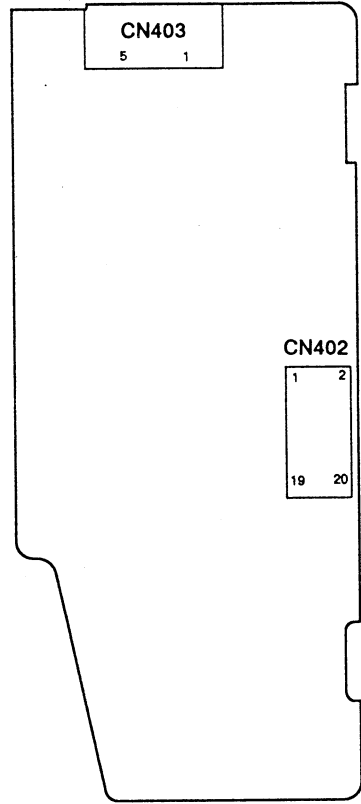
Checking method:

- 1) Insert the shielding plug to the external jack.
- 2) Record.
- 3) Play back the recorded section.
- 4) Check that the noise level of the audio output terminal is below -62.0 dBm.

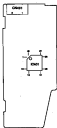
AU-171 BOARD (COMPONENT SIDE)



AU-171 BOARD (CONDUCTOR SIDE)



AA-171 BOARD (COMPONENT SIDE)



AA-171 BOARD (CONDUCTOR SIDE)



