DCR-TRV9/TRV9E

RMT-808/809

SERVICE MANUAL

Self Diagnostics Supported model

Ver 1.0 1998.04

Handycam Vision ™

Cassette Memory

C MECHANISM

Photo: DCR-TRV9E
RMT-809

US Model
Canadian Model
DCR-TRV9

AEP Model
UK Model
Australian Model
Chinese Model
DCR-TRV9E

E Model
Hong Kong Model
Tourist Model
DCR-TRV9/TRV9E

For MECHANISM ADJUSTMENTS, refer to the "DV MECHANICAL ADJUSTMENT MANUAL IV C MECHANISM" (9-974-050-11)

NTSC model: DCR-TRV9
PAL model: DCR-TRV9E

SPECIFICATIONS

Video camera recorder

System
Video recording system
Two rotary heads, Helical scanning system
Audio recording system
Rotary heads, PCM system
Quantization: 12bits (Fs 32kHz, stereo 1, stereo 2), 16bits (Fs 48kHz, stereo)
Video signal
NTSC color, EIA standards (TRV9)
PAL colour, CCIR standards (TRV9E)
Usable cassette
Mini DV cassette with logo printed
Tape speed
SP: Approx. 18.81 mm/s
LP: Approx. 12.56 mm/s
Recording/playback time
SP mode: 1 hour (DVM60)
LP mode: 1.5 hours (DVM60)
Fastforward/rewind time
Approx. 2 min. 30 s (DVM60)
Image device
CCD (Charge Coupled Device 1/4")
Viewfinder
Electric viewfinder (color)
Lens
Combined power zoom lens, 180x (Digital)(TRV9), 60x (Digital)(TRV9E), 15x (Optical)

Focal distance
$f = \frac{5}{32}$ to $2\frac{1}{2}$ in. (3.4 to 51 mm)
($1\frac{3}{4}$ to 26 in. (44 to 660 mm) when converted into a 35 mm still camera)
F 1.8 – 2.4
TTL autofocus system inner focus wide macro system
Color temperature
Auto
Minimum illumination
4 lux at F 1.8
0 lux when using NightShot
Illumination range
4 to 100,000 lux
Recommended illumination
More than 100 lux

LCD screen
Picture
3.5 inches measured diagonally
$2\frac{7}{8}$ to 2 in. (72.4 x 50.4 mm)
On-screen display
TN LCD/TFT active matrix method
Total dot number
184,580 (839 x 220)

Input and output connectors
S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced
Audio/Video input/output
AV MINI JACK, 1 Vp-p, 75 ohms, unbalanced, sync negative
327 mV, (at output impedance more than 47 kilohms)
Output impedance with less than 2.2 kilohms/Stereo minijack (ø 3.5mm)
Input impedance more than 47 kilohms
DV input/output
4-pin special connector
Headphones
Stereo minijack (ø 3.5 mm)
MIC input
Stereo minijack (ø 3.5mm):0.388mV, DC2.5V
Input impedance 6.8 kilohms
LANC jack
Stereo miniminijack (ø 2.5 mm)

LASER LINK
Video/audio
IR space transmission system according to EIAJ (Electric Industries Association of Japan) standards
Audio carrier wave
Lch : 4.3MHz
Rch : 4.8MHz

General
Power requirements
7.2 V (battery insertion input)
Average power consumption
4.0 W during camera recording using viewfinder
5.0 W during camera recording using LCD screen
5.4 W during playback using LASER LINK (when viewfinder is on and LCD is off)
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. $3\frac{1}{2}$ x $4\frac{1}{8}$ x $6\frac{7}{8}$ in. (w/h/d) (87 x 104 x 173.2mm)

— Continued on next page —

Mini **DV** Digital Video Cassette **DIGITAL VIDEO CAMERA RECORDER**

SONY ®

MICROFILM

Mass
Approx. 1 lb 11 oz (780g) excluding
the battery pack and the cassette
Approx. 1 lb 15 oz (860g) including
the battery pack NP-F330, lithium
battery and cassette DVM60
Approx. 1 lb 15 oz (890g) including
the battery pack NP-F550, lithium
battery and cassette DVM60
Approx. 2 lb 3 oz (1kg) including
the battery pack NP-F730, lithium
battery and cassette DVM60
Approx. 2 lb 3 oz (1kg) including
the battery pack NP-F730H, lithium
battery and cassette DVM60
Approx. 2 lb 3 oz (1kg) including
the battery pack NP-F750, lithium
battery and cassette DVM60
Approx. 2 lb 7 oz (1.1kg) including
the battery pack NP-F950, lithium
battery and cassette DVM60
Microphone
Electret condenser microphone,
Stereo type
Speaker
Dynamic-speaker
Supplied accessories
See page 2.

AC power adaptor

Power requirements*
110 to 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating
mode
Battery charge terminal: 8.4 V, 1.4 A
in charge mode
Application
Sony battery pack NP-F330, NP-
F530, NP-F550, NP-F730, NP-
F730H, NP-F750, NP-F930, NP-F950
lithium ion type
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.)
3 $^1/_4$ x 1 $^{13}/_{16}$ x 6 $^1/_2$ in. (w/h/d) (81
x 45 x 163 mm)
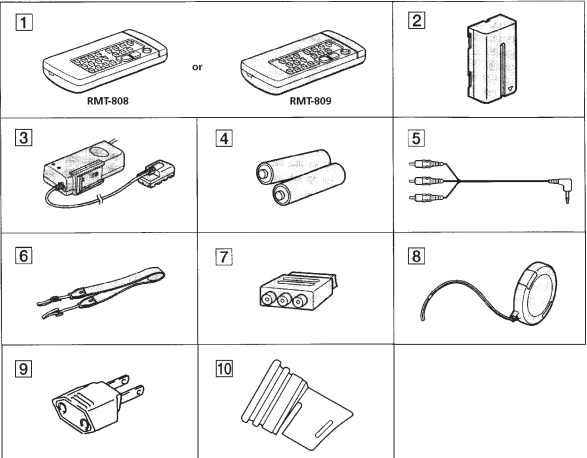**Mass (Approx.)**
7 oz (190 g)

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

Design and specifications are
subject to change without notice.

Checking supplied accessories

Check that the following accessories are supplied
with your camcorder.

1 **Wireless Remote Commander** (1)
   RMT-808: DCR-TRV9/TRV9E
            (EXCEPT AEP, UK)
   RMT-809: DCR-TRV9E (AEP, UK)

2 **NP-F330 battery pack** (1)

3 **AC-V326 AC power adaptor** (1)
   The shape of the plug varies from region to
   region.

4 **R6 (size AA) battery for Remote
   Commander** (2)

5 **A/V connecting cable** (1)

6 **Shoulder strap** (1)

7 **21-pin adaptor** (1)
   DCR-TRV9E (AEP, UK)

8 **Lens cap** (1)

9 **2-pin conversion adaptor** (1)
   E, Hong kong, Tourist model only

10 **Viewfinder adaptor (1)**

Contents of the recording cannot be
compensated if recording or playback is not
made due to a malfunction of the camcorder,
video tape, etc.

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 IDENTIFÉS 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 PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

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, through 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.

TABLE OF CONTENTS

5. ADJUSTMENTS

┌───┐
│ * The color reproduction frame is shown after the page of │
│ ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS. │
└───┘

DCR-TRV9/TRV9E

SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied (8.4V) to the battery terminal using the service power cord (J-6082-223-A), the power is shut off so that the unit cannot operate.

This following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.

Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the remote commander switch to the "ADJ" side.

Method 2.

Press the following battery switch using adhesive tape, etc.

Battery terminal ⊕

Battery switch

Battery SIG terminal

Battery terminal ⊖
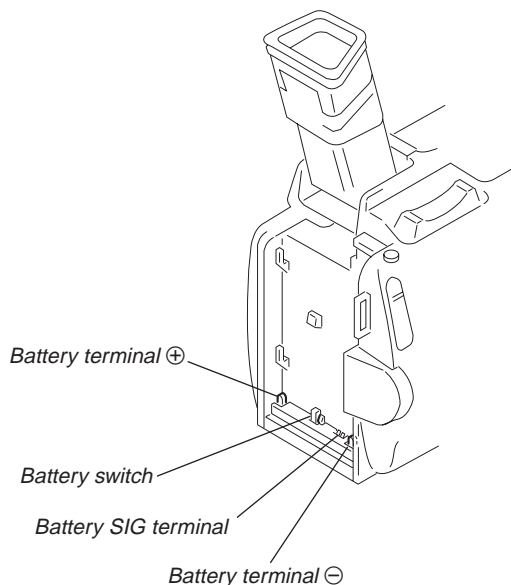
2. HOW TO TAKE A CASSETTE OUT WHEN THE MAIN POWER CANNOT BE TURNED ON

Note: To take a cassette out forcibly as follows when the main power cannot be turned on, remove the cabinet (R) assembly. Apply +4.5 V power from an external power supply to the FP-594 flexible board that is removed from CN3106 of the VC-206 board, as shown below. Refer to sections 2-1 and 2-2 for the procedure to remove the cabinet (R) assembly.

Procedure:
1) Open the cassette lid.
2) Apply +4.5 V directly to the FP-594 flexible board as shown to drive the loading motor that ejects a cassette.

FP-594 flexible board

1

27

Pins-24/-25 (wide pattern)

Pin-26/-27 (wide pattern)

———— : unloading

-------- : loading
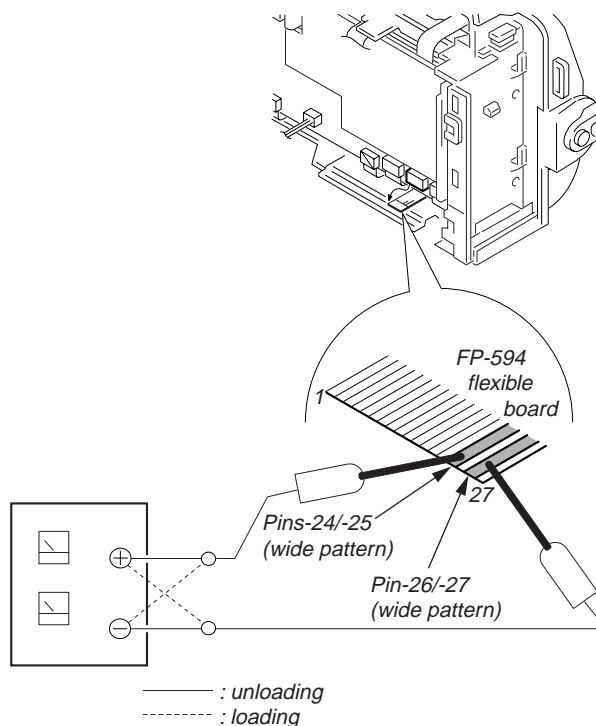
1. SELF-DIAGNOSIS FUNCTION

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

Viewfinder

C : 3 1 : 1 1

Blinks at 3.2Hz

| C | **:** | 3 1 | **:** | 1 1 |

Repaired by:

C : Corrected by customer
H : Corrected by dealer
E : Corrected by service
    engineer

Block

Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.

Detailed Code

Refer to page 8.
Self-diagnosis Code Table.

2. SELF-DIAGNOSIS DISPLAY

When problems occur while the unit is operating, the counter of the viewfinder shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.

3. SERVICE MODE DISPLAY

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "CAMERA" or "VTR or PLAYER", and continue pressing the "STOP" key for 10 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.

Viewfinder

[3] C : 3 1 : 1 1

Lights up

| [3] | C : 3 1 : 1 1 |

Backup No.

self-diagnosis codes

Order of previous errors
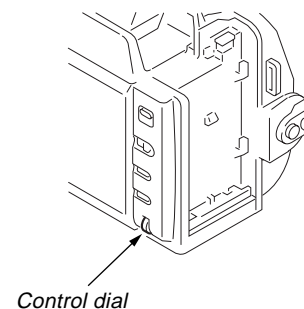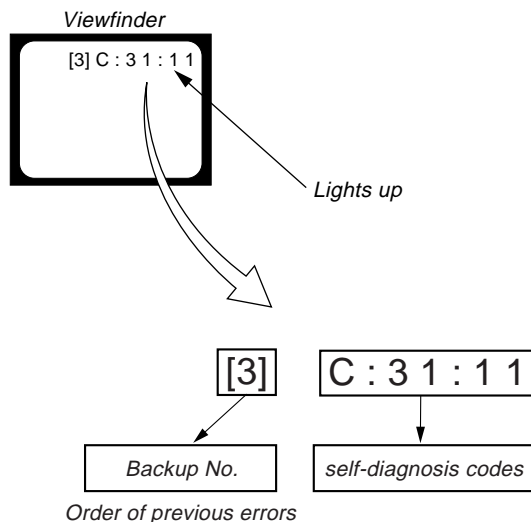
Control dial

3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time   [4] : Occurred fourth time
[2] : Occurred second time   [5] : Occurred fifth time
[3] : Occurred third time   [6] : Occurred the last time

3-3. End of Display

Turning OFF the power supply will end the service mode display.

| **Note:** | The self-diagnosis display data will be backed up by the coin-type lithium battery of LI-64 board. When this coin-type lithium battery is disconnected, the self-diagnosis data will be lost by initialization. |

4. SELF-DIAGNOSIS CODE TABLE

Repaired by:	Block Function		Detailed Code		Symptom/State	Correction
C	2	1	0	0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2	2	0	0	Video head is dirty.	Clean with the optional cleaning cassette.
C	2	3	0	0	Non-standard battery is used.	Use the info LITHIUM battery.
C	3	1	1	0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	2	0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2	1	Winding S reel fault when counting the rest of tape.	Load the tape again, and perform operations from the beginning.
C	3	1	2	2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	4	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	1	0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	1	Winding S reel fault when counting the rest of tape.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	4	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3	0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	0	FG fault when starting drum	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	2	FG fault during normal drum operations	Remove the battery or power cable, connect, and perform operations from the beginning.
E	6	1	0	0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ㉑ of CN452 of CD-185 board) when focusing is performed when the focus ring is rotated in the focus manual mode, and the focus motor drive circuit (IC302 of CD-185 board) when the focusing is not performed.
E	6	1	1	0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑭ of CN452 of CD-185 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC302 of CD-185 board) when zooming is not performed.
E	6	2	0	0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE451 of cd-185 board) peripheral circuits.
E	6	2	0	1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE452 of CD-185 board) peripheral circuits.

SECTION 1
GENERAL

DCR-TRV9/TRV9E

This section is extracted from instruction manual. (DCR-TRV9 model)

Before you begin
Using this manual

As you read through this manual, buttons and settings on the camcorder are shown in capital letters.

e.g., Set the POWER switch to CAMERA.

As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Note on Cassette Memory

This camcorder is based on the DV format. You can only use mini DV cassettes with this camcorder. We recommend you to use a tape with cassette memory ⊆Ⅲ.

The functions which depend on whether the tape has the cassette memory or not are:
• End Search (p. 19)
• Date Search (p. 52)
• Photo Search (p. 56).
The functions you can operate only with the cassette memory are:
• Title Search (p. 55)
• Superimposing a title (p. 41)
• Making a custom title (p. 44)
• Labeling a cassette (p. 46)
For details, see page 67.

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

Precaution on copyright

Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Using this manual

Precautions on camcorder care

• The LCD screen and/or the color viewfinder are manufactured using high-precision technology. However, there may be some tiny black points and/or bright points (red, blue or green in color) that constantly appear on the LCD screen and/or in the viewfinder. These points are normal in the manufacturing process and do not affect the recorded picture in any way. Over 99.99% are operational for effective use.
• Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].
• Never leave the camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight [b].

[a]   [b]
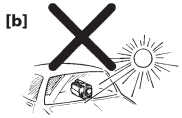
Before you begin

4   5

Checking supplied accessories

Check that the following accessories are supplied with your camcorder.

1   2   3

4   5   6

7
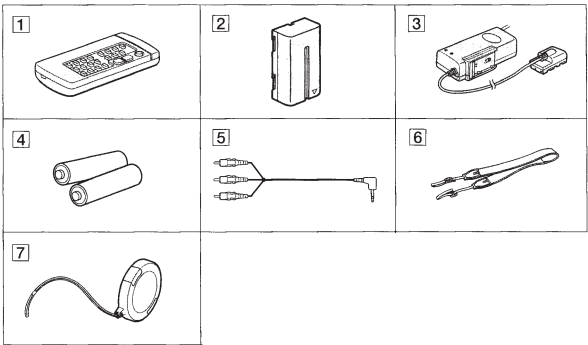
⒈ **Wireless Remote Commander** (1)

⒉ **NP-F330 battery pack** (1)

⒊ **AC-V316 AC power adaptor** (1)
The shape of the plug varies from region to region.

⒋ **Size AA (R6) battery for Remote Commander** (2)

⒌ **A/V connecting cable** (1)

⒍ **Shoulder strap** (1)

⒎ **Lens cap** (1)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

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 power adaptor.

Charging the battery pack

Charge the battery pack on a flat surface without vibration.

(1) Connect the power cord to a wall outlet.

(2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When the CHARGE lamp goes out, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour. Unplug the unit from the wall outlet, then remove the battery pack and install it into the camcorder. You can also use the battery pack before it is completely charged.

1 → **2**
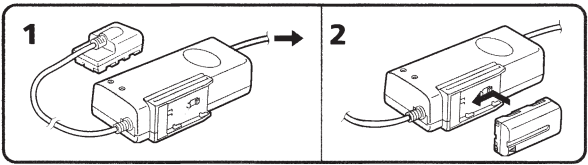
Charging time

Battery pack	Charging time *
NP-F330 (supplied)	130 (70)
NP-F530	170 (110)
NP-F550	180 (120)
NP-F730	250 (190)
NP-F750/NP-F730H**	270 (210)
NP-F930	330 (270)
NP-F950	360 (300)

The time required for a normal charge is indicated in parentheses.

* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor. (Lower temperatures require a longer charging time.)
** NP-F730H is sold only in the U.S.A.

Getting started

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Battery life

While using with viewfinder

Battery pack	Continuous recording time *	Typical recording time **
NP-F330 (supplied)	80 (70)	40 (35)
NP-F530	125 (115)	65 (60)
NP-F550	155 (140)	85 (75)
NP-F730	275 (250)	150 (135)
NP-F750/NP-F730H	325 (285)	175 (155)
NP-F930	430 (385)	235 (210)
NP-F950	495 (450)	270 (245)

While using with LCD

Battery pack	Continuous recording time *	Typical recording time **	Playing time with LCD
NP-F330 (supplied)	60 (55)	30 (30)	60 (55)
NP-F530	100 (85)	55 (45)	100 (85)
NP-F550	125 (110)	70 (60)	125 (110)
NP-F730	215 (195)	120 (110)	215 (195)
NP-F750/NP-F730H	260 (230)	145 (130)	260 (230)
NP-F930	355 (315)	200 (175)	355 (315)
NP-F950	395 (350)	220 (195)	395 (350)

Numbers in parentheses indicate the time when you use a normally charged battery.

Battery life will be shorter if you use the camcorder in a cold environment.

* Approximate continuous recording time indoors.
** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Notes on remaining battery time indication during recording
• Remaining battery time is displayed in the viewfinder or on the LCD screen. However, the indication may not be displayed properly, depending on using conditions and circumstances.
• When you close the LCD panel and open it again, it takes about 1 minute for the correct remaining time to be displayed.

To remove the battery pack
Slide the battery pack in the direction of the arrow.

8
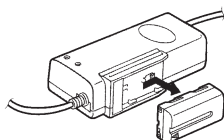
Notes on charging the battery pack
• The CHARGE lamp will remain lit for a while even if the battery pack is removed and the power cord is unplugged after charging the battery pack. This is normal.
• If the CHARGE lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord again.
• You cannot charge the battery pack while you operate the camcorder using the AC power adaptor.
• When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

Installing the battery pack

(1) Lift up the viewfinder.
(2) Insert the battery pack in the direction of the ▼ mark on the battery pack. Slide the battery pack down until it is locked.
Attach the battery pack to the camcorder securely.
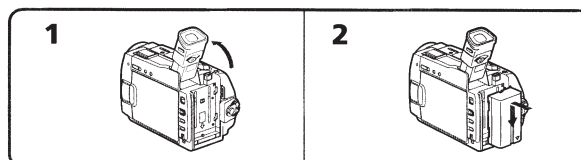
Note on installing the NP-F730/F730H/F750 battery pack
Use the camcoder while stretching out the viewfinder. Be careful not to catch your finger in when you fold the viewfinder back to the original position.

Note on installing the NP-F930/F950 battery pack
Use the camcorder while lifting up the viewfinder.

Note on the battery pack
Do not carry the camcorder by grasping the battery pack.

To remove the battery pack
While pressing ◀ BATT, slide the battery pack in the direction of the arrow.
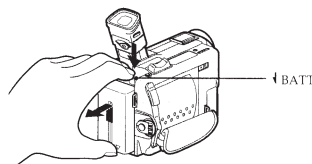
You can look at the demonstration of the functions available with this camcorder (p. 26).

9

Getting started

You can use mini DV cassette with ᴹⁱⁿⁱ**DV** logo* only.
Make sure that the power source is installed.
(1) Slide EJECT in the direction of the arrow. The cassette lid opens, then the cassette compartment opens automatically.
(2) Insert a cassette with the window facing out into the cassette compartment.
(3) Close the cassette compartment by pressing the (PUSH) mark on the cassette compartment.
(4) Close the lid by pressing the (PUSH) mark until it clicks.

* ᴹⁱⁿⁱ**DV** is a trademark.
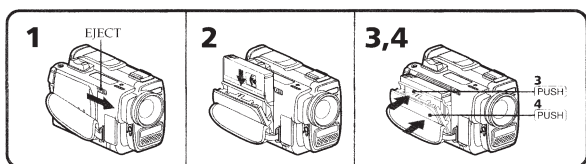
Notes
• When you open the lid immediately after you install the battery, the cassette compartment may not open. Close the lid and open it again.
• The cassette lid and the cassette compartment may not be closed when you press any part of the lid other than the (PUSH) mark.

To eject the cassette
Follow the procedure above and in step 2, take out the cassette.

To prevent accidental erasure
Slide and open the tab on the cassette to expose the red mark. If you try to record with the red mark exposed, the 🔴 and ▲ indicators flash on the LCD screen or in the viewfinder, and you cannot record on the tape. To re-record on this tape, slide and close the tab to cover the red mark.

10
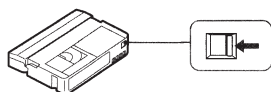
Make sure that the power source is installed and a cassette is inserted and that the START/STOP MODE switch inside the LCD panel is set to ⬛ . Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.
When you use the camcorder for the first time, power on it and reset the date and time to your time before you start recording (p. 69).
(1) Remove the lens cap and pull the lens cap string to fix it.
(2) While pressing the small green button on the POWER switch, set it to CAMERA. The camcorder is set to Standby mode.
(3) Press START/STOP.
The camcorder starts recording. "REC" appears in the viewfinder. The camera recording lamp on the front of the camcorder also lights up.
You can also select Recording mode, SP (standard play) mode or LP (long play) mode.
Set REC MODE in the menu system according to the length of your planned recording before you start.
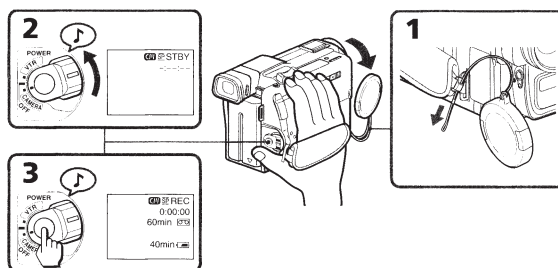
To stop recording momentarily [a]
Press START/STOP. The "STBY" indicator appears in the viewfinder (Standby mode).

To finish recording [b]
Press START/STOP again to stop recording. Set the POWER switch to OFF. Then, eject the cassette and remove the battery pack.
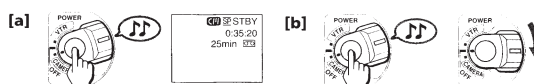
When you use mini DV cassette with cassette memory
Read the instruction about cassette memory to use this function properly (p. 67).

Basic operations

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To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. Move the viewfinder lens adjustment lever so that the indicators in the viewfinder come into sharp focus.
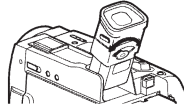
Note on Standby mode
If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, while pressing the small green button on the POWER switch, set it to OFF once, and then to CAMERA. To start recording, press START/STOP.

Note on Recording mode
This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. Select SP or LP in the menu system. In LP mode, you can record 1.5 times as long as in SP mode.

Notes on LP mode
• We recommend not to use this camcorder to play back a tape recorded on this camcorder. If a tape recorded on other camcorder is played back on this camcorder, or vice versa, mosaic-pattern noise may appear.
• When you record in SP and LP modes on one tape or you record some scenes in LP mode, the playback picture may be distorted or the time code may not be written properly between scenes.
• When you record in LP mode, we recommend you to use a Sony Excellence/Master mini DV cassette so that you can get the most out of your camcorder.
• You cannot make audio dubbing on a tape recorded in LP mode. Use the SP mode for the tape to be audio dubbed.

Notes on the time code
• The time code indicates the recording or playback time, "0:00:00" (hours : minutes : seconds) in CAMERA mode and "0:00:00:00" (hours : minutes : seconds : frames) in VTR mode.
• Be sure not to make a blank portion when recording, because the time code will start from "0:00:00:00" again.
• This camcorder uses the drop frame mode.

Note on the beep sound
As indicated with ♪ in the illustrations, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.
Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select OFF in the menu system.

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Note on remaining tape indicator
The indicator may not be displayed accurately depending on the tape. Though the indicator does not appear at the time of recording, it will appear in a few seconds.

Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.
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)
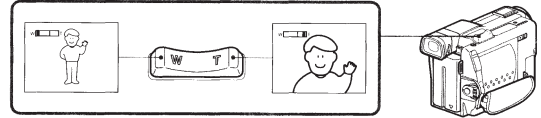
Zooming speed (Variable speed zooming)
Press the power zoom switch a little for a relatively slow zoom; press it still more for a high-speed zoom.

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 switch until the focus is sharp. You can shoot a subject that is at least about 2 5/8 feet (about 80 cm) away from the lens surface in the telephoto position, or about 1/2 inch (about 1 cm) away in the wide-angle position.

Notes on digital zoom
• More than 15x zoom is performed digitally, and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
• The right side [a] of the power zoom indicator shows the digital zooming zone, and the left side [b] shows the optical zooming zone. If you set the D ZOOM function to OFF, the [a] zone disappears.

W█▬ ┌─┐ T ─ ◄▬▬
[b] [a]

13
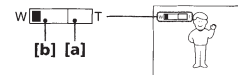
Selecting the start/stop mode

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.
(1) Slide OPEN in the direction of the arrow and open the LCD panel.
(2) Set START/STOP MODE to the desired mode.
   ꜛ : Recording starts when you press START/STOP, and stops when you press it again (normal mode).
   ⌁ ANTI GROUND SHOOTING : The camcorder records only while you press down START/STOP so that you can avoid recording unnecessary scenes.
   5SEC : When you press START/STOP, the camcorder records for 5 seconds and then stops automatically.
(3) Press START/STOP. Recording starts.

If you selected **5SEC**, five dots appear in the viewfinder or on the LCD screen. The dots disappear at a rate of one per second as illustrated below. When five seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.
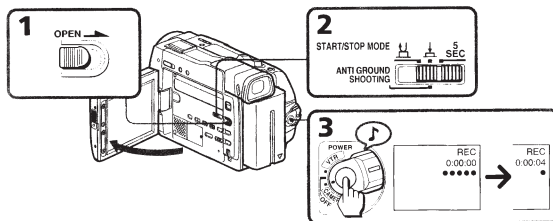
To extend the recording time in 5SEC mode
Press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you press START/STOP.

Note on 5SEC recording
If you have turned off the indicators on the LCD screen, the dots do not appear.

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Shooting with the LCD screen

You can also record the picture while looking at the LCD screen.
When using the LCD screen, the viewfinder turns off automatically except in mirror mode. You cannot monitor the sound from the speaker during recording.
(1) Slide OPEN in the direction of the arrow and open the LCD panel.
(2) Adjust angle of the LCD panel.
   The LCD panel moves about 90 degrees to this side and about 180 degrees to the other side.
   To adjust the brightness of the LCD screen, press LCD BRIGHT + or –.
The battery life is longer when the LCD panel is closed. Use the viewfinder instead of the LCD screen to save the battery power.
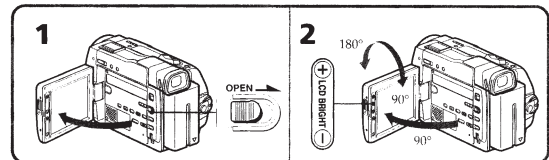
Notes on the LCD panel
• When closing the LCD panel, turn it vertically until it clicks [a].
• When turning the LCD panel, turn it always vertically; otherwise, the camcorder body may be damaged or the LCD panel may not close properly [b].
• Close the LCD panel completely when not in use.
• Do not push nor touch the LCD panel while operating the camcorder.
• You may find it difficult to view the LCD screen due to glare when using the camcorder outdoors.

[a]   [b]

15
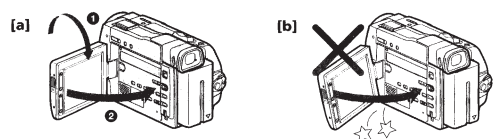
Letting the subject monitor the shot

You can turn the LCD panel over so that it faces the other way and you can let the subject monitor the shot while shooting with the viewfinder.

Turn the LCD panel up vertically. When you turn the LCD panel 180 degrees, the 😊 indicator appears on the LCD screen (mirror mode) and the time code and remaining tape indicators disappear.
You can also use the Remote Commander.
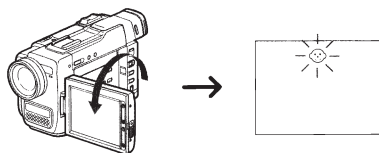
To cancel mirror mode
Turn the LCD panel down toward the camcorder body.

Notes on mirror mode
• When you turn the LCD panel about 90 degrees to 180 degrees, the camcorder enters mirror mode.
• Using the mirror mode, you can record yourself while watching yourself on the LCD.
• The picture on the LCD looks like a mirror-image while recording in mirror mode. The STBY indicator appears as II● and REC as ●. Other indicators appear as mirror-image. Some indicators may not appear in mirror mode.
• While recording in mirror mode, you cannot operate the following functions: MENU, TITLE, and ZERO SET MEMORY on the Remote Commander.

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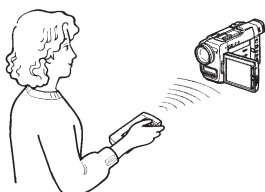
For hand-held shots, you will get better results by holding the camcorder according to the following suggestions:
• Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. [a]
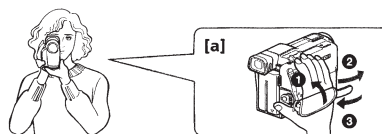
• Place your elbows against your side.
• Place your left hand under the camcorder to support it.
• Place your eye against the viewfinder eyecup.
• Be sure not to touch the built-in microphone.
• Use the LCD panel frame or the viewfinder frame as a guide to determine the horizontal plane.
• You can also record in a low position to get an interesting angle. Lift the viewfinder up for record from a low position. [b]
• You can also record in a low position or even in a high position using the LCD panel. [c]
• When you use the LCD screen outdoors in direct sunlight, the LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

Basic operations

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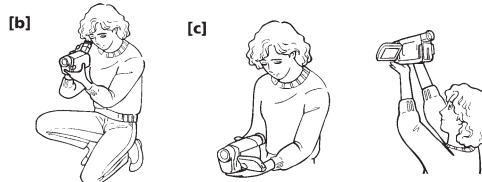
Place the camcorder on a flat surface or use a tripod
Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder. When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 9/32 inch (6.5 mm). Otherwise, you cannot attach the tripod securely and the screw may damage the camcorder.

Cautions on the LCD panel and on the viewfinder
• Do not pick up the camcorder by the viewfinder or the LCD panel. [d]
• Do not place the camcorder so as to point the viewfinder or the LCD panel toward the sun. The inside of the viewfinder or the LCD panel may be damaged. Be careful when placing the camcorder under sunlight or by a window. [e]

18
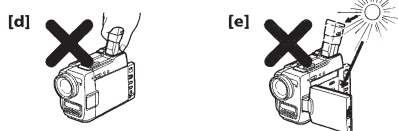
Using the EDITSEARCH, you can review the last recorded scene or check the recorded picture on the LCD screen or in the viewfinder.
(1)While pressing the small green button on the POWER switch, set it to CAMERA.
(2)Press the – ⊖ side of EDITSEARCH momentarily; the last few seconds of the recorded portion plays back (Rec Review). Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side (Edit Search).
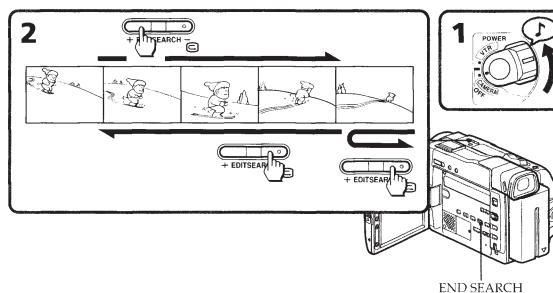
END SEARCH

To stop playback
Release EDITSEARCH.

To go back to the last recorded point (END SEARCH)
Press END SEARCH. The last recorded point is played back for about 5 seconds and stops. Note that when you use a tape without cassette memory, this function does not work once you eject the cassette after recording.

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

Basic operations

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You can monitor the playback picture on the LCD screen or in the viewfinder.

(1) Insert the recorded tape with the window facing out.

(2) Slide OPEN in the direction of the arrow and open the LCD panel.

(3) While pressing the small green button on the POWER switch, set it to VTR.

(4) Press ◀◀ to rewind the tape.

(5) Press ▷ to start playback.

(6) Adjust the volume using VOL +/– and the brightness of the LCD screen using LCD BRIGHT +/–.

You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR.

DISPLAY
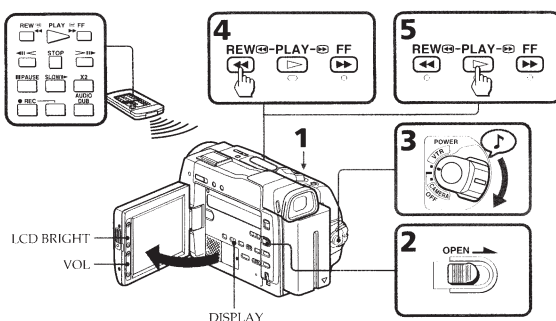
To stop playback, press □.

To rewind the tape, press ◀◀.

To fast-forward the tape rapidly, press ▶▶.

Using the Remote Commander
You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the size AA (R6) batteries.

To display the LCD screen/viewfinder screen indicators
Press DISPLAY.
To erase the indicators, press again.

Notes on screen indicators
• The screen indicator disappears when the title is displayed.
• When you play back a tape using a "InfoLITHIUM" battery, ▆ indicates the remaining battery capacity. The remaining battery time in minutes is not displayed.

Using headphones
Connect headphones (not supplied) to the ∩ jack. You can adjust the volume of the headphones using VOL +/–.

To view the playback picture in the viewfinder
Close the LCD panel. The viewfinder turns on automatically.
When using the viewfinder, you can monitor the sound only by using headphones.
To view on the LCD screen again, open the LCD panel. The viewfinder turns off automatically.

Various playback modes

To view a still picture (playback pause)
Press ❚❚ during playback. To resume playback, press ❚❚ 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 while advancing the tape or rewinding (skip scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal rewinding or fast-forward, release the button.

To view the picture at 1/3 speed (slow playback)
Press ❚▶ on the Remote Commander during playback. For slow playback in reverse direction, press <, then press ❚▶. To resume normal playback, press ▷.

To view the picture at double speed
For double speed playback in the reverse direction, press <, then press ×2 on the Remote Commander during playback. For double speed playback in the forward direction, press >, then press ×2 during playback. To resume normal playback, press ▷.

To view the picture frame-by-frame
Press ◀❚❚ or ❚❚▶ on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/30 speed. To resume normal playback, press ▷.

To change the playback direction
Press < on the Remote Commander for reverse direction or > on the Remote Commander for forward direction during playback. To resume normal playback, press ▷.

Notes on playback
• The sound is muted in the various playback modes.
• During playback other than normal playback, the previous recording may appear in mosaic image. This is not malfunction.
• When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode. To resume playback, press ▷.

Note on slow playback
The slow playback can be performed smoothly on this camcorder; however, this function does not work for an output signal from the DV IN/OUT jack.

Basic operations

You can go to the end of the recorded portion after you record and play back the tape. The tape starts rewinding or fast-forwarding and the last about 5 seconds of the recorded portion plays back. Then the tape stops at the end of the recorded picture **(End Search)**.

Open the LCD panel and press END SEARCH during recording standby.
This function works when the POWER switch is set to CAMERA or VTR.
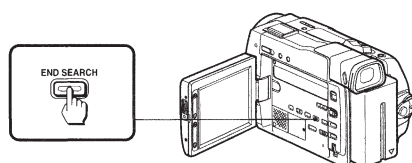
Notes on End Search
• When you use a tape without cassette memory, the End Search function does not work once you eject the cassette after recording.
• When you use a tape with cassette memory, the End Search function works once you eject the cassette. When you play back a tape which has a blank portion in the beginning or between the recorded portions, the End Search function will not work correctly.

You can choose any of the following power sources for your camcorder: battery pack, 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	Supplied AC power adaptor
Outdoors	Battery pack	Battery pack NP-F330 (supplied), NP-F530, NP-F550, NP-F730, NP-F730H*, NP-F750, NP-F930, NP-F950
In the car	12 V or 24 V car battery	Sony DC adaptor/charger DC-V700

* NP-F730H is sold only in the U.S.A.

Note on power sources
Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Using the house current

To use the supplied AC power adaptor:

(1) Connect the power cord to a wall outlet.

(2) Lift up the viewfinder.

(3) Slide the connecting plate down into the guides at the rear of the camcorder until it clicks.
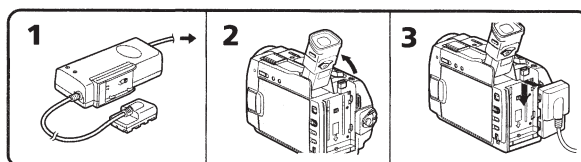
To remove the connecting plate
The connecting plate is removed in the same way as the battery pack.

WARNING
The power cord must only be changed at a qualified service shop.

PRECAUTION
The set is not disconnected from the AC power source (house current) as long as it is connected to the power cord, even if the set itself has been turned off.

Using a car battery

Use a DC adaptor/charger such as Sony DC-V700 (not supplied). Connect the car battery cord to the cigarette lighter socket of a car (12 V or 24 V). Connect the DC adaptor/charger and the camcorder using the DK-415 (supplied with DC-V700) connecting cord.

This mark indicates that this product is a genuine accessory for Sony video product.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Advanced operations

You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.

(1) Press MENU to display the menu on the LCD screen.
(2) Turn the CONTROL dial to select the desired item, then press the CONTROL dial. Only the selected item is displayed.
(3) Turn the CONTROL dial to select the desired mode, then press the CONTROL dial. If you want to change the other modes, repeat steps 2 and 3.
(4) Press MENU to erase the menu display.
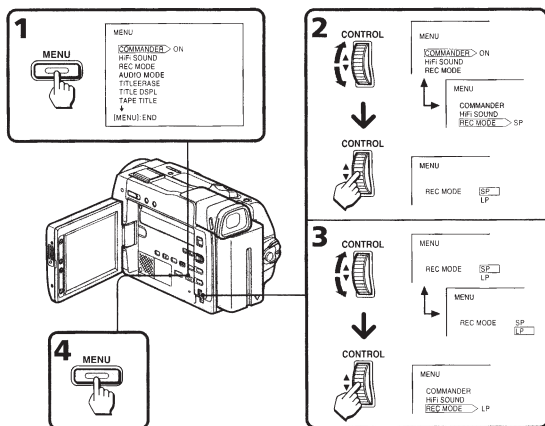
While recording in mirror mode, you cannot operate the menu system.

Note on changing the mode settings
Menu items differ depending on the setting of the POWER switch to VTR or CAMERA.

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Selecting the mode setting of each item

Items for both CAMERA and VTR modes

COMMANDER* <ON/OFF>
• Select ON when using the supplied Remote Commander for the camcorder.
• Select OFF when not using the Remote Commander.

REC MODE <SP/LP>
• Select SP when recording in SP (standard play) mode.
• Select LP when recording in LP (long play) mode.

AUDIO MODE <12BIT/16BIT>
• Normally select 12BIT to record two stereo sound.
• Select 16BIT to record the one stereo sound with high quality.

BEEP <ON/OFF>
• Select ON so that beeps sound when you start/stop recording, etc.
• Select OFF when you do not want to hear the beep sound.

TITLEERASE
Erase the title you have superimposed.

LCD B.L. <BRT NORMAL/BRIGHT>
• Normally select BRT NORMAL.
• Select BRIGHT when the LCD panel is dark.
Even if you adjust the LCD B.L., the recorded picture is not affected.

LCD COLOR
Select this item and change the level of the indicator by turning the CONTROL dial up (+) or down (–) to adjust the color intensity of the picture.

VF BRIGHT
Close the LCD panel.
Select this item to adjust the brightness of the viewfinder. The viewfinder becomes brighter when you turn the CONTROL dial up (+), and darker when you turn it down (–).

DISPLAY <LCD or V-OUT/LCD >
• Normally select LCD.
• Select V-OUT/LCD to display indicator both on the LCD panel and TV screen.

AUTO TV ON <ON/OFF>
You can use this feature only with Sony TVs.
• Select ON to turn on the TV automatically when using the LASER LINK function.
• Select OFF not to turn on the TV.

TV INPUT <VIDEO1/VIDEO2/VIDEO3/OFF>
Select 1, 2 or 3 of the video input on the TV which the IR receiver (not supplied) is connected to when using the LASER LINK function.

Advanced operations

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Items for CAMERA mode only

D ZOOM <ON/OFF>
• Select ON to activate digital zooming.
• Select OFF not to use the digital zoom. The camcorder goes back to 15x optical zoom.

STEADYSHOT <ON/OFF>
• Normally select ON.
• Select OFF when you do not have to worry about camera-shake.

REC LAMP <ON/OFF>
• Normally select ON.
• Select OFF when you do not want the camera recording lamp at the front of the unit to light up.

N.S.LIGHT <ON/OFF>
• Select ON when you use the NightShot Light.
• Select OFF when you do not use the NightShot Light.

CLOCK SET
Select this item to reset the date or time.

DEMO MODE <STBY/ON or OFF>
• Select STBY/ON to glance over the function of camcorder.
• Select OFF not to display demonstration.

Notes on DEMO MODE
• DEMO MODE is set to STBY (Standby)/ON at the factory and the demonstration starts about 10 minutes after you set the POWER switch to CAMERA without inserting a cassette.
Note that you cannot select STBY/ON of DEMO MODE in the menu system.
• You cannot select DEMO MODE when a cassette is inserted in the camcorder.
• If you insert a cassette during the demonstration, the demonstration stops. You can start recording as usual. DEMO MODE automatically returns to STBY/ON.
• When you set NIGHTSHOT to ON, NIGHTSHOT indicator appears in the viewfinder or on the LCD screen. At this time, you cannot select DEMO MODE in the menu system.

To look at the demonstration at once
Eject the cassette, if inserted. Select STBY/ON of DEMO MODE and erase the menu display. The demonstration will begin.
When you turn off the camcorder once, DEMO MODE automatically returns to STBY/ON.

Items for VTR mode only

HiFi SOUND* <STEREO/1/2>
• Select STEREO to play back stereo sound or main and sub sound (for dual sound).
• Select 1 to play back the left sound (for stereo sound) or main sound (for dual sound).
• Select 2 to play back the right sound (for stereo sound) or sub sound (for dual sound).

TITLE DSPL <ON/OFF>
• Select ON to display the title you have superimposed.
• Select OFF not to display the title.

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TAPE TITLE
Select this item to label the cassette tape.

AUDIO MIX*
Select this item and adjust the balance between the stereo 1 and stereo 2 by turning the CONTROL dial.

CM SEARCH <ON/OFF>
• Select ON to search using cassette memory.
• Select OFF to search without using cassette memory.

DATA CODE <DATE/CAM or DATE>
• Select DATE/CAM to display date and recording data during playback.
• Select DATE to display date during playback.

* These settings return to the default 5 minutes or more after the power source is disconnected or battery is removed. As far as the items without an asterisk are concerned, their settings are retained even when the power source is disconnected or battery is removed, as long as the vanadium-lithium battery is charged.

When recording a close subject
When REC LAMP is set to ON, the red camera recording lamp on the front of the camcorder may reflect on the subject if it is close. In this case, we recommend you set REC LAMP to OFF.

Notes
• When playing back a tape recorded in the 16-bit mode, you cannot adjust the balance in AUDIO MIX.
• If you select 16BIT in AUDIO MODE menu, you cannot add an audio sound.
• If you select BRIGHT in LCD B.L. menu, the battery life while recording becomes 10 to 20% shorter. When you use the power sources except for a battery, the menu item LCD B.L. is set to BRIGHT automatically and the item does not appear in the screen.

Advanced operations

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Shooting with backlighting

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ⊡ indicator appears on the LCD screen or in the viewfinder.
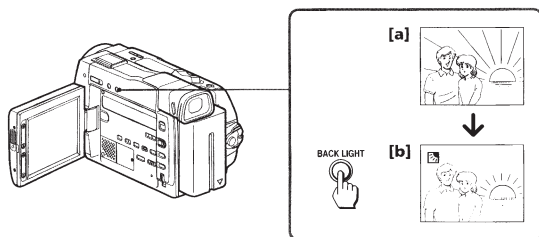
[a]Subject is too dark because of backlight.
[b]Subject becomes bright with backlight compensation.

After shooting
Be sure to release this adjustment condition by pressing BACK LIGHT again. The ⊡ indicator disappears. Otherwise, the picture will be too bright under normal lighting condition.

This function is also effective under the following conditions:
• A subject with a light source nearby or a mirror reflecting light.
• A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

Note on the BACK LIGHT function
When you press EXPOSURE, the BACK LIGHT function is cancelled.

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Using the FADER function

You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black while the sound increases. When fading out, the picture gradually fades to black while the sound decreases.

When fading in [a]
(1) While the camcorder is in Standby mode, press FADER until the desired indicator flashes.
(2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]
(1) During recording, press FADER until the desired indicator flashes.
(2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.
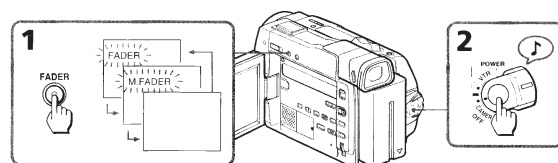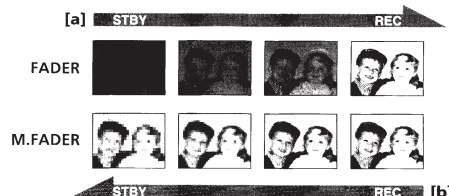
To cancel the fader function
Before pressing START/STOP, press FADER until the fade indicator disappears.

You cannot use the fader function in the following situations
– The START/STOP MODE switch is set to ⚲ ANTI GROUND SHOOTING or 5SEC.
– The camcorder is in the photo recording.
– A title is displayed in the viewfinder or on the LCD screen.

29

Shooting in the dark (NightShot)

The NightShot function enables you to shoot a subject in a dark place. You can achieve a satisfactory recording of the ecology of nocturnal animals for observation with this function. This function may record picture nearly in monochrome.

(1) While the camcorder is in Standby mode, slide NIGHTSHOT to ON. After both ◐ indicator and "NIGHTSHOT" flash, only ◐ indicator lights up.
(2) Press START/STOP to start recording. After both ◐ indicator and "NIGHTSHOT" flash, only ◐ indicator lights up.
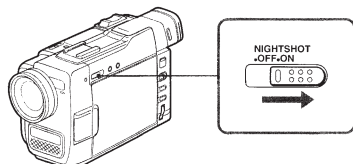
To cancel the NightShot function
Slide NIGHTSHOT to OFF.

Using the NightShot Light
• When you set N.S.LIGHT to ON in the menu system, the picture will be more clear.
• Set N.S.LIGHT to OFF in the menu system to save the battery power. The NightShot effect becomes weak instead.
• NightShot Light rays are infrared and are therefore invisible. The maximum limit of NightShot Light is about 10 feet (3 m).

Notes on the NightShot
• When you keep setting NIGHTSHOT to ON in normal recording, the color may not be recorded properly.
• If focusing is difficult with the autofocus mode when using the NightShot function, use manual focus.

30

Photo recording

You can record a still picture like a photograph for about seven seconds. This photo recording is useful when you want to enjoy a picture such as a photograph or when you print a picture using a video printer (not supplied). You can record about 510 pictures on a 60-minute tape in SP mode.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.
(2) Keep pressing PHOTO lightly until a still picture and "PHOTO CAPTURE" appear on the LCD screen or in the viewfinder.
Recording does not start yet. To change the still picture, release PHOTO, select still picture again, and keep pressing PHOTO lightly again.
If you press PHOTO on the Remote Commander when a still picture appears on the LCD screen or in the viewfinder, the camcorder will record that still picture. However, you cannot select other still pictures by using this button.
(3) Press PHOTO deeper.
"PHOTO REC" flashes and the still picture on the LCD screen or in the viewfinder is recorded for about seven seconds. The sound during those seven seconds is also recorded and the pictures appear like an animation on the LCD screen or in the viewfinder. You cannot change the POWER switch or press PHOTO during recording.
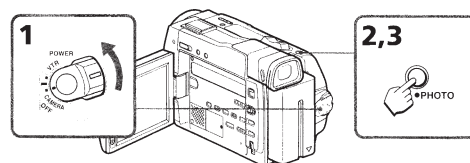
Note on the still picture
When the still picture recorded on this camcorder is played back on another VCR, the picture may be blurred. This is not a malfunction.

When you press PHOTO while recording a photo
The picture on the LCD screen or in the viewfinder whenever you press PHOTO will be recorded. You cannot check the recorded picture by pressing PHOTO lightly.
After the moving picture is recorded as a still picture for about seven seconds, the camcorder will go back to Standby mode.

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Printing the still picture

You can print a still picture by using the video printer (not supplied). Connect the video printer using the S video connecting cable (not supplied). Refer to the operating instruction of the video printer as well.

```
        Video printer

         LINE IN
      VIDEO   S VIDEO
        ◎      ◎

                    S VIDEO

 ⟵ : Signal flow    AUDIO/VIDEO
        (not supplied)
```
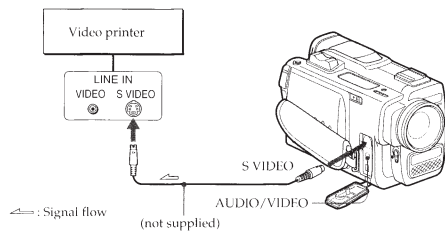
If the video printer is not equipped with S VIDEO input
Use the supplied A/V connecting cable. Connect it to the AUDIO/VIDEO jack and connect the yellow plug of the cable to the VIDEO input of the video printer.

You can record a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9WIDE). The picture with black bands at the top and the bottom on the LCD screen or in the viewfinder **[a]** is normal. The picture on a normal TV **[b]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[c]**.

```
             [b]  (⚽)
  [a]  16:9WIDE
       (⚽)  →
             [c]  (⚽)  →  (⚽)
```
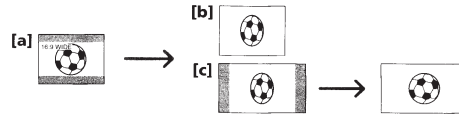
While in Standby mode, press 16:9WIDE. 16:9WIDE appears on the LCD screen.

```
                        16:9WIDE   16:9WIDE
```

Advanced operations
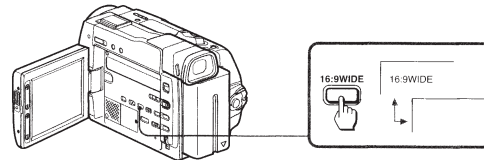
To cancel wide mode
Press 16:9WIDE again.

To watch the tape recorded in wide mode
To watch the tape recorded in 16:9WIDE mode, set it to full mode. For details, refer to the operating instruction of your TV.
Note that the picture recorded in 16:9WIDE mode looks compressed on a normal TV.

Note on wide mode
You cannot select or cancel the wide mode during recording.

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

Selecting the best mode

Select a proper PROGRAM AE mode referring to the following description.

●: Spotlight mode
Recording a subject spotlighted on a stage or at a wedding ceremony, etc.

🎭: Soft portrait mode
To record
• A still subject such as a person or flower
• A softened picture
• A person in clearer flesh tones

🏃: Sports lesson mode
Capturing high-speed action in sports such as golf or tennis

🌴 : Beach & Ski mode
Recording a person in a place such as on the beach or in the ski slopes where there is a lot of reflection

🌙 : Sunset & Moon mode
Recording sunset, night views, fireworks or neon signs

▲ : Landscape mode
Recording a landscape through a window or wire net

Notes on focus setting
• In the Spotlight, Sports lesson and Beach & Ski modes, you cannot take close-ups because the camcorder is set to focus only on subjects in the middle to far distance.
• In the Sunset & Moon and Landscape modes, the camcorder is set to focus only on distant subjects.

Using the PROGRAM AE function

(1) While the camcorder is in recording or Standby mode, press PROGRAM AE.
(2) Turn the CONTROL dial so that the symbol of the desired PROGRAM AE mode matches the indicator on the LCD screen or in the viewfinder.

```
  1  PROGRAM          2        CONTROL
     AE
```

Advanced operations
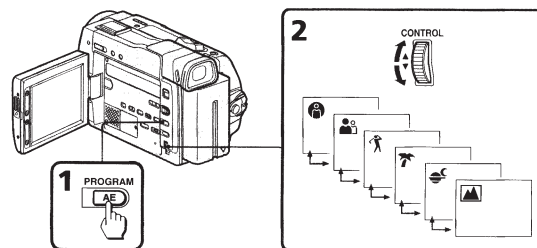
To return to automatic adjustment mode
Press PROGRAM AE so that the indicator disappears.

Note on shutter speed
The shutter speed in each PROGRAM AE mode is as follows:
Soft portrait mode – from 1/60 to 1/500
Sports lesson mode – from 1/250 to 1/4000
Beach & Ski mode – from 1/60 to 1/250

Focusing manually

When to use manual focus

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

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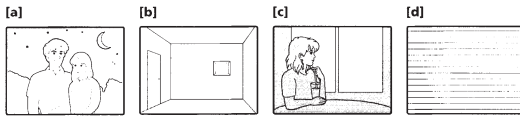
- Insufficient light **[a]**
- Subjects with little contrast — walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting light
- Shooting a stationary subject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

Focusing manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) Slide FOCUS down to MANUAL. The ⮂ indicator appears on the LCD screen or in the viewfinder.

(2) Turn the focus ring to focus on the subject.

To focus in infinity

Slide FOCUS to INFINITY. ▲▲ indicator appears on the LCD screen or in the viewfinder. This function is useful when the nearer subject is focused automatically, and you want to focus the subject faraway.

To return to the autofocus mode

Slide FOCUS up to AUTO to turn off ⮂ or ▲▲ indicator.

To shoot in relatively dark places or to shoot the subject moving quickly outside

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

If ▲ lights up

Subject is too close.

Enjoying picture effect

Selecting picture effect

You can make pictures like those of television with the Picture Effect function.

[a]   [b]   [c]   [d]   [e]   [f]

PASTEL [a]
The picture is in pastel tones.

NEG. ART [b]
The color of the picture is reversed.

SEPIA
The picture is sepia.

B&W
The picture is monochrome (black and white).

SOLARIZE [c]
The light intensity is clearer, and the picture looks like an illustration.

MOSAIC [d]
The picture is mosaic.

SLIM [e]
The picture expands vertically.

STRETCH [f]
The picture expands horizontally.

Using picture effect function

(1) While in Standby mode, press PICTURE EFFECT.

(2) Turn the CONTROL dial to select the desired picture effect mode.
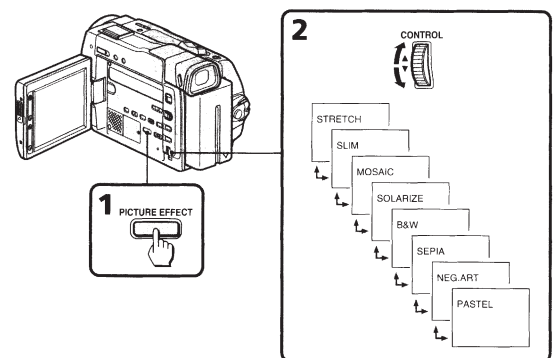
To return to normal mode

Press PICTURE EFFECT so that the indicator disappears.

Note on the picture effect

When you turn the power off, the camcorder returns automatically to normal mode.

Adjusting the exposure

When to adjust the exposure

Adjust the exposure manually under the following cases.

[a] [b]

[a]
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b]
- Bright subject and dark background
- To record the darkness faithfully

Adjusting the exposure

(1) Press EXPOSURE. The exposure indicator appears on the LCD screen or in the viewfinder.
(2) Turn the CONTROL dial to adjust the exposure. The exposure is locked at the adjusted brightness.
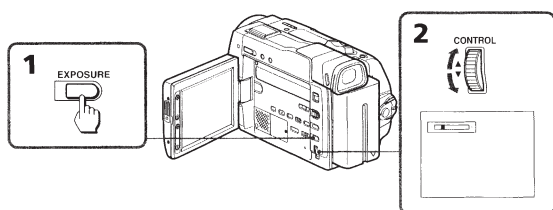
To return to automatic exposure mode
Press EXPOSURE to turn off the exposure indicator.

Notes
- The CONTROL dial does not have a stop position.
- If you press PROGRAM AE, the exposure comes back to automatic adjustment again.
- When you adjust the exposure manually, you cannot use the BACK LIGHT function.

40

Superimposing a title

If you use a tape with cassette memory, you can superimpose the titles while recording or after recording. When you play back the tape, the title is displayed for 5 seconds from the point where you superimposed it.
You can select from eight preset titles and one original (CUSTOM TITLE) to superimpose over the picture.

Superimposing titles

(1) Press TITLE to display the titles on the LCD screen or in the viewfinder.
(2) Turn the CONTROL dial to select the title, then press the CONTROL dial.
(3) Turn the CONTROL dial to select the color, size, or position, then press the CONTROL dial.
(4) Turn the CONTROL dial to select the desired item, then press the CONTROL dial.
(5) Repeat steps 3 and 4 until the title is arranged as desired.
(6) Press the CONTROL dial again to complete the setting.
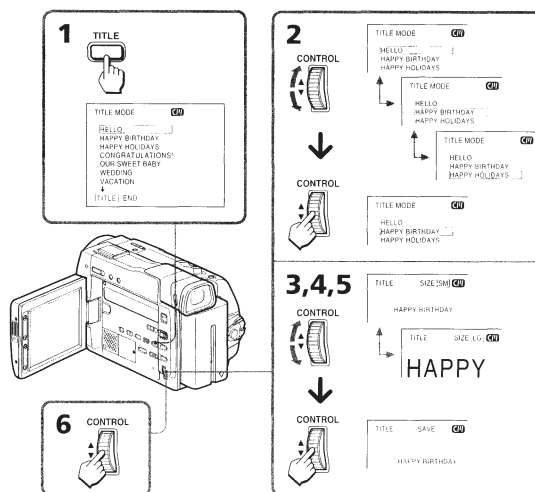
41

Superimposing a title

While you are playing back, pausing, or recording
After step 6, "SAVE" appears on the screen for 5 seconds and the title is set.

While in Standby mode
After step 6, the "TITLE" indicator appears. And when you press START/STOP to start recording, "SAVE" appears on the screen for 5 seconds and the title is set.

Titles placed from the top of the screen as follows:
HELLO ←→ HAPPY BIRTHDAY ←→ HAPPY HOLIDAYS ←→ CONGRATULATIONS! ←→ OUR SWEET BABY ←→ WEDDING ←→ VACATION ←→ THE END ←→ CUSTOM TITLE.

When you have stored an original title
The title appears above "CUSTOM TITLE".

Title colors ("COL") changes as follows:
WHT (White) ←→ YEL (Yellow) ←→ CYAN (Cyan) ←→ GRN (Green) ←→ VIO (Violet) ←→ RED (Red) ←→ BLUE (Blue).

Title size ("SIZE") changes as follows:
LG (Large) ←→ SM (Small).

Title position ("POS") changes as follows:
If you select the title size "LG", you can choose 8 positions. When you select the title size "SM", you can choose 9 positions at all.

To display no title
Select OFF in the TITLE DSPL menu. But the title is displayed in case of Edit Search or Rec Review regardless of the menu settings.

Notes on titles
- While the title is displayed, the picture does not fade in or out.
- You cannot superimpose a title to a blank portion of the tape.
- The titles you superimposed are displayed by only using the DV format video equipment with index titler function.
- When you are searching the tape using the other video equipment, the portion of the tape you superimpose the title may be detected as an index signal.

Notes on the cassettes
- If you use a cassette tape set to prevent accidental erasure, you cannot superimpose the title. Slide the protect tab so that the red portion is not visible.
- You can superimpose about 11 to 20 titles in one cassette, if one title consists of about 5 characters.
- If the tape has too many index signals and photo data, you may not be able to superimpose a title because the memory is full.

42

Superimposing a title

Erasing a title

(1) Press MENU to display the menu.
(2) Turn the CONTROL dial to select TITLEERASE, then press the CONTROL dial.
(3) Turn the CONTROL dial to select the title you want to erase, then press the CONTROL dial.
(4) Make sure the title is the one you want to erase, then press the CONTROL dial again.
(5) Press MENU to erase the menu display.
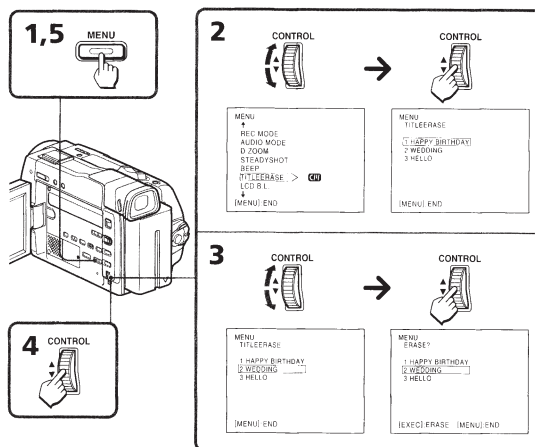
Note
If you use a cassette tape set to prevent accidental erasure, you cannot erase the title. Slide the protect tab so that the red portion is not visible.

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Making a custom title

If you use a tape with cassette memory, you can make one title of up to 20 characters and store it in memory.

(1) Press TITLE to display the titles on the LCD screen or in the viewfinder.
(2) Turn the CONTROL dial to select CUSTOM TITLE, then press the CONTROL dial.
(3) Turn the CONTROL dial to select the column of the desired character, then press the CONTROL dial.
(4) Turn the CONTROL dial to select the desired character, then press the CONTROL dial.
(5) Repeat steps 3 and 4 until you finish the title.
(6) Turn the CONTROL dial to select [⏎], then press the CONTROL dial.
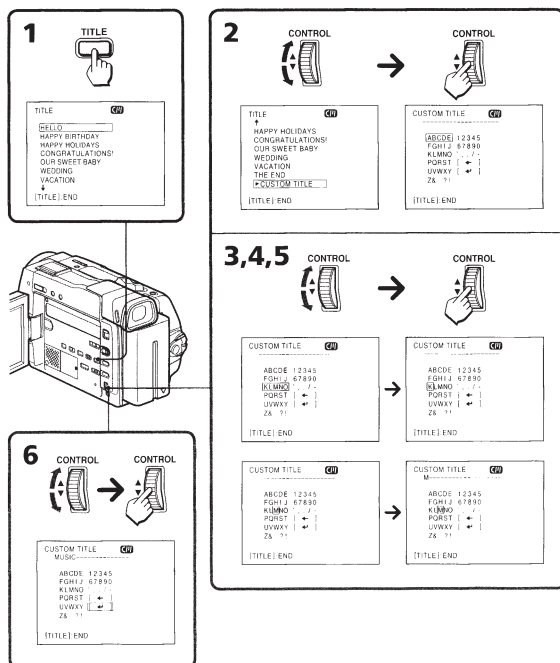
Making a custom title

To erase a character
In step 3, turn the CONTROL dial to select [←] then press the CONTROL dial. The last character is erased.

To change the title you have made
In step 2, turn the CONTROL dial to select CUSTOM TITLE, then press the CONTROL dial. Erase characters one after another, then make the new title again.

If it takes more than 5 minutes to make a title
If the Standby mode lasts for more than 5 minutes with a cassette inserted, the power will be turned off automatically. If the power is turned off while you are making a title, set the POWER switch to OFF once, then to CAMERA. The title you have made remains stored in memory.

44   45

Labeling a cassette

If you use a tape with cassette memory, you can label a cassette. The label can consist of up to 10 characters and is stored in cassette memory. When you insert the labeled cassette and turn the power on, the label is displayed on the LCD screen, in the viewfinder, or on the TV screen.

(1) Insert the cassette you want to label.
(2) Set the POWER switch to VTR.
(3) Press MENU to display the menu.
(4) Turn the CONTROL dial to select TAPE TITLE, then press the CONTROL dial.
(5) Turn the CONTROL dial to select the column of the desired character, then press the CONTROL dial.
(6) Turn the CONTROL dial to select the desired character, then press the CONTROL dial.
(7) Repeat steps 5 and 6 until you finish the label.
(8) Turn the CONTROL dial to select [⏎], then press the CONTROL dial.

Labeling a cassette
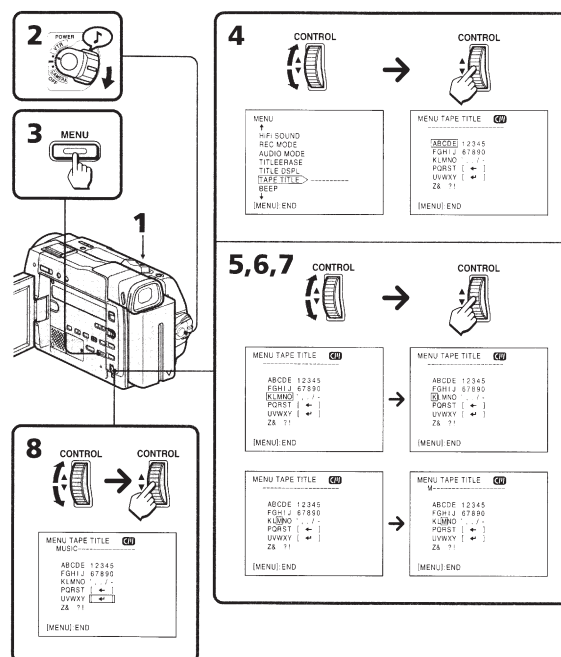
46   47

To erase a character
In step 5 turn the CONTROL dial to select [←], then press the CONTROL dial. The last character is erased.

To change the label you have made
Insert the cassette to change the label, and operate in the same way to make a new label.

If the ◰ mark appears in step 4
The cassette memory is full. If you erase the title in the cassette, you can label it.

If you have superimposed titles in the cassette
When the label is displayed, up to 4 titles also appear.

Note on "-----" indicator displayed on the LCD screen or in the viewfinder
The "-----" indicates the number of characters you can select for the label. When the "-----" indicator has fewer than 10 spaces, the cassette memory is full.

Note on the cassettes
If you use a cassette tape set to prevent accidental erasure, you cannot label it. Slide the protect tab so that the red portion is not visible.

When you shoot, the "◉" indicator appears on the LCD screen or in the viewfinder. This indicates that the SteadyShot function is working and the camcorder compensates for camera-shake.

You can release the SteadyShot function when you do not need to use the SteadyShot function. Do not use the SteadyShot function when shooting a stationary object with a tripod.

(1) Press MENU to display the menu on the LCD screen.
(2) Turn the CONTROL dial to select STEADYSHOT, then press the CONTROL dial.
(3) Turn the CONTROL dial to select OFF, then press the CONTROL dial.
(4) Press MENU to erase the menu display.
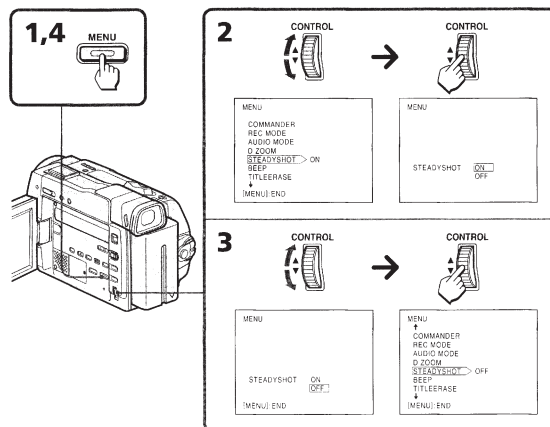
To activate the SteadyShot function again
Select ON in step 3, then press the CONTROL dial.

Notes on the SteadyShot function
• The SteadyShot function will not correct excessive camera-shake.
• When you switch the SteadyShot function on or off, the exposure may fluctuate.
• When the SteadyShot function is released, the "◉" indicator does not appear.
• If you use a tele conversion lens (not supplied) or a wide conversion lens (not supplied), the SteadyShot function may not work.

Connect the camcorder to your VCR or TV to watch the playback picture on the TV screen. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you to use house current for the power source.

Connecting directly to a VCR/TV with Audio/Video input jacks

Open the jack cover and connect the camcorder to the inputs on the TV by using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR.
Turn down the volume of the camcorder.
To get higher quality pictures in DV format, connect the camcorder to your TV using the S video connecting cable (not supplied).
If you are going to connect the camcorder using the S video connecting cable (not supplied) [a], you do not need to connect the yellow (video) plug of the A/V connecting cable [b]

◁═ : Signal flow
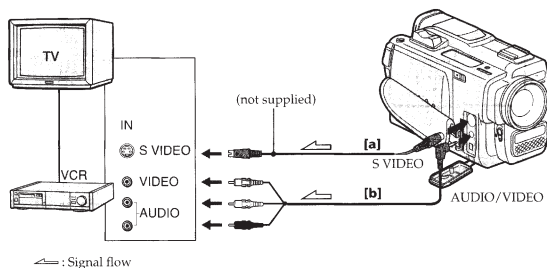
If your VCR or TV is a monaural type
Connect only the white plug for audio on both the camcorder and the VCR or the TV. If you connect the white plug, the sound is L (left) signal. If you connect the red plug, the sound is R (right) signal.

Using the AV cordless IR receiver — LASER LINK

Once you connect the AV cordless IR receiver (not supplied) having the ⚡LASER LINK mark to your TV or VCR, you can easily view the picture on your TV. For details, refer to the operating instruction of the AV cordless IR receiver.
LASER LINK is a system which transmits and receives a picture and sound between video equipment having the ⚡ mark by using infrared rays. LASER LINK is a trademark of Sony Corporation.

To play back on a TV
(1) Set the POWER switch on the camcorder to VTR.
(2) After connecting your TV and AV cordless IR receiver, set the POWER switch on the AV cordless IR receiver to ON.
(3) Turn the TV on the TV/VCR selector on the TV to VCR.
(4) Press LASER LINK. The lamp of the LASER LINK button is flashing.
(5) Press ▷ on the camcorder to start playback.
(6) Adjust the angle and direction of both the camcorder and AV cordless IR receiver.

To cancel the LASER LINK function
Press LASER LINK.

If you use a Sony TV
• You can turn on the TV automatically when you press LASER LINK or ▷. To do so, set AUTO TV ON to ON in the menu system and turn the TV's main switch on , then do either of the following;
– Point the LASER LINK emitter towards the TV's remote sensor and press LASER LINK.
– Turn on the LASER LINK button and press ▷.
• You can switch the video input of the TV automatically to the one which the AV cordless IR receiver is connected. To do so, set AUTO TV ON to ON and TV INPUT to the same video input (1, 2, 3) in the menu system. With some models, however, the picture and sound may be disconnected momentarily when the video input is switched.
• The above features may not work with some TV models.

Notes on LASER LINK
• When LASER LINK is activated (the LASER LINK button is lit), the camcorder consumes power. Press and turn off the LASER LINK button when it is not needed.
• When the conversion lens (not supplied) is installed, the transmission of infrared rays may be blocked.

Searching the boundaries of recorded tape with date – date search

You can search for the boundaries of recorded tape with date – Date Search function. To search the beginning of the specific date and play back from the point, there are two ways:
- Using cassette memory, you can select the date displayed on the LCD screen or in the viewfinder.
- Without using cassette memory.

You can only operate with the Remote Commander.

Searching for the date by using cassette memory

You can use this function only when playing back a tape with cassette memory (p.67).

(1) Set the POWER switch to VTR.
(2) Press MENU to display the menu on the LCD screen.
(3) Turn the CONTROL dial to select CM SEARCH, then press the CONTROL dial.
(4) Turn the CONTROL dial to select ON, then press the CONTROL dial.
(5) Press SEARCH MODE on the Remote Commander repeatedly, until the date search indicator appears.
(6) Press |◀◀ or ▶▶| to select the date for playback.
Playback starts from the beginning of the selected date automatically.
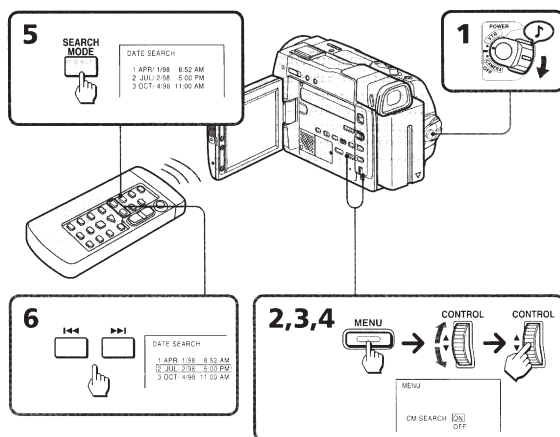
To stop searching
Press ■.

Notes
- The interval of the boundaries between the dates needs more than two minutes. The camcorder may not search if the beginning of the recorded date is too close to the next one.
- The short cursor on the screen suggests the date selected in the previous time.
- If a tape has a blank portion in the beginning or between recorded portions, the Date Search function will not work correctly.

Advanced operations

Searching for the date without using cassette memory

You can use this function whether the tape has cassette memory or not.

(1) Set the POWER switch to VTR.
(2) Press MENU to display the menu on the LCD screen.
(3) Turn the CONTROL dial to select CM SEARCH, then press the CONTROL dial.
(4) Turn the CONTROL dial to select OFF, then press the CONTROL dial.
(5) Press SEARCH MODE on the Remote Commander repeatedly, until the date search indicator appears.
(6) When the current position is **[b]**, press |◀◀ to search towards **[a]** or press ▶▶| to search towards **[c]**. Each time you press |◀◀ or ▶▶|, the camcorder searches for the previous or next date.
Playback starts automatically when date changed.
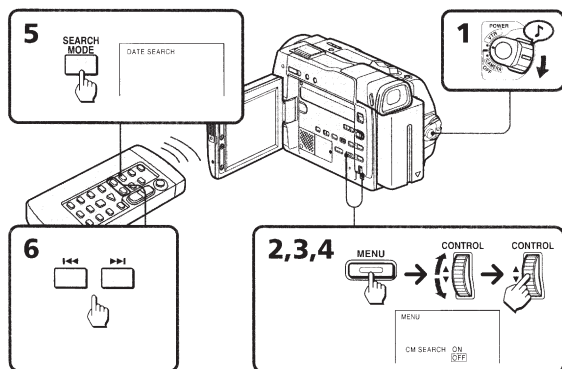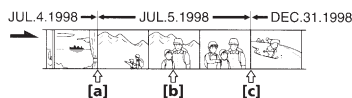
JUL.4.1998 →|←—— JUL.5.1998 ——→|←— DEC.31.1998

[a] [b] [c]

To stop searching
Press ■.

Searching the boundaries of recorded tape with title – title search

You can search for the boundaries of recorded tape with title – Title Search function. If you use a tape with cassette memory, you can select the title displayed on the LCD screen or in the viewfinder.

You can only operate with the Remote Commander.

Searching for the title by using cassette memory

You can use this function only when playing back a tape with cassette memory (p.67).

(1) Set the POWER switch to VTR.
(2) Press MENU to display the menu on the LCD screen.
(3) Turn the CONTROL dial to select CM SEARCH, then press the CONTROL dial.
(4) Turn the CONTROL dial to select ON, then press the CONTROL dial.
(5) Press SEARCH MODE on the Remote Commander repeatedly, until the title search indicator appears.
(6) Press |◀◀ or ▶▶| to select the title for playback.
Playback starts from the scene of the selected title automatically.
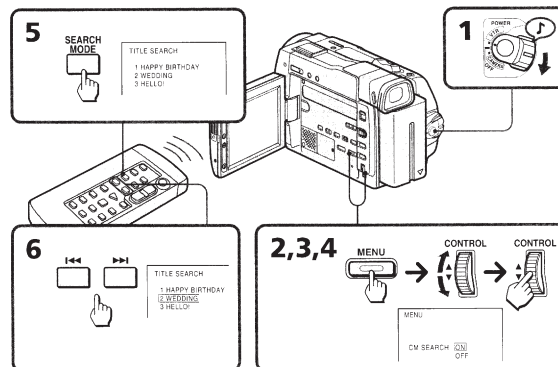
To stop searching
Press ■.

Notes
- You cannot superimpose or search a title, if you use a cassette tape without cassette memory.
- The camcorder may not search, if a tape has a blank portion in the beginning or between the recorded portions.

Advanced operations

You can search for the recorded still picture – Photo Search function. There are two modes in Photo Search:
- Using cassette memory, you can select the recorded date which is displayed on the LCD screen or in the viewfinder.
- Without using cassette memory.

You can also search for still pictures one after another and display each picture for five seconds automatically – Photo Scan function. Even if your tape has no cassette memory, you can use the Photo Scan function.
You can only operate with the Remote Commander.

Searching for a photo by using cassette memory – photo search

You can use this function only when playing back a tape with cassette memory (p.67).

(1) Set the POWER switch to VTR.
(2) Press MENU to display the menu.
(3) Turn the CONTROL dial to select CM SEARCH, then press the CONTROL dial.
(4) Turn the CONTROL dial to select OFF, then press the CONTROL dial.
(5) Press SEARCH MODE on the Remote Commander repeatedly, until the photo search indicator appears.
(6) Press I◀◀ or ▶▶I to select the date for playback.
Playback starts from the photo of the selected date automatically.

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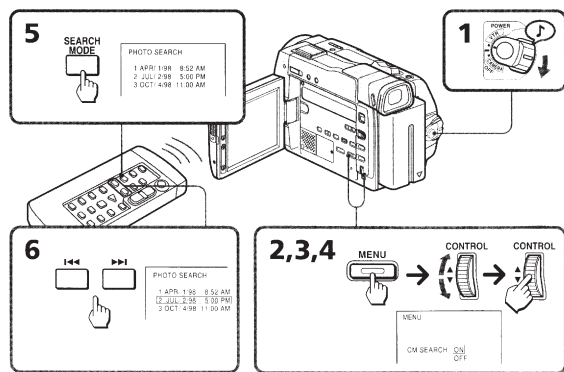
To stop searching
Press ■.

Note
When you play back a tape which has a blank portion in the beginning or between the recorded portions, the Photo Search function will not work correctly.

Searching for a photo without using cassette memory – photo search

You can use this function whether the tape has cassette memory or not.

(1) Set the POWER switch to VTR.
(2) Press MENU to display the menu on the LCD screen.
(3) Turn the CONTROL dial to select CM SEARCH, then press the CONTROL dial.
(4) Turn the CONTROL dial to select OFF, then press the CONTROL dial.
(5) Press SEARCH MODE on the Remote Commander repeatedly, until the photo search indicator appears.
(6) Press I◀◀ or ▶▶I to select the photo for playback. Each time you press I◀◀ or ▶▶I, the camcorder searches for the previous or next scene.
Playback starts from the photo automatically.
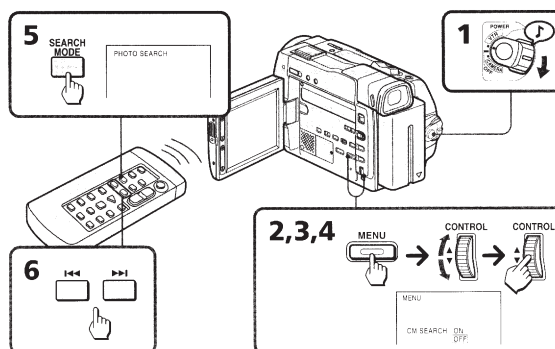
To stop searching
Press ■.

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Scanning photo – photo scan

You can use this function whether the tape has cassette memory or not.

(1) Set the POWER switch to VTR.
(2) Press SEARCH MODE on the Remote Commander repeatedly until the photo scan indicator displayed on the LCD screen.
(3) Press I◀◀ or ▶▶I.
Each photos are displayed for about 5 seconds automatically.
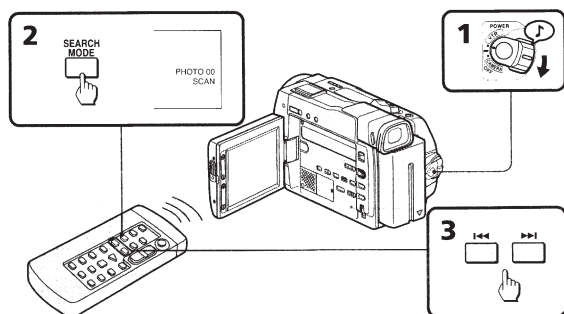
To stop searching
Press ■.

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Using the Remote Commander, you can easily go back to the desired point on a tape after playback.

(1) During playback, press ZERO SET MEMORY at the point you later want to locate. The counter shows "0:00:00" and "ZERO SET MEMORY" appears on the LCD screen or in the viewfinder.
(2) Press ■ when you want to stop playback.
(3) Press ◀◀ to rewind or press ▶▶ to fast-forward the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero. "ZERO SET MEMORY" disappears and the time code appears.
(4) Press ▷.
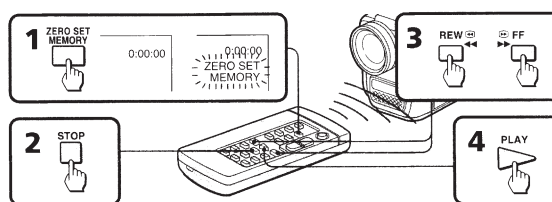
Note on the tape counter
There may be a discrepancy of several seconds from the time code.

Notes on ZERO SET MEMORY
- When you press ZERO SET MEMORY, the counter's zero point is memorized. Press ZERO SET MEMORY again before step 3 to cancel the memory .
- ZERO SET MEMORY may not function when there is a blank portion between pictures on a tape.
- ZERO SET MEMORY functions in recording standby mode.

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Displaying recording data – data code function

You can display recording data (date/time or various settings when recorded) on the LCD screen or in the viewfinder during playback (Data Code). The Data Code is also displayed on the TV.

Press DATA CODE during playback.
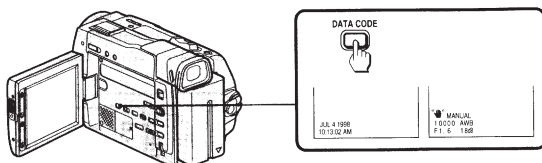
To select the items to be displayed
Set DATA CODE in the menu system, and select the following items:
When DATE/CAM is selected: date → various settings (SteadyShot, PROGRAM AE, shutter speed, white balance, aperture value, gain) → no indicator.
When DATE is selected: date → no indicator.

When you record a picture with adjusting the exposure to the darkest manually
"CLOSE" appears at the position of the iris indicator on the LCD screen or in the viewfinder.

When bars (-- -- --) appear
• A blank portion of the tape is being played back.
• The tape was recorded by a camcorder without having date and time set.
• The tape is unreadable due to tape damage or noise.

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Editing onto another tape

You can create your own video program by editing with any other DV, ^{Mini}**DV** mini DV, **8** 8 mm, **Hi8** Hi8, **VHS** VHS, **S-VHS** S-VHS, **VHSC** VHSC, **S-VHSC** S-VHSC, **B** Betamax or **ED Beta** ED Betamax VCR that has audio/video inputs. You can edit with little deterioration of picture and sound quality when using the DV connecting cable.

Before editing

Connect the camcorder to the VCR using the VMC-2DV DV connecting cable (not supplied) or the supplied A/V connecting cable.

Using the DV connecting cable
Simply connect the VMC-2DV DV connecting cable (not supplied) to DV IN/OUT and to DV IN/OUT of the DV products. With digital-to-digital connection, video and audio signals are transmitted in digital form for high-quality editing.

⊏⊐▷ : Signal flow
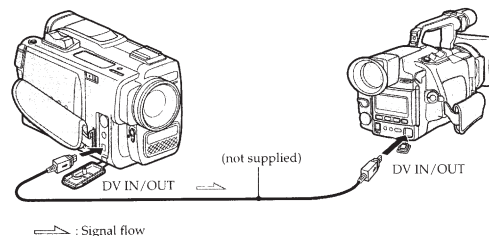
Notes on editing when using the DV connecting cable
• You can connect one VCR only.
• You can record picture, sound and system data at the same time on the DV products by using the DV connecting cable only.
• You cannot edit the titles, display indicator or the contents of cassette memory.
• If you record playback pause picture with the DV IN/OUT jack, the recorded picture becomes rough. And when you playback the picture using the other video equipment, the picture may jitter.
• You can also use the camcorder as a recorder with this connection. In this case "DV IN" indicator appears on the screen.
• When you use the camcorder as a recorder, the color balance may be incorrect on the monitor screen. But this is not recorded on the tape.

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Editing onto another tape

Using the A/V connecting cable [a] or S video connecting cable (not supplied) [b]
Set the input selector on the VCR to LINE.

⊏⊐▷ : Signal flow
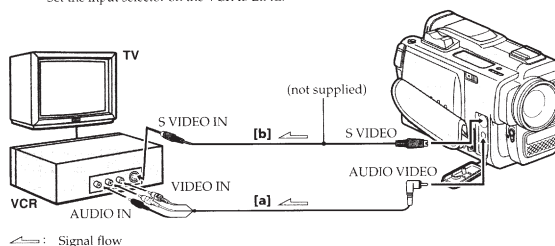
Notes on editing when using the A/V connecting cable
• Press DATA CODE , SEARCH MODE, or DISPLAY to turn off the display indicators. Otherwise, the indicators will be recorded on the tape.
• If your TV or VCR is a monaural type, connect the yellow plug of the A/V connecting cable for video to the TV or VCR. Connect only the white or red plug for audio to the TV or VCR. If you connect the white plug, the sound is L (left) signal. If you connect the red plug, the sound is R (right) signal.
• You can edit precisely by connecting a LANC cable to this camcorder and other video equipment having fine synchro-editing function, using this camcorder as a 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 recorded tape on the camcorder until you locate the point where you want to start editing, then press **ll** to set the camcorder in playback pause mode.
(3) On the VCR, locate the recording start point and set the VCR in recording pause mode.
(4) Press **ll** on the camcorder and VCR simultaneously to start editing.

To edit more scenes
Repeat steps 2 to 4.

To stop editing
Press ☐ on both the camcorder and the VCR.

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Recording from a VCR or TV

You can record a tape from another VCR or a TV program from a TV that has audio/video outputs. Connect the camcorder to the VCR or TV.

(1) While pressing the small green button on the POWER switch, set it to VTR and set DISPLAY to LCD in the menu system.
(2) Press REC ● and the button on the right together at the point where you want to start recording.
In recording and the recording pause mode, S VIDEO and AUDIO/VIDEO jacks automatically work as input jacks.
If your VCR or TV has an S video jack, connect using the S video cable (not supplied) [a] to obtain a high quality picture.
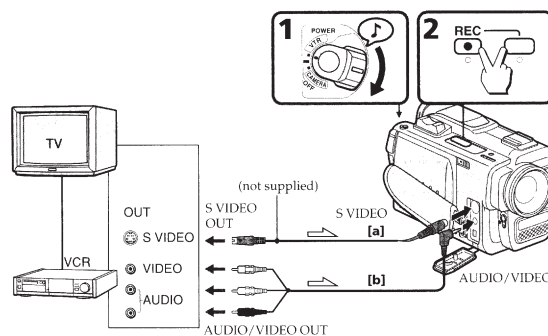
If your TV or VCR is a monaural type, connect the yellow plug of the A/V connecting cable for video to the TV or VCR. Connect only the white or red plug for audio to the TV or VCR. If you connect the white plug, the sound is L (left) signal. If you connect the red plug, the sound is R (right) signal.

If you are going to connect the camcorder using the S video cable (not supplied) [a] , you do not need to connect the yellow (video) plug of the A/V connecting cable [b] .

Note on using the S video connecting cable
If the S video plug is not provided on your TV or VCR, do not connect the S video cable (not supplied) to the camcorder. Pictures will not appear.

Note on the recording sound
The dual sound cannot be recorded in this camcorder.

To stop recording
Press ☐.

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Replacing recording on a tape – insert editing

You can insert a new scene from a VCR onto your originally recorded tape by specifying starting and ending points. After inserting editing, the previous picture and sound will be erased.
Connection is the same as on page 61 or 63. In recording and recording pause mode, DV IN/OUT jack automatically works as input jack.

(1) While pressing the small green button on the POWER switch, set it to VTR.
(2) On the VCR, locate the start point to be inserted and set it to playback pause mode.
(3) On the camcorder, press ▷ to set it to playback mode, and then locate the point where the insert should end by pressing ◀◀ or ▶▶. Then press ‖ to set it to playback pause mode.
(4) Press ZERO SET MEMORY on the Remote Commander. The ZERO SET MEMORY indicator flashes and the end point of the insert is stored in memory.
(5) On the camcorder, locate the point where the insert should begin by pressing ◀◀, then press ● REC to set it to recording pause mode.
(6) Press ‖ on the camcorder and the VCR simultaneously to start insert editing.
The insert editing stops automatically near the counter's zero point. Press □ to set the camcorder to stop mode.

To change the end point
Press ZERO SET MEMORY on the Remote Commander so that the ZERO SET MEMORY indicator disappears and begin from step 3.

Note on the inserted picture
The picture may be distorted at the end of the inserted portion when it is played back.

Audio dubbing

You can record an audio sound to add to the original sound on a tape by connecting audio equipment or a microphone. If you connect the audio equipment, you can add a sound on your recorded tape by specifying starting and ending points. The original sound will not be erased.

Dubbing with the AUDIO/VIDEO jack

: Signal flow

Note
The picture is not output from the AUDIO/VIDEO jack. Check the recorded picture in the viewfinder or on the LCD screen, as well as check the recorded sound by using a speaker or headphones.

Connecting with the MIC jack

: Signal flow   microphone (not supplied)

Note
You can check the recorded picture and sound connecting the AUDIO/VIDEO jack to a TV. The recorded sound is not output from a speaker. Check the sound by using TV or headphones.

Audio dubbing

Notes on audio dubbing
• A new sound cannot be recorded on a tape already recorded in the 16-bit mode (32 kHz, 44.1 kHz or 48 kHz).
• When an external microphone is not connected, the recording will be made through the built-in microphone of the camcorder.
• A new sound cannot be recorded on a tape already recorded in the LP mode.
• If you add a new sound on a tape recorded with another camcorder (including DCR-TRV9), the sound quality may become worse.
• When you record a playback pause picture with the DV jack, you cannot add audio to that portion of the tape.
• You cannot add audio with the DV jack.

Adding an audio sound on a recorded tape

(1) Insert your recorded tape into the camcorder.
(2) While pressing the small green button on the POWER switch, set it to VTR.
(3) On the camcorder, locate the point where the recording should begin by pressing ◀◀ or ▶▶. Then press ‖ to set it to playback pause mode.
(4) Press AUDIO DUB on the Remote Commander .
(5) Press ‖ on the Remote Commander and at the same time start playing back the audio you want to record. The new sound will be recorded in stereo 2. The recorded sound in stereo 1 is not heard.
(6) Press ■ on the Remote Commander at the point where you want to stop recording.

To play back the new recorded sound
Adjust the balance between the original sound (ST1) and the new sound (ST2) by selecting AUDIO MIX in menu system.

Five minutes after when you disconnect the power source or remove the battery pack, the settings of AUDIO MIX return to the original sound (ST1) only. The factory setting is original sound only.

To end audio more precisely
First, press ZERO SET MEMORY on the Remote Commander at the point where you want to stop recording. Then start recording from step 2, and the recording stops automatically near the counter's zero point.

Usable cassettes and playback modes

Selecting cassette types

You can use the ᴹⁱⁿⁱ DV mini DV cassette only. You cannot use any other DV DV, 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC, 13 Betamax or ED Beta ED Betamax cassette.

We recommend mini DV cassette with cassette memory.
There are two types of mini DV cassettes: with cassette memory and without cassette memory. We recommend to use the tape with cassette memory. The IC memory is mounted on this type of mini DV cassette. This camcorder can read and write data such as dates of recording or titles, etc. to this memory. The functions using the cassette memory require successive signals recorded on the tape. If the tape has a blank portion in the beginning or between the recorded portions, a title may not be displayed properly or the search functions may not work properly. Not to make any blank portion on the tape, operate the followings.
Press END SEARCH to go to the end of the recorded portion before you begin the next recording if you operate the followings:
– you have ejected the cassette while recording.
– you have played back the tape in the VTR mode.
– you have used the Edit Search function.
If there is a blank portion or discontinuous signal on your tape, re-record from the beginning to the end of the tape concerning above.
* The same result may occur when you record using a digital video camera recorder without a cassette memory function on a tape recorded by one with the cassette memory function.
Tapes with cassette memory have CM (Cassette Memory) mark. Sony recommends that you use a tape having CM mark to enjoy this camcorder fully.

When you play back

Copyright signal
When playing back
Using any other video camera recorder, you cannot record on a tape that has recorded a copyright control signals for copyright protection of software which is played back in this camcorder.

When recording
Using this camcorder, you cannot record software that has recorded a copyright control signals for copyright protection of software. "COPY INHIBIT" appears on the LCD screen, in the viewfinder or on the TV screen if you try to record such software.

Audio mode
12-bit mode: The original sound can be recorded in stereo 1, and the new sound in stereo 2 in 32 kHz. The balance between stereo 1 and stereo 2 can be adjusted by selecting AUDIO MIX in the menu system during playback. Both sounds can be played back.
16-bit mode: A new sound cannot be recorded but the original sound can be recorded in high quality. Moreover, it can also play back sound recorded in 32 kHz, 44.1 kHz or 48 kHz. When playing back a tape recorded in the 16-bit mode, 16BIT indicator appears on the LCD screen or in the viewfinder.

Notes on the mini DV cassette

To prevent accidental erasure
Slide out the protect tab on the cassette so that the red portion is visible. **[a]**

When affixing a label on the mini DV cassette
Be sure to affix a label on only the location as illustrated below so as not to cause malfunction of the camcorder. **[b]**

After using the mini DV cassette
Rewind the tape to the beginning, put the cassette in its case, and store it in an upright position.

[c]

[a]

[b]

To record

Slide out to prevent accidental erasure.
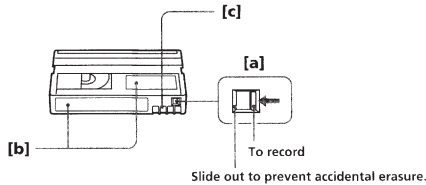
Note on gold-plated connector
If the gold-plated connector of mini DV cassettes is dirty or dusty, you may not operate the function using cassette memory. Clean up the gold-plated connector with cotton-wool swab, about every 10 times ejection of a cassettes. **[c]**

Your camcorder is supplied with a vanadium-lithium battery installed so as to retain the date and time, etc., regardless of the setting of the POWER switch. The vanadium-lithium battery is always charged as long as you are using the camcorder. The battery, however, will get discharged gradually if you do not use the camcorder. It will be completely discharged in about a year if you do not use the camcorder at all. Even if the vanadium-lithium battery is not charged, it will not affect the camcorder operation. To retain the date and time, etc., charge the battery if the battery is discharged. The following are charging methods:
- Connect the camcorder to house current using the supplied AC power adaptor, and leave the camcorder with the POWER switch turned off for more than 24 hours.
- Or install the fully charged battery pack in the camcorder, and leave the camcorder with the POWER switch turned off for more than 24 hours.

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The date and time are set at the factory. Set the time according to the local time in your country. If you do not use the camcorder for about a year, the date and time settings may be released (bars may appear) because the vanadium-lithium battery installed in the camcorder will have been discharged. In this case, first charge the vanadium-lithium battery, then reset the date and time.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.
(2) Press MENU to display the menu on the LCD screen or in the viewfinder.
(3) Select CLOCK SET, then press the CONTROL dial.
(4) Turn the CONTROL dial to adjust the year, and then press the CONTROL dial.
(5) Set the month, day, hour and minutes by turning and pressing the CONTROL dial.
(6) Press MENU to erase the menu display.
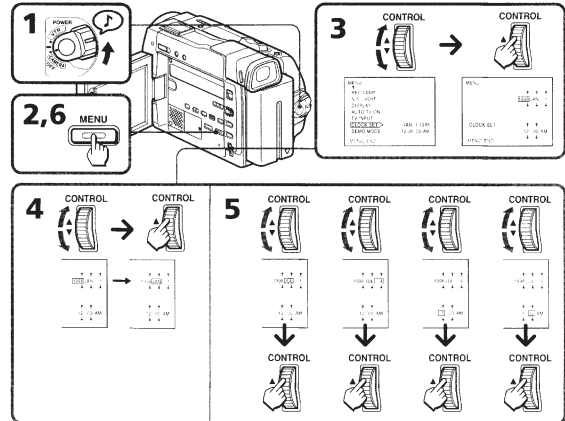
To correct the date and time setting
Repeat steps 2 to 5.

The year indicators changes as follows:

1998 → 1999 → ..... 2001 ..... → 2029

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.

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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 a 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
Do not leave the camcorder in Standby mode when not recording to save the battery power. A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking at the LCD screen or through the viewfinder, 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 on the LCD screen or in the viewfinder decreases gradually as battery power is used up.
The remaining time in minutes also appears.

When the remaining battery indicator reaches the lowest point, the ⟳ indicator appears and starts flashing on the LCD screen or in the viewfinder.
When the ⟳ indicator on the LCD screen or 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 a smooth transition between scenes after the battery pack has been replaced.

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Notes on the rechargeable battery pack

Caution
Never leave the battery pack in temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight.

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

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

The life of the battery pack
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.

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Notes on the "InfoLITHIUM" Battery Pack

What is the "InfoLITHIUM" battery pack

The "InfoLITHIUM" battery pack is a lithium battery pack which can exchange data with compatible video equipment about its battery consumption.

Sony recommends that you use the "InfoLITHIUM" battery pack with video equipment having the ⓘ *InfoLITHIUM* mark.

When you use this battery pack with video equipment having the ⓘ *InfoLITHIUM* mark, the video equipment will indicate the remaining battery time in minutes.*

* The indication may not be accurate depending on the condition and environment which the equipment is used under.

How the battery consumption is displayed

The power consumption of the camcorder changes depending on its use, such as whether the LCD is used or not, how the autofocusing is working on or not.

While checking the condition of the camcorder, the "InfoLITHIUM" battery pack measures the battery consumption and calculates the remaining battery power. If the condition changes drastically, the remaining battery indication may suddenly decrease or increase by more than 2 minutes.

Even if 5 to 10 minutes is indicated as the battery remaining time on the LCD or viewfinder, the ⏺ indicator may also flash under some conditions.

To obtain more accurate remaining battery indication

Set the camcorder to recording standby mode and point towards a stationary object. Do not move the camcorder for 30 seconds or more.

- If the indication seems incorrect, use up the battery and then recharge it fully (Full charge[1]). Note that if you have used the battery in a hot or cold environment for long time, or you have repeated charging many times, the battery may not be able to show the correct time even after being fully charged.
- After you have used the "InfoLITHIUM" battery pack with an equipment not having the ⓘ *InfoLITHIUM* mark, make sure that you use up the battery on the equipment having the ⓘ *InfoLITHIUM* mark and then recharge fully.

Why the remaining battery indication does not match the continuous recording time in the operating instruction

The recording time is affected by the environmental temperature and conditions. The recording time becomes very short in a cold environment. The continuous recording time in the operating instruction is measured under the condition of using a fully charged (or normal charged[2]) battery pack in 77 °F (25 °C). As the environmental temperature and condition are different when you actually use the camcorder, the remaining battery time is not same as the continuous recording time in the operating instruction.

[1] Full charge: Charging for about 1 hour after the charge lamp of the AC power adaptor goes off.
[2] Normal charge: Charging just until the charge lamp of the AC power adaptor goes off.

Notes on charging

A brand-new battery pack

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

Recharge the battery pack whenever you like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Notes on the terminals

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

When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Also, wipe the +, – and C terminals with a soft cloth or paper.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

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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 camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Take the following precautions.

Inside the camcorder

If there is moisture inside the camcorder, the beep sounds and the ▣ indicator flashes. If this happens, none of the function except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When ▲ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour.

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 1 hour.

How to prevent moisture condensation

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

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

Video head cleaning

To ensure normal recording and clear pictures, clean the video heads.
The video heads may be dirty when:
- mosaic-pattern noise appears on the playback picture
- playback pictures do not move
- playback pictures are hardly visible
- playback pictures do not appear
- the ⊗ indicator and " ▧ CLEANING CASSETTE" message appear one after another or the ⊗ indicator flashes on the LCD screen or in the viewfinder

[a] **[b]**
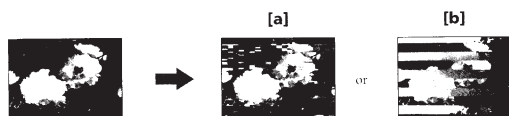
If [a] or [b] happens, clean the video heads with the Sony DVM12CL cleaning cassette (not supplied). Check the picture and if the above problem persists, repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

Note
If the DVM12CL cleaning cassette (not supplied) is not available in your area, consult your nearest Sony dealer.

Precautions

Camcorder operation

- Operate the camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by your Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camcorder.
- 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.

On handling tapes

- Do not insert anything in the small holes on the cassette.
- Do not open the tape protect cover or touch the tape.
- Avoid touching or damaging the terminals. To remove dust, clean the terminals with a soft cloth.

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 the lens, 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.
- Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired.

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AC power adaptor

Charging
- Use only an "InfoLITHIUM" type battery pack.
- Place the battery pack on a flat surface without vibration during charging.
- The battery pack will get hot during charging. This is normal.

Others
- Unplug the unit from the wall outlet when not in use for a long time. To disconnect the power cord, pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit 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 this happens, 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.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  Extremely hot or cold, Dusty or dirty, Very humid, Vibrating

Note on dry batteries

To avoid possible damage from battery leakage or corrosion, observe the following.
- Be sure to insert the batteries in the correct direction.
- Dry batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- The batteries slowly discharge while not in use.
- Do not use a battery that is leaking.

If battery leakage occurred
- Wipe off the liquid in the battery case carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

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

Each country or area has its own electric and TV color systems. Before using your camcorder abroad, check the following points.

Power sources

You can use your camcorder in any country or area 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]**.

AC-V316 → ⫟⫟ ⇒ ⫟⫟ ⇒ ⊙∙⊙

  [a]　　　**[b]**
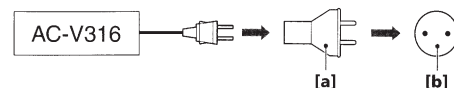
Difference in color systems

This camcorder is a NTSC system-based camcorder. If you want to view the playback picture on a TV, it must be a NTSC system-based TV.
Check the following list.

NTSC system
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
Australia, Austria, Belgium, Czech Republic, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

SECAM system
Bulgaria, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

Additional information

If you run into any problem using the camcorder, use the following table to troubleshoot the problem. Should the difficulty persist, disconnect the power source and contact your Sony dealer or local authorized Sony service facility.

Camcorder

Power

Symptom	Cause and/or corrective actions
The power is not on.	• The battery pack is not installed. → Install the battery pack. (p. 7) • The battery is dead. → Use a charged battery pack. (p. 7) • The AC power adaptor is not connected to a wall outlet. → Connect the AC power adaptor to a wall outlet. (p. 23)
The power goes off.	• While being operated in CAMERA mode, the camcorder has been in Standby mode for more than 5 minutes. → Set the POWER switch to OFF, then to CAMERA. (p. 11) • The battery is dead. → Use a charged battery pack. (p. 7)
The battery pack is quickly discharged.	• The ambient temperature is too low. (p. 70) • The battery pack has not been charged fully. → Charge the battery pack again. (p. 7) • The battery pack is completely dead, and cannot be recharged. → Use another battery pack. (p. 23)

Operation

Symptom	Cause and/or corrective actions
START/STOP does not operate.	• The tape is stuck to the drum. → Eject the cassette. (p. 10) • The tape has run out. → Rewind the tape or use a new one. (p. 20) • The POWER switch is set to VTR. → Set it to CAMERA. (p. 11) • The tab on the cassette is out (red). → Use a new tape or slide the tab. (p. 10)
The cassette cannot be removed from the holder.	• The battery is dead. → Use a charged battery pack or the AC power adaptor. (p. 7, 23)
▇ and ▲ indicators flash and no function except for cassette ejection works.	• Moisture condensation has occurred. → Remove the cassette and leave the camcorder for at least 1 hour. (p. 74)
"CLOCK SET" appears when the camcorder is turned on.	• Reset the date and time. (p. 69)
The End Search function does not activate.	• You did not make a new recording after reinserting the cassette. • The tape without cassette memory ejected after recording.

Operation

Symptom	Cause and/or corrective actions
The tape does not move when a tape transport button is pressed.	• The POWER switch is set to CAMERA or OFF. → Set it to VTR. (p. 20) • The tape has run out. → Rewind the tape or use a new one. (p. 20)
No sound or only a low sound is heard when playing back a tape.	• The volume is turned to the minimum. → Open the LCD panel and press VOL +. (p. 20) • AUDIO MIX is set to ST2 side in the menu system. → Adjust AUDIO MIX in the menu system (p. 66).
The new sound added to the recorded tape is not heard.	• AUDIO MIX is set to ST1 side in the menu system. → Adjust AUDIO MIX in the menu system (p. 66).
The SteadyShot function does not activate.	• STEADYSHOT is set to OFF in the menu system. → Set it to ON. (p. 49)
Recording stops in a few seconds.	• The START/STOP MODE switch is set to 5SEC or ⏻ ANTI GROUND SHOOTING. → Set it to ⏻ . (p. 14)
The autofocus function does not activate.	• Focus is set to the manual mode. → Set it to autofocus. (p. 37) • Shooting conditions are not suitable for autofocus. → Set focus to manual mode to focus manually. (p. 37)
The fader function does not work.	• The START/STOP MODE switch is set to 5SEC or ⏻ ANTI GROUND SHOOTING. → Set it to ⏻ . (p. 14) • A title is displayed on the LCD screen or in the viewfinder. → Clear the title. (p. 29)
The title is not displayed.	• TITLE DSPL is set to OFF in the menu system. → Set it to ON in the menu system. (p. 24)
The title is not recorded.	• The tape has no cassette memory. → Use a tape with cassette memory. (p. 41) • The cassette memory is full. → Erase another title. (p. 43) • The tape is set to prevent accidental erasure. → Slide the protect tab so that red portion is not visible. (p. 42) • Nothing is recorded in that position on the tape. → Superimpose the title to the recorded position. (p. 42)
The cassette label is not recorded.	• The tape has no cassette memory. → Use a tape with cassette memory. (p. 46) • The cassette memory is full. → Erase some titles. (p. 43) • The tape is set to prevent accidental erasure. → Slide the protect tab so that red portion is not visible. (p. 48)
Displaying the recorded date, date search function does not work.	• The tape has no cassette memory. → Use a tape with cassette memory. (p. 52) • CM SEARCH is set to OFF in the menu system. → Set it to ON. (p. 52)

Additional information

Operation

Symptom	Cause and/or corrective actions
The title search function does not work.	• The tape has no cassette memory. → Use a tape with cassette memory. (p. 55) • CM SEARCH is set to OFF in the menu system. → Set it to ON. (p. 55) • There is no title in the tape. → Superimpose the titles. (p. 41)
CM indicator does not appear when using a tape with cassette memory.	• The gold-plated connector of the tape is dirty or dusty. → Clean the gold-plated connector. (p. 68)
The Date Search, Title Search, or End Search does not work correctly.	• The tape has a blank portion in the beginning or between the recorded portion. (p. 67)

Picture

Symptom	Cause and/or corrective actions
The image on the viewfinder screen is not clear.	• The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 12)
A vertical band appears when a subject such as lights or a candle flame is shot against a dark background.	• The contrast between the subject and background is too high. The camcorder is not malfunctioning. → Change locations.
The picture is "noisy" or does not appear.	• The video heads may be dirty. → Clean the heads using the Sony DVM12CL (not supplied) cleaning cassette. (p. 74)
⊗ indicator flashes on the LCD screen or in the viewfinder.	• The video heads may be dirty. → Clean the heads using the Sony DVM12CL (not supplied) cleaning cassette. (p. 74)
The picture is too bright or too dark.	• LCD BRIGHT is not adjusted properly. → Press + or – to obtain the brightness you want. (p. 15, 20)
A vertical band appears when shooting a very bright subject.	• The camcorder is not malfunctioning.
The picture does not appear on the LCD screen or in the viewfinder.	• Incorporated fluorescent tube is worn out. → Please contact your nearest Sony dealer.
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel.
The picture in the viewfinder does not disappear.	• Sunlight or the incandescent lamp may prevent the viewfinder sensor from working correctly. This is not a malfunction.
An unknown picture is displayed in the viewfinder or on the LCD screen.	• If 10 minutes elapse after you set the POWER switch to CAMERA without inserting a cassette, the camcorder automatically starts the demonstration or DEMO MODE is set to STBY/ON in the menu system. → Insert the cassette and the demonstration stops. You can deactivate the demonstration. (p. 92)
A display such as "C:□□:□□" appears on the LCD screen or in the viewfinder.	• The self-diagnosis display function has activated. → Check the code and diagnosis the problem by referring to the code chart. (p. 83)
The picture is recorded in incorrect/unnatural color.	• NIGHTSHOT is set to ON. → Set it to OFF (p. 30)

Others

Symptom	Cause and/or corrective actions
While editing using the DV connecting cable, recording picture cannot be monitored.	• Remove the DV connecting cable, and connect it again.
The camcorder becomes warm.	• If the power of the camcorder is on for a long time, it becomes warm, which is not malfunction.
The supplied Remote Commander does not work.	• Something is blocking the infrared rays. → Remove the obstacle. • The battery is not inserted with the correct polarity. → Insert the battery with the correct polarity. (p. 89) • The batteries are dead. → Insert new ones. (p. 89)
No function works though the power is on.	• Disconnect the connection plate on the battery pack or on the AC power adaptor, then reconnect it in about 1 minute. Turn the power on. If the functions still do not work, open the LCD panel and press the RESET button below the MENU button using a sharp-pointed object. (If you press the RESET button, all the settings including the date and time return to the default.) (p. 87)

AC power adaptor

Symptom	Corrective actions
The VTR/CAMERA or CHARGE lamp does not light.	• Disconnect the power cord. After about 1 minute, reconnect the power cord. (p. 7)
The CHARGE lamp flashes.	• See the chart on the next page.

Additional information

When the CHARGE lamp flashes

Check through the following chart.

Remove the battery pack from the AC power adaptor. Then install the same battery pack again.

When the CHARGE lamp flashes again
Install another battery pack.

When the CHARGE lamp does not flash again
If the CHARGE lamp lights up and goes out after a while, there is no problem. *

When the CHARGE lamp flashes again
The problem is with the AC power adaptor.

When the CHARGE lamp does not flash again
If the CHARGE lamp lights up and goes out after a while, the problem is with the battery pack installed first.

Please contact your nearest Sony dealer in connection with the product with the problem.

* If you use a battery pack which you have just bought or which has been left unused for a long time, the CHARGE lamp may flash at the first charging. This does not indicate a problem. Repeat again to charge with same battery pack.

Self-diagnosis function

The camcorder has a self-diagnosis display.
This function displays the camcorder's condition with five digits (a combination of a letter and figures) on the LCD screen or in the viewfinder. If this occurs, check the following code chart. The five-digit display informs you of the camcorder's current condition. The last two digits (indicated by □□) will differ depending on the state of the camcorder.

LCD screen/viewfinder
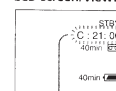
Self-diagnosis display
•C:□□:□□
You can service the camcorder yourself.
•E:□□:□□
Contact your Sony dealer or local authorized Sony facility.

Five-digit display	Cause and/or corrective actions
C:21:□□	• Moisture condensation has occurred. → Remove the cassette and leave the camcorder for at least 1 hour. (p. 74)
C:22:□□	• The video heads are dirty. → Clean the heads using the Sony DVM12CL cleaning cassette (not supplied). (p. 74)
C:31:□□ C:32:□□	• A serviceable situation not malfunctioned above has occurred. → Remove the cassette and insert it again, then operate the camcorder. (p. 11) → Disconnect the power cord of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate the camcorder.
E:61:□□ E:62:□□	• A camcorder malfunction which you cannot service has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the five digits. (example: E:61:10)

If you are unable to resolve the problem, contact your Sony dealer or local authorized Sony service facility.

Additional information
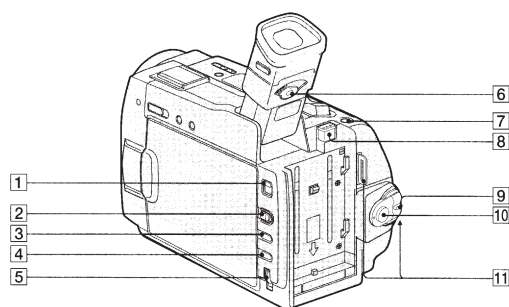
Additional information

1 **FOCUS switch** (p. 37)

2 **OPEN switch** (p. 20)

3 **PROGRAM AE button** (p. 35)

4 **EXPOSURE button** (p. 40)

5 **CONTROL dial** (p. 24)

6 **Viewfinder lens adjustment lever** (p. 12)

7 • **PHOTO button** (p. 31)

8 ↯ **BATT (battery release) button** (p. 9)

9 **POWER switch** (p. 11, 20)

10 **START/STOP button** (p. 11)

11 **Hooks for shoulder strap** (p. 90)

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12 **Tape transport buttons** (p. 20)
□ STOP (stop)
◄◄ REW (rewind)
▷ PLAY (playback)
►► FF (fastforward)
II PAUSE (pause)
● REC (record)

13 **EDITSEARCH button** (p. 19)

14 **LASER LINK button** (p. 51)

15 **Intelligent accessory shoe**

16 **Remote sensor**

17 **Recording/battery lamp**

18 **Microphone**

19 **Viewfinder** (p. 12)

20 **BACK LIGHT button** (p. 28)

21 **FADER button** (p. 29)

22 **NIGHTSHOT switch** (p. 30)

Note on the intelligent accessory shoe
Supplies power to optional accessories such as a video light or microphone. The intelligent accessory shoe is linked to the POWER switch, allowing you to turn on and off the power supplied by the shoe. Refer to the operating instruction of the accessory for further information. To connect an accessory, press down and push it to the end, and then tighten the screw. To remove an accessory, loosen the screw, and then press down and pull out the accessory.
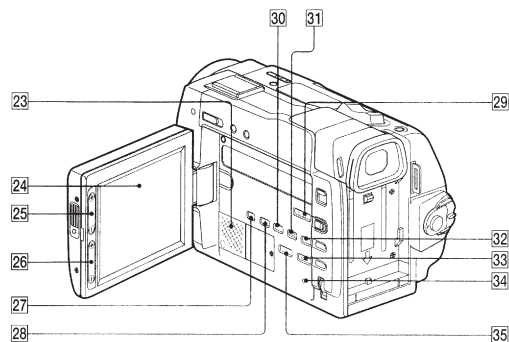
Additional information

23 **Speaker**

24 **LCD Screen** (p. 15, 20)

25 **LCD BRIGHT button** (p. 15, 20)

26 **VOL (volume) button** (p. 20)

27 **DATA CODE button** (p. 60)

28 **DISPLAY button** (p. 20)

29 **START/STOP MODE switch** (p. 14)

30 **16:9WIDE button** (p. 33)

31 **END SEARCH button** (p. 19)

32 **TITLE button** (p. 41, 44)

33 **MENU button** (p. 24)

34 **RESET button** (p. 81)

35 **PICTURE EFFECT button** (p. 39)
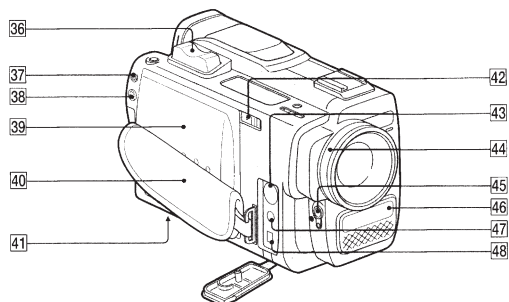
36 Power zoom switch (p. 13)

37 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.

38 ⌢ headphones jack (p. 21)

39 Cassette lid (p. 10)

40 Grip strap (p. 17)

41 Tripod receptacle (p. 18)
Make sure that the length of the tripod screw is less than 9/32 inch (6.5 mm). Otherwise, you cannot attach the tripod securely and the screw may damage the camcorder.

42 EJECT switch (p. 10)

43 S VIDEO jack (p. 32, 50, 62)

44 Focus ring (p. 37)

45 MIC jack (PLUG IN POWER) (p. 65)
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.

46 Laser Link emitter (p. 51)
/NightShot Light emitter (p. 30)

47 AUDIO/VIDEO jack (p. 50, 62)

48 DV IN/OUT jack (p. 61)
ℹ
This "i.LINK" mark is a trademark of Sony Corporation and indicates that this product is in agreement with IEEE 1394-1995 specifications and their revisions.

The DV IN/OUT jack is i.LINK compatible.

Remote Commander

The buttons that have the same name on the Remote Commander as on the camcorder function identically.
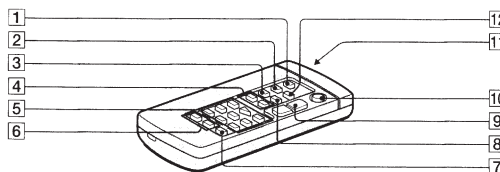
1 PHOTO button (p. 31)

2 DISPLAY button (p. 20)

3 SEARCH MODE button (p. 52, 55, 56)

4 ◄◄ /►►I buttons (p. 52, 55, 56)

5 Tape transport buttons (p. 20)

6 REC button (p. 64)

7 AUDIO DUB button (p. 66)

8 DATA CODE button (p. 60)

9 Power zoom button (p. 13)

10 START/STOP button (p. 11)

11 Transmitter
Point toward the remote sensor to control the camcorder after turning on the camcorder.

12 ZERO SET MEMORY button (p. 59)

To prepare the Remote Commander
To use the Remote Commander, you must insert two size AA (R6) batteries. Use the supplied size AA (R6) batteries.
(1) Remove the battery cover from the Remote Commander.
(2) Insert both of the size AA (R6) batteries with correct polarity.
(3) Put the battery cover back onto the Remote Commander.
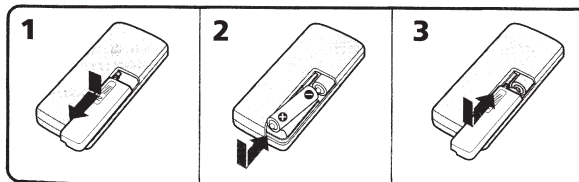
Note on battery life
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage
Remove the batteries when you will not use the Remote Commander for a long time.

Remote control direction
Aim the Remote Commander to the remote sensor.
The operative range of the Remote Commander is about 16.4 feet (5 m) indoors. Depending on the angle, Remote Commander may not activate the camcorder.

Notes on the Remote Commander
• Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
• Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
• This camcorder works in 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 in commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Attaching the shoulder strap

Attach the supplied shoulder strap to the hooks for the shoulder strap.
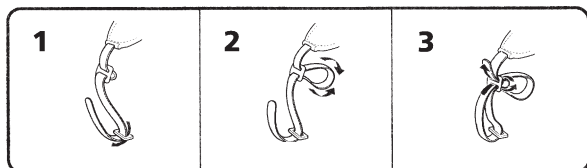
Operation indicators
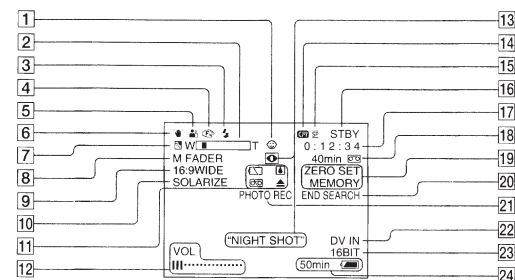
1 Mirror mode indicator (p. 16)

2 Zoom indicator (p. 13) **/Exposure indicator** (p. 40)

3 Video flash indicator

4 Manual focus/Infinity indicator (p. 37)

5 PROGRAM AE indicator (p. 34)

6 SteadyShot indicator (p. 49)

7 BACK LIGHT indicator (p. 28)

8 FADER indicator (p. 29)

9 16:9WIDE indicator (p. 33)

10 PICTURE EFFECT indicator (p. 38)

11 Warning indicators (p. 93)

12 BRT (bright) indicator (p. 15, 20)
/VOL (volume) indicator (p. 20)

13 NightShot indicators (p. 30)

14 Cassette Memory indicator (p. 4)

15 Recording mode indicator (p. 11)

16 Recording standby mode indicator (p. 11)
/Tape transport mode indicator

17 Time code indicator (p. 12) **/Self diagnosis indicator** (p. 83)

18 Remaining tape indicator (p. 13)

19 ZERO SET MEMORY indicator (p. 59)
/Photo capture indicator (p. 31)

20 END SEARCH indicator (p. 19)

21 PHOTO REC indicator (p. 31)

22 DV IN indicator (p. 61)

23 Audio mode indicator (p. 67)

24 Remaining battery indicator (p. 70)
/Remaining time in minutes indicator

1-22
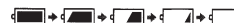
To watch the demonstration
You can watch a brief demonstration of pictures with special effects. If the demonstration appears when you turn on the camcorder for the first time, exit the demo mode to use your camcorder.

To enter demo mode
(1) Eject the cassette and set the POWER switch to VTR.
(2) While holding down ▷, set the POWER switch to CAMERA. The demonstration starts. The demonstration stops when you insert the cassette. NIGHTSHOT should be set to ON to start demonstration.
Note that once you enter demo mode, this mode is retained as long as the vanadium rechargeable battery is in place. Therefore, demonstration starts automatically 10 minutes later every time you set the POWER switch to CAMERA, and after you eject the cassette.

To exit demo mode
(1) Set the POWER switch to VTR.
(2) While holding down □, set the POWER switch to CAMERA.

Note on demo mode
When you set NIGHTSHOT to ON in the menu system, NIGHTSHOT indicator appears in the viewfinder or on the LCD screen. At this time, you cannot select DEMO MODE in the menu system.

If indicators flash on the LCD screen or in the viewfinder or warning messages appear on the display window, check the following:
♪ : You can hear the beep sound when BEEP is set to ON in the menu system.
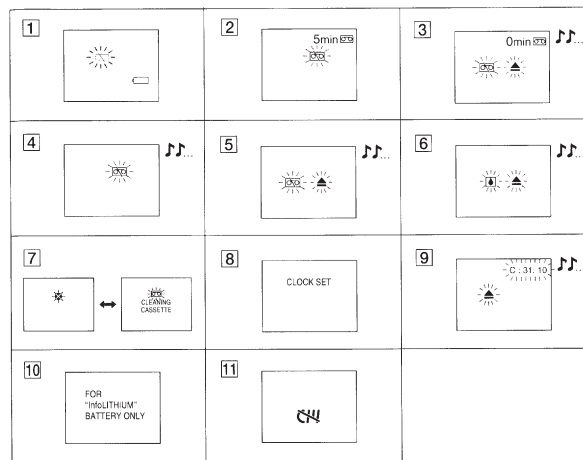
1 **The battery is weak or dead.**
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.
Depending on conditions, the ⊘ indicator may flash, even if there are 5 to 10 minutes remaining.

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. 74)

7 **The video heads may be contaminated.** (p. 74)

8 **The clock is not set.**
When this message appears though you set the date and time, the vanadium-lithium battery is discharged. Charge the vanadium-lithium battery. (p. 69)

9 **Some other trouble has occurred.**
Use the self-diagnosis function (p. 83). If the display does not disappear contact your Sony dealer or local authorized Sony service facility.

10 **The battery is not the "InfoLITHIUM" type.**

11 **The tape has no cassette memory.** (p. 4)

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Additional information

SECTION 2
DISASSEMBLY

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

2-1. F PANEL ASSEMBLY

① Screw (M2 × 4)

⑪ Cabinet (Upper)

⑩ MA-322 board

④ Screw (B2 × 5)

Claw

⑤

Front panel assembly

⑥ Screw (B2 × 5)

⑩ MA-322 board

② FP-654 flexible board

⑨ Screw (B2 × 5)

③ Function switch block
(MF-4580)
(from CN7002 of MA-322 board)

⑩ MA-322 board

① Screw
(M2 × 4)

① Screw (M2 × 4)

⑦ Connector
(from CN7003 of MA-322 board)

⑧ Open the jack cover.
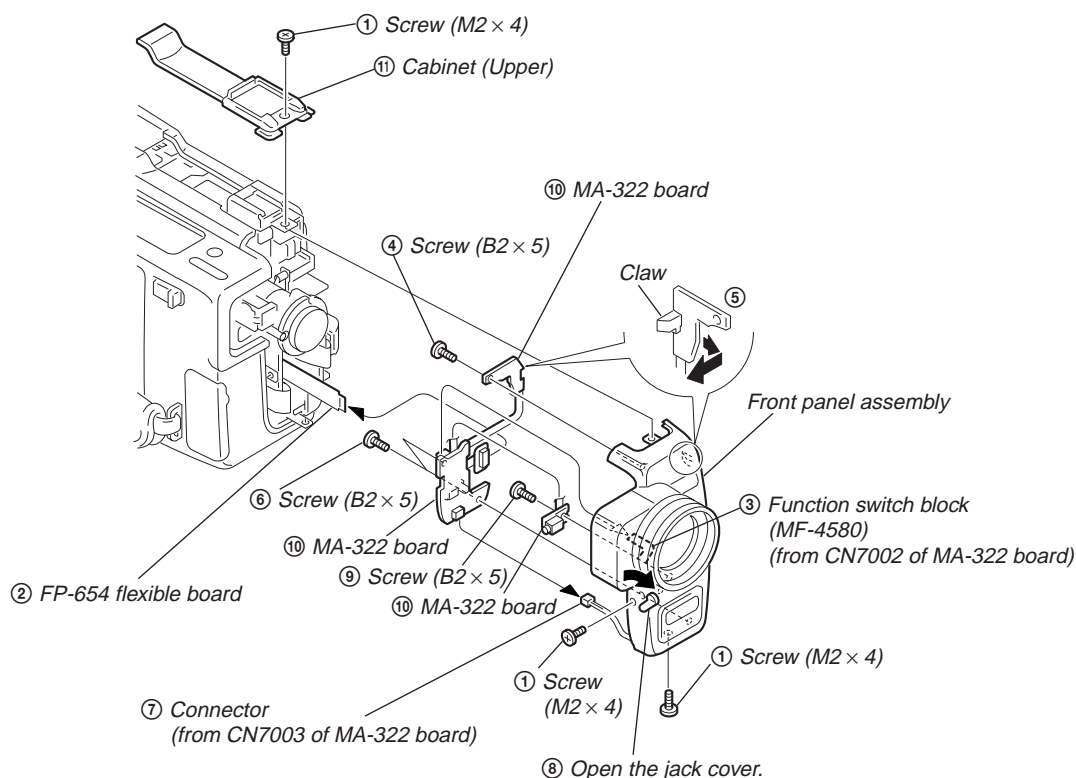
2-2. CABINET (L), CABINET (R) ASSEMBLIES

⑦ FP-650 flexible board
(from CN7805 of KY-39 board)

④ Screw (M2 × 4)

② Screw (M2 × 3)

③

① Screw (M2 × 3)

④ Screw (M2 × 4)

⑤ Screw (M2 × 4)

⑥ Screw (M2 × 4)
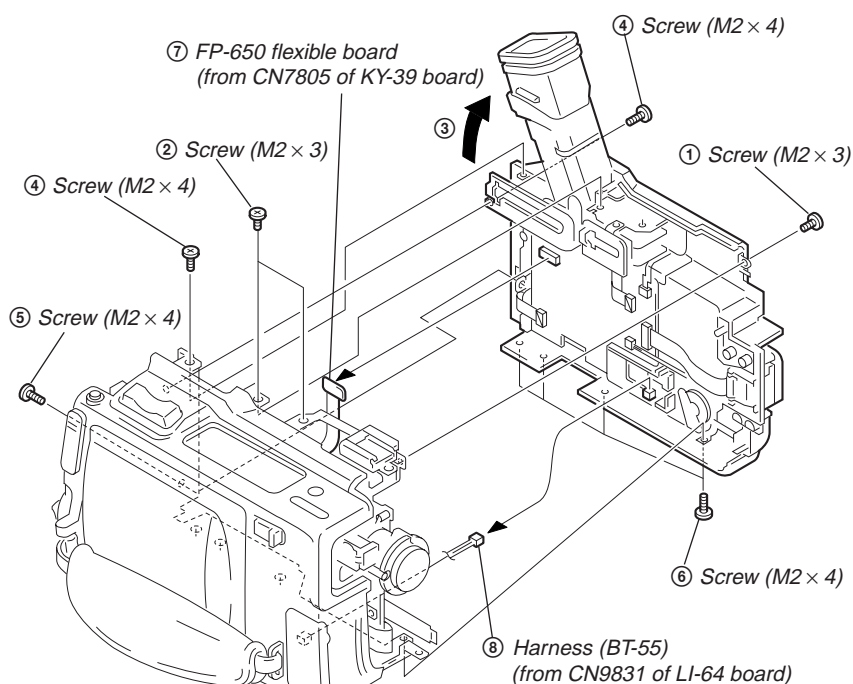
⑧ Harness (BT-55)
(from CN9831 of LI-64 board)
∗ Be careful that the harness is fragile and can be easily broken.
In addition, when this harness is removed, the memory backup
power is turned off, and setting of the user's memory
becomes necessary.

2-3. CABINET (R) ASSEMBLY

*Notes when attaching the cabinet (R) assembly

KY-39 board

Align S7823 position with that of START/STOP switch.

① Function switch block (CF4580) (From CN7803 of KY-39 board)

① FP-656 flexible board (From CN7806 of KY-39 board)

① FP-657 flexible board (From CN7804 of KY-39 board)

② Screw (M1.7×3.5)

KY-39 Board

Cabinet (R) assembly

① FP-649 flexible board (From CN7802 of KY-39 board)

④ Speaker (SP901)

② Screw (M1.7 × 3.5) ② Screw (M1.7 × 3.5)

①① Harness (From CN7801 of KY-39 board)

(The numbers in square ☐ show the sequence in the case when the speaker (SP901) onlyis removed.)

③ SP retainer assembly

2-4. EVF ASSEMBLY

⑥ VF ornamental panel

⑦ FP-655 flexible board

Claw

To assemble it, engage the EVF slide base with the claw.

⑦ Remove by depressing it down once.

② Screw (M2 × 3)

⑤ Hinged flexible sheet

⑥ While depressing the claw

⑤ Insert pincers and disengage the claw in the direction of the arrow

③③ Remove it by sliding.

④ Slide the EVF.

④

⑧ FP-657 flexible board (From CN7804 of KY-39 board)

ⓐ

⑧ Push the both claws at the same time with pincers, and remove it.

②② Screw (M1.7 × 3.5)

①① FP-656 flexible board (From CN7806 of KY-39 board)

(The numbers in square ☐ show the sequence in the case when the FP-657 flexible board only is removed.)

⑨ Move the VF-121 board in the direction of the arrow ⓐ.

⑮ VF121 board

⑭ FP656 flexible board

VF board holder

⑫

⑬ Disengage the claw.

ⓑ ⓒ

⑯ Disengage the catch.

⑩ Push the claw in the direction of the arrow ⓑ, and

⑪ Move the VF flexible clamper in the direction of the arrow ⓒ.

⑰ VF flexible clamper

2-5. EVF CABINET (UPPER) ASSEMBLY, EVF CABINET (LOWER) ASSEMBLIES

④ EVF cabinet (upper) assembly

① Screw (M2 × 4)

⑨ VF lens assembly (458)

⑤ EVF cabinet (lower) assembly

⑧ Remove the claw.

⑦ LCD902 (from CN5202 of LB-55 board)

⑥ FP-655 flexible board

③ Screw (M1.7 × 6)

⑩ LB-55 board

⑪ LCD cushion (458)

⑫ BL diffusion plate (458)

⑬ LCD cushion (458)

Glaring faces of both must face with ⑫.

② VF frame

⑭ Fluorescent display tube (LCD902)

① Screw (M1.7 × 6)

⑮ LCD cushion-1

2-6. LCD ASSEMBLY

⑧ Function switch block (BV4680) (From CN5805 of PD-98 board)

⑫ Tube, fluorescent cold cathode (3.5) (ND901)

⑧ LCD901 (From CN5801 of PD-98 board)

⑬ LCD display module (LCD901)

⑧ ND901 (From CN5701 of PD-98 board)

⑭ P cabinet (M) assembly

⑥ Screw (M2 × 4)

P cabinet (C) assembly

⑦ Claws

Claws

⑪ Panel frame assembly

Claws

a

b

Claws

⑦ Claws

⑨ Screw (M1.7 × 2.5)

⑩ PD-98 board

⑧ FP-649 flexible board

③ Screw (B2 × 5)

(From CN5802 of PD-98 board)

⑤ Screw (M2×4)

b

④ Remove the LCD unit from R cabinet.

Claws

a

While holding it toward inside,

Open

① FP-649 flexible board

② Open the retainer of panel flexible board

2-3

2-7. AU-202 BOARD, DD-106 BOARD, BATTERY HOLDER ASSEMBLY

② Battery holder assembly

① Screw (M2 × 4)

① Screw (M2 × 4)

AU-202 Board

② (arrow)

① Screw (M2 × 3)

③ Connector (from CN3901 of DD-106 board)

④ Screw (M2 × 3)

⑤ DD-106 board

(The numbers in square □ show the sequence in the case when the AU-202 board only is removed.)

2-8. ZOOM LENS

⑥ Screw (M2 × 3)   ⑤ Cushion (L)

⑦ CD-185 board

③ Zoom lens (VCL-5115VA)

② Screw (M2 × 3)

⑦ CD-185 board

④ Flexible board (from CN452 of CD-185 board)

⑥ Screw (M1.7 × 6)

① CD-185 board CN451 (from CN201 of VC-206 board)

2-9. VC-206 BOARD

③ VC-206 board

① FP-654 flexible board (CN9905)

① FP-653 flexible board (CN9908)

① FP-648 flexible board (CN9901)

② Screw (M2 × 3)

① FP-647 flexible board (CN9910)

① FP-650 flexible board (CN9909)

② Screw (M2 × 3)

① FP-676 flexible board (CN9907)

① From mechanism deck (CN2701, 3100, 3103, 3106)

2-4

2-10. MECHANISM DECK

② *Frame (lower), tripod screw*

④ *Remove the MD frame assembly and mechanism deck.*

④

③ *Screw (M2 × 3)*

⑤ *Stepped screw (M2)*

③ *Screw (M2 × 3)*

⑦ *Mechanism deck*

① *Screw (M2 × 4)*

⑥ *MD frame assembly*

2-11. CABINET (L) ASSEMBLY

Cabinet (L) assembly

⑭ *Function switch block (FK4580)*

④ *Open the cassette lid.*

③

⑬ *Screw (B2 × 5)*

⑧ *Jack cover (L)*

② *Shoe assembly*

Claws

⑤ *Screw (B2 × 5)*

⑪ *Slider assembly*

⑥ *Strap metal sheet*

① *Screw (B2 × 5)*

⑫ *FP-676 flexible board*

⑦ *Screw (B2 × 5)*

⑩ *FP-676 flexible board*

⑨ *Function switch block (PS4580)*

2-12. FP-647, FP-648 FLEXIBLE BOARD, VI-148 BOARD

④ Jack cover (AV)

⑤ Screw (B2 × 5)

⑥ Screw (M2 × 3)

⑤ Screw (B2 × 5)

② Screw (M2 × 3)

⑧ FP-647 flexible board

⑦ Jack frame

⑤ Screw (B2 × 5)

③ VI-148 board

① FP-648 flexible board

② Screw (M2 × 3)

Except AEP, UK model

2-13. SERVICE POSITION (For adjustment, check or voltage measurement, mainly)

Firstly, remove the following parts refering sections 2-1 and 2-2, and connect parts as shown below.

Cassette lid open/close switch
(Keep it ON by holding this switch with adhesive tape.)

Battery terminal

Extension cord
(J-6082-414-A)
(DD-106 board (CN3902) – VC-206 board (CN9911))

CPC-8 jig
(J-6082-388-A)

Extension cord
(J-6082-413-A)
(AU-202 board (CN7501)– VC-206 board (CN9902))

PS-4580 block

DD-106 board

Mechanism deck

AU-202 Board

CPC

FP-647 flexible board

VC-206 Board

VI-148 board

FK-4580 block

Eject switch

MA-322 board

Base

Lens block

Cabinet (L) assembly

Support the lens block, VC-206 board and cabinet (L) assembly using bases.

LCD block (PD-98 board),
EVF block (VF-121 board),
KY-39 board, function switch,
flexible board

Multi CPC jig
(J-6082-311-A)

2-14. CIRCUIT BOARD LOCATION

LB-55
(EVF BACK LIGHT)

FP-657
(FUNCTION SWITCH)

KY-39
(PANEL FUNCTION SWITCH)

VF-121
(COLOR EVF)

AU-202
(AUDIO DSP,
MIC AMP)

PD-98
(LCD RGB
DECODER,
BACK LIGHT)

LI-64
(Li BATT)

MF-4580
(MANUAL FOCUS)

MA-322
(MIC AMP)

FP-676
(HEADPHONE LANC
S/S SWITCH)

FK-4580
(VTR FUNCTION SWITCH)

CD-185
(CCD IMAGER)

DD-106
(POWER
SUPPLY)

PS4580
(POWER
SWITCH)

VC-206
(CAMERA, VIDEO IN/OUT, BLOCKING,
ECC, TBC, CHCO, AUDIO PROCESS,
RF INTERFACE, REC/PB HEAD AMP,
DV PROCESS, SERVO, HI CONTROL)

FP-647
(VIDEO AUDIO IN/OUT)

VI-148 *(Except AEP, UK model)*
(VIDEO INTERFACE)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1)
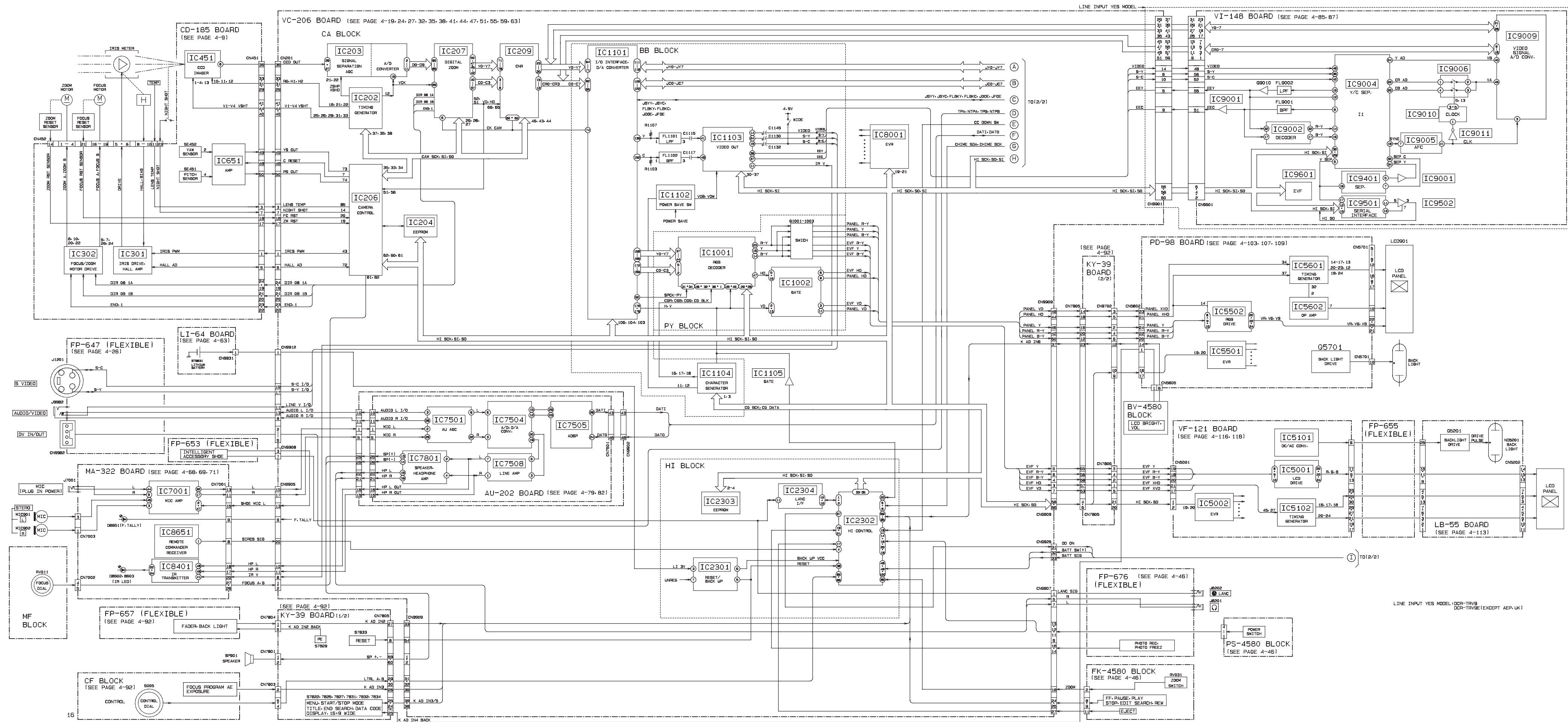
3-2. OVERALL BLOCK DIAGRAM (2)

3-3. POWER BLOCK DIAGRAM
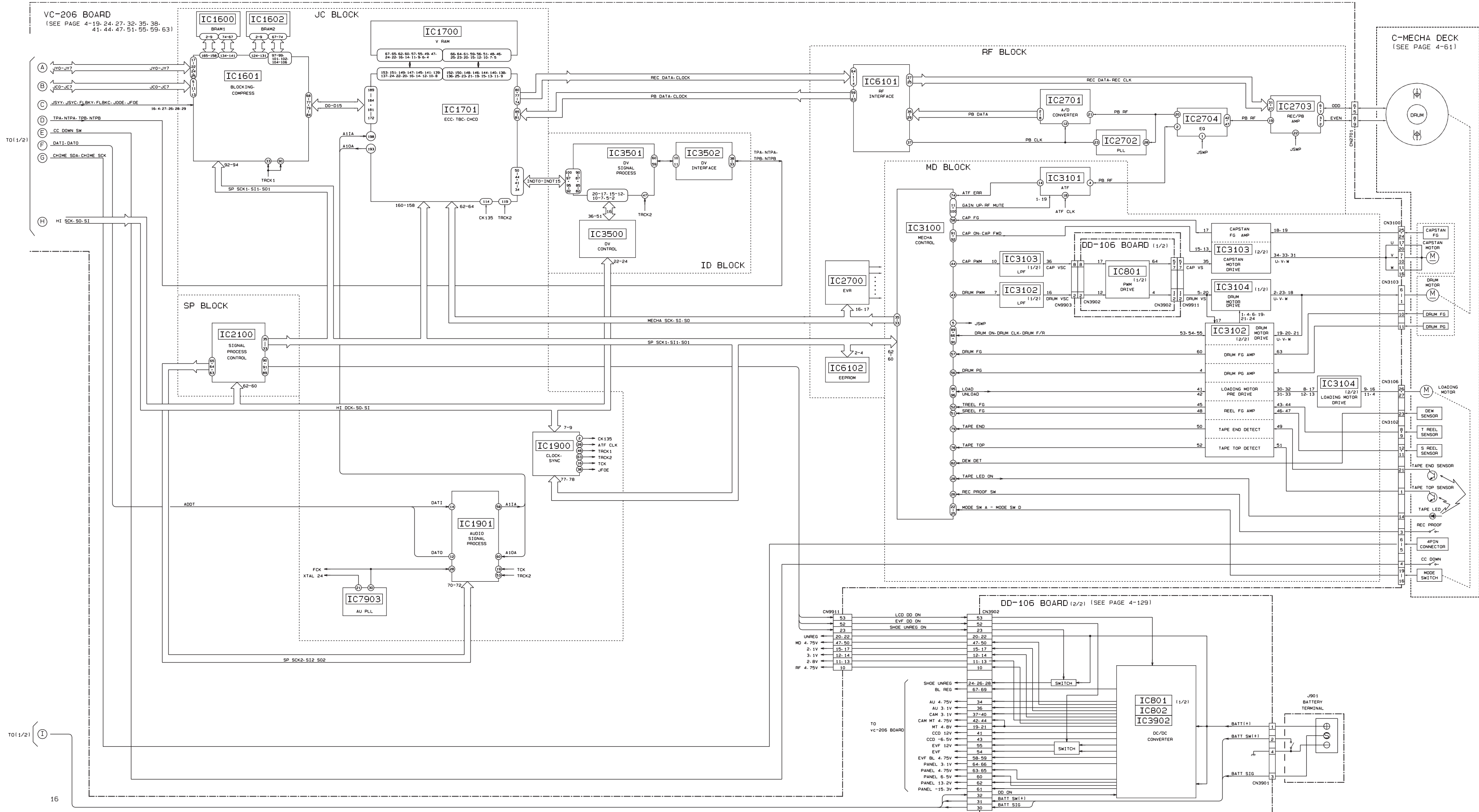
SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM
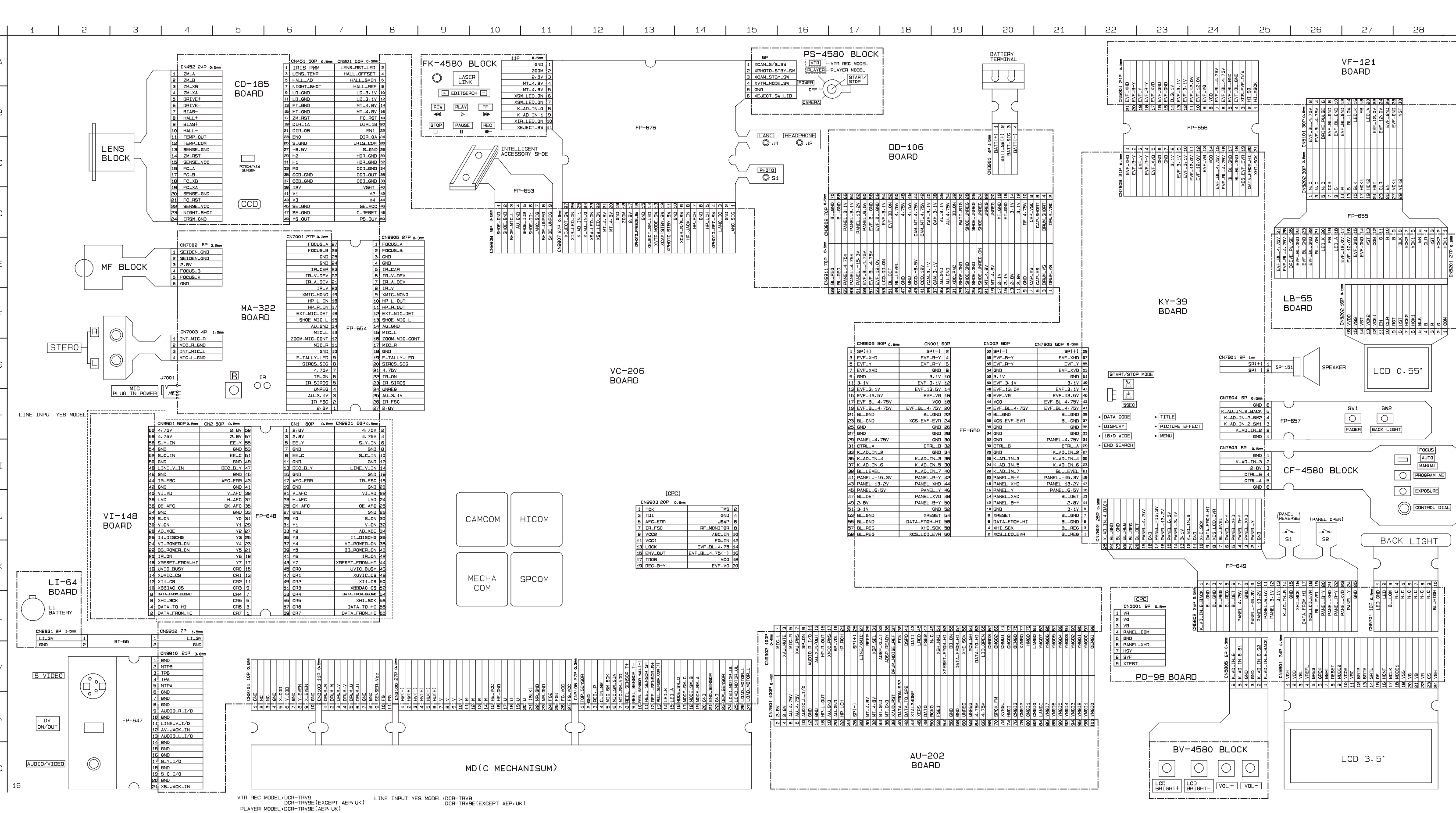
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)
- ▨▨▨▨ : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.
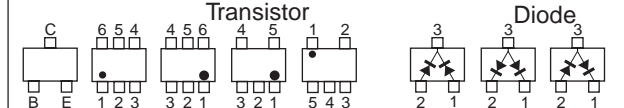
(For schematic diagrams)
- All capacitors are in μF unless otherwise noted. pF : μ μF. 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted. kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	
C541	L452
22U	10UH
TA A	2520

Kinds of capacitor
Temperature characteristics
External dimensions (mm)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination.
  Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → EDIT   PB/XREC → PB/REC
- ⌇⌇⌇ : non flammable resistor
- ⌐⌐⌐ : fusible resistor
- ▭ : panel designation
- ▬▬▬ : B+ Line *
- ▬ ▬ ▬ : B− Line *
- ▭▷ : IN/OUT direction of (+,−) B LINE. *
- ▷ : adjustment for repair. *
- Circled numbers refer to waveforms. *
- * Indicated by the color red.

(Measuring conditions voltage and waveform)
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. *
  (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.

1. Connection

Pattern box
1.5m
Front side of the lens
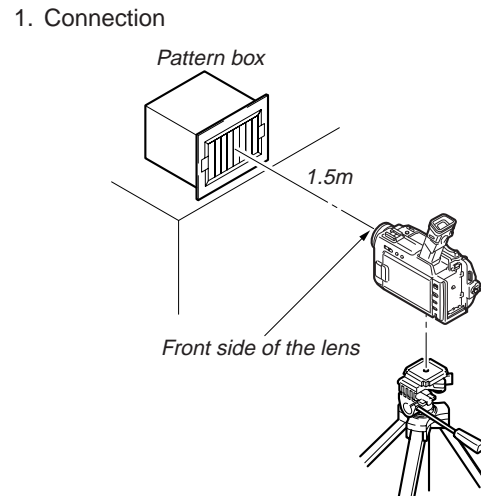
2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.
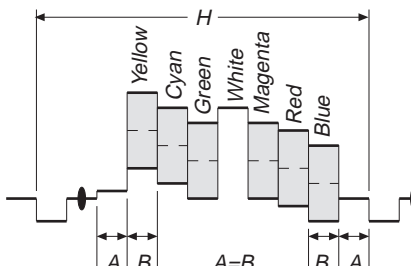
Fig. a (Video output terminal output waveform)
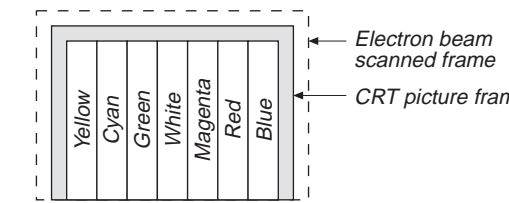
Fig.b (Picture on monitor TV)

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

Note : Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifie.

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

CD-185 (CCD IMAGER) PRINTED WIRING BOARD
— Ref. No.: CD-185 Board; 1,000 Series —

CD-185 BOARD

C302	E-6	C668	E-3	R311	F-4
C303	F-4	C669	D-7	R312	F-4
C304	E-5	C670	D-3	R313	F-4
C305	F-3	C671	D-3	R314	F-5
C306	E-5	C672	D-3	R315	F-4
C307	F-4	C677	E-4	R316	F-5
C308	F-5	C678	D-3	R317	F-4
C309	E-5			R318	F-3
C310	F-4	CN451	F-1	R319	F-4
C311	F-3	CN452	F-6	R320	F-3
C312	F-3			R321	F-3
C313	E-4	D301	F-6	R322	F-3
C314	D-4			R323	F-4
C315	F-3	IC301	F-4	R324	F-5
C316	F-5	IC302	E-5	R325	F-4
C317	F-5	IC651	F-3	R326	F-4
C318	F-7			R327	F-4
C319	F-3	L302	D-5	R328	F-4
C320	F-6	L303	F-4	R329	F-3
C321	F-7	L305	F-6	R452	F-4
C323	F-4	L451	E-4	R454	F-4
C451	E-3	L602	E-3	R650	D-3
C452	E-3			R651	D-7
C453	E-3	Q301	F-5	R652	D-7
C455	F-3	Q302	F-6	R653	D-7
C456	E-4	Q303	F-4	R654	B-2
C458	F-4	Q304	F-5	R655	C-2
C650	D-3	Q451	E-4	R656	B-2
C651	D-7			R664	D-3
C652	D-3	R301	E-5	R665	D-3
C653	B-2	R302	E-6	R666	D-7
C654	D-3	R303	F-5	R667	D-7
C655	D-3	R304	F-5	R669	D-7
C660	D-3	R305	F-5	R670	D-3
C661	E-4	R307	F-5	R671	D-3
C666	D-7	R308	F-6	R672	D-7
C667	E-3	R310	F-4	R673	D-3

There are few cases that the part printed on this diagram isn't mounted in this model.

Precautions Upon Replacing CCD Imager
• The CD-185 board mounted as a repair part is not equipped with a CCD imager.
 When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
• If the CCD imager has been replaced, carry out all the adjustments for the camera section.
• As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
 In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

FP-676
(HEADPHONE LANC
S/S SWITCH)

FK-4580
(VTR FUNCTION SWITCH)

CD-185
(CCD IMAGER)

DD-106
(POWER
SUPPLY)

PS4580
(POWER
SWITCH)

VC-206
(CAMERA, VIDEO IN/OUT, BLOCKING,
ECC, TBC, CHCO, AUDIO PROCESS,
RF INTERFACE, REC/PB HEAD AMP,
DV PROCESS, SERVO, HI CONTROL)

VI-148 (Except AEP, UK model)
(VIDEO INTERFACE)

FP-647
(VIDEO AUDIO IN/OUT)

CCD IMAGER
CD-185

CD-185 BOARD (SIDE A)

CD-185 BOARD (SIDE B)

1-669-524-

1-669-524-

CD-185 (CCD IMAGER) SCHEMATIC DIAGRAM
— Ref. No.: CD-185 Board; 1,000 Series —

CD-185 BOARD

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

LENS UNIT

IC302 ZOOM/FOCUS MOTOR DRIVE

IC301 µPC1743ARHMEL

IC451 CCD IMAGER

IC651 µPD6786SM-8J0-E2 PITCH/YAW AMP

PITCH SENSOR
YAW SENSOR

IC301 IRIS DRIVE

Q304 ZOOM RST SWITCH
Q303 HALL BIAS BUFFER
FOCUS RST SWITCH

* Schematic diagrams and printed wiring boards are not shown because the lens unit is serviced under the block replacement policy.

•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

Precautions Upon Replacing CCD imager

• The CD-164/165 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
• If the CCD imager has been replaced, carry out all the adjustments for the camera section.
• As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

TO VC-206 BOARD(CA) CN201 (SEE PAGE 4-19)

BUFFER

CD-185 BOARD
CAMERA REC

① IC451 ①,②   6.5Vp-p
② IC451 ③,④   6.5Vp-p
③ IC451 ⑧   0.9Vp-p
④ IC451 ⑩   3.5Vp-p
⑤ IC451 ⑬   3.5Vp-p

VC-206 BOARD

CCD IMAGER
CD-185

VC-206 (CAMERA, VIDEO IN/OUT, BLOCKING, ECC, TBC, CHCO, AUDIO PROCESS, RF INTERFACE, REC/PB HEAD AMP, DV PROCESS, SERVO, HI CONTROL) PRINTED WIRING BOARD

— Ref. No.: VC-206 Board; 10,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

VC-206 BOARD (SIDE A)

VC-206 BOARD (SIDE B)

FP-676
(HEADPHONE LANC
S/S SWITCH)

FK-4580
(VTR FUNCTION SWITCH)

DD-106
(POWER
SUPPLY)

CD-185
(CCD IMAGER)

PS4580
(POWER
SWITCH)

VC-206
(CAMERA, VIDEO IN/OUT, BLOCKING,
ECC, TBC, CHCO, AUDIO PROCESS,
RF INTERFACE, REC/PB HEAD AMP,
DV PROCESS, SERVO, HI CONTROL)

VI-148 (Except AEP, UK model)
(VIDEO INTERFACE)

FP-647
(VIDEO AUDIO IN/OUT)

1-669-516-

1-669-516-

CAMERA, VIDEO IN/OUT, BLOCKING, ECC, TBC, CHCO, AUDIO PROCESS, RF INTERFACE, REC/PB HEAD AMP, DV PROCESS, SERVO, HI CONTROL

VC-206

VC-206 (CAMERA) SCHEMATIC DIAGRAM
— Ref. No.: VC-206 Board; 10,000 Series —

VC-206 BOARD (1/13)
[CA]

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

CAMERA
VC-206 (1/13)

DCR-TRV9/TRV9E

There are few cases that the part printed on this diagram isn't mounted in this model.

FP-647 (DV, LINE JACKS) PRINTED WIRING BOARD
— Ref. No.: FP-647 Board; 3,000 Series —

FP-647 BOARD
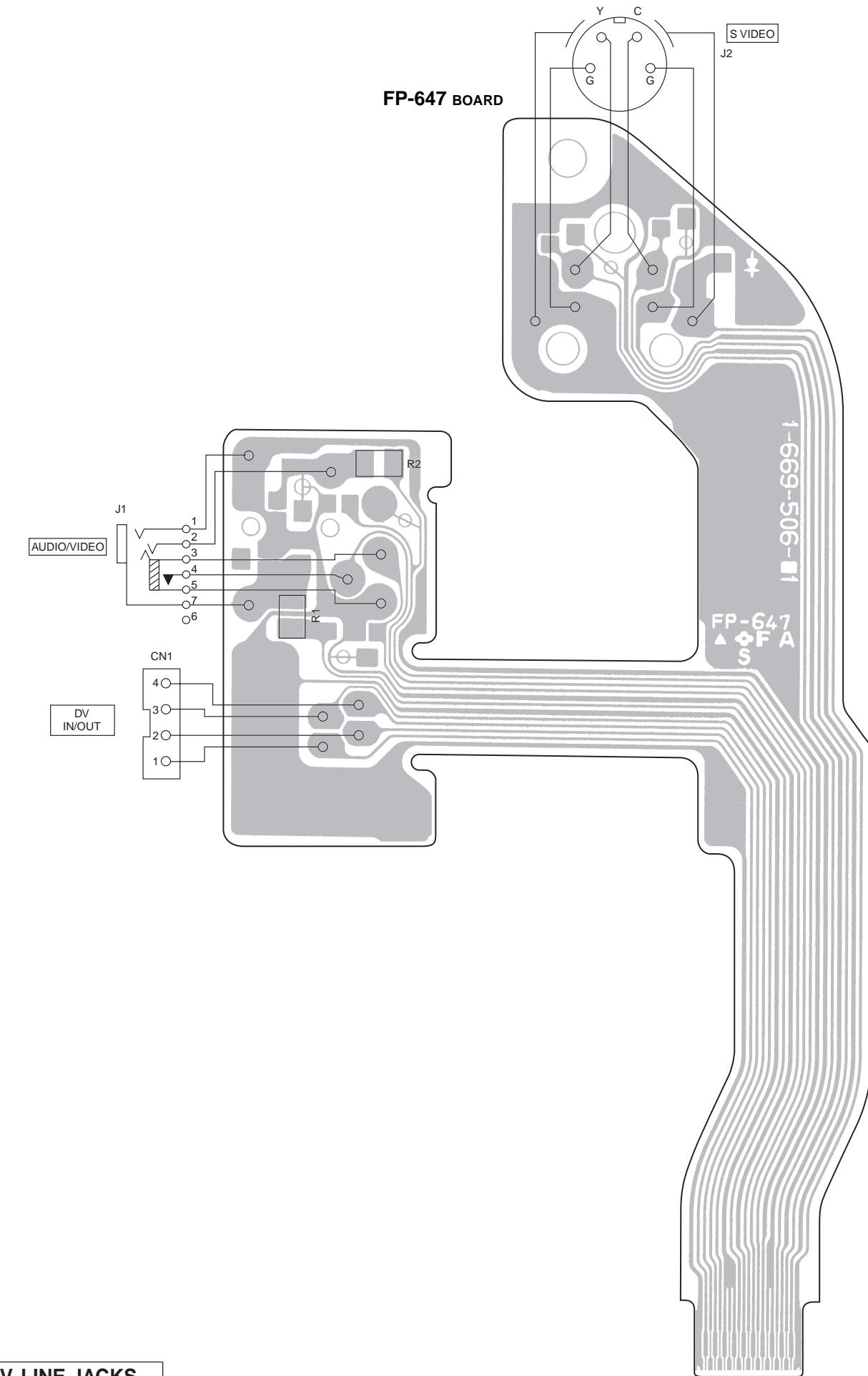
VC-206 (VIDEO IN/OUT), FP-647 (DV, LINE JACKS) SCHEMATIC DIAGRAM
— Ref. No.: VC-206 Board; 10,000 Series, FP-647 Board; 3,000 Series —

- See page 4-14 for VC-206 BOARD printed wiring board.
- See page 4-22 for VC-206 BOARD waveform.

VC-206 BOARD (2/13)

IC1101 — I/O INTERFACE D/A CONVERTER

IC1103 — VIDEO OUT

IC1104 — CHARACTER GENERATOR

IC1105 — GATE

IC1102 — POWER SAVE SWITCH

JK BLOCK FP-647

< Mount table for each function. >

LINE INPUT YES MODEL:DCR-TRV9
DCR-TRV9E(EXCEPT AEP·UK)

LINE INPUT YES MODEL:DCR-TRV9
DCR-TRV9E(EXCEPT AEP·UK)
LINE INPUT NO MODEL:DCR-TRV9E(AEP·UK)

*: Refer to the mount table for each function.

•SIGNAL PATH

DV, LINE JACKS
FP-647

4-23

VIDEO IN/OUT / DV, LINE JACKS
VC-206 (2/13) / FP-647

4-24

4-25

4-26

VC-206 (VIDEO DECODER) SCHEMATIC DIAGRAM

• See page 4-14 for VC-206 BOARD printed wiring board.

— Ref. No.: VC-206 Board; 10,000 Series —

VC-206 BOARD (3/13)

(PY)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

IC1001
IC1001
CXD3121R-T4
RGB DECODER

IC1002
GATE
IC1002
TC74VHC08FT(EL)

TO KY-39 BOARD
CN002
(SEE PAGE 4-94)

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→		
PB	⇒	⇒		

⑲ IC1001 ②-⑤ CAMERA REC/PB

⑯ IC1001 ⑭ REC

⑯ IC1001 ⑭ PB

⑰ IC1001 ⑱ CAMERA REC

⑰ IC1001 ⑱ PB

⑱ IC1001 ㉓ CAMERA REC

⑱ IC1001 ㉓ PB

⑲ IC1001 ②-④ REC/PB

4-27   4-28   4-29   4-30

VC-206 (BLOCKING, COMPRESS) SCHEMATIC DIAGRAM • See page 4-14 for VC-206 BOARD printed wiring board.

— Ref. No.: VC-206 Board; 10,000 Series —

VC-206 BOARD (4/13)

IC1600
IC1601
IC1602

• SIGNAL PATH

VIDEO SIGNAL			AUDIO SIGNAL
CHROMA	Y	Y/CHROMA	
REC			
PB			

BLOCKING, COMPRESS
VC-206 (4/13)

VC-206 (ECC, TBC, CHCO) SCHEMATIC DIAGRAM • See page 4-14 for VC-206 BOARD printed wiring board.

— Ref. No.: VC-206 Board; 10,000 Series —

ECC, TBC, CHCO
VC-206 (5/13)

DCR-TRV9/TRV9E

VC-206 (AUDIO PROCESS) SCHEMATIC DIAGRAM   • See page 4-14 for VC-206 BOARD printed wiring board.

— Ref. No.: VC-206 Board; 10,000 Series —

VC-206 BOARD (6/13)
CAMERA REC/PB

⑳ IC1900 ②,③ (R1901)
13.5MHz 3.2Vp-p

㉑ IC1900 ⑫ (X1900)
27MHz 3.2Vp-p

㉒ IC1900 ㉕ (L1902)
NTSC : 13.5MHz 3.2Vp-p
PAL : 11.74MHz

㉓ IC1900 ㉘,㉙ (R1914)
13.5MHz 3.4Vp-p

㉔ IC1900 �55 (L1901)
NTSC : 36.2MHz 2.0Vp-p
PAL : 38.5MHz

VC-206 BOARD (6/13)
(JC3)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

IC1900
CXD3108R
CLOCK
SYNC

IC1901
CXD3107R-T6
AUDIO
SIGNAL
PROCESS

•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

AUDIO PROCESS
VC-206 (6/13)

4-38   4-39   4-40

VC-206 (RF INTERFACE 1), FP-676 (LANC, PHONES JACKS) SCHEMATIC DIAGRAM
— Ref. No.: VC-206 Board; 10,000 Series —

• See page 4-14 for VC-206 BOARD printed wiring board.

VC-206 BOARD (7/13)
CAMERA REC/PB

㉕ IC7903 ㉑	㉖ IC7903 ㉔ (R7903)	㉗ IC7903 ㊳ (L7902)
24.576MHz NTSC : 1.1Vp-p PAL : 1.5Vp-p	24.57MHz 1.8Vp-p	NTSC : REC 31.3MHz PB 24.57MHz PAL : REC 31.9MHz PB 26.1MHz 1.7Vp-p

FP-676 (LANC, PHONES JACKS) PRINTED WIRING BOARD
— Ref. No.: FP-676 Board; 6,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

1 2 3 4 5 6 7 8 9 10 11

A B C D E F G

VC-206 BOARD (7/13)
(JC4)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

XTAL24DSP
FCK
XERS ㊹ TO(8/13)
FCK
XERS
XHEN
SLVX
DV32 ㊳ TO(6/13)
XREF
XVAR
PRST
PCEZ
VEN

L7901 10uH

2.8V
RF_4.75V Ⓔ TO(13/13)
GND

C7905 10u 6.3V TA A

IC7903
IC7903 CXD2913Q
AU PLL

GND1 XTK0 MCK0 DVCC L512 B2K0 DGND DS12 PVCC PVRI PRFI

DV32 DV21 SLVX SLXM CLR VCC1 M15 XGND XLI XLO XLEN

㉕ ㉖

XHEN XHO XHI XVCC A128 A256 AGND A512 AMK0 V512 AVCC

PRST
PGND
PHC0 R0/P1.7
SPC0 R0/P1.7
PCEZ R0/P2.8
VVCC
VEN
VI 1.5
VO 1.5
VCO0
VGND

㉗

R7904 100k   R7911 39k
R7905 47k
R7906 10k   C7911 0.1u
C7906 0.01u

IC7904 NJM2107F-TE2
R7909 33k
C7912 0.1u B 160B
C7909 1u 2012
R4.9/P2.4
R7910 47k   C7910 0.1u B 160B
C7907 0.001u   R7907 47k
L7902 2.2uH ±10% 2520
D7901 KV1470TL1-3
C7917 0.1u B 160B
R7919 47k
C7908 0.001u   R7908 47k 1005

IC7904 VCO

C7902 0.01u B
C7918 100p CH

㈠㈠㈠ TO(11/13) XTAL24

R7902 4M 1005
R7903 330 1005
X7901 24.57079MHz
C7903 XX CH   C7904 XX CH

16

FP-676 BOARD

J1 LANC   J2 HEADPHONES

PHOTO
S1
R1 R2 R3 R4 R5 R6 R7 R8

FP-676 1-669-515-■1
▲mk 0

DCR-TRV9/TRV9E

VC-206 (SIGNAL PROCESS CONTROL), FP-647 (LANC, PHONES JACKS) SCHEMATIC DIAGRAMS   • See page 4-14 for VC-206 BOARD printed wiring board.
— Ref. No.: VC-206 Board; 10,000 Series —

VC-206 (RF INTERFACE 2) SCHEMATIC DIAGRAM • See page 4-14 for VC-206 BOARD printed wiring board.

— Ref. No.: VC-206 Board; 10,000 Series —

VC-206 BOARD (9/13)

(RF2)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

VC-206 BOARD (9/13)

28 IC6101 @ (C6102)
REC/PB

41.85MHz 2.6Vp-p

CPC

IC6101
CXD3105R-T6
RF
INTERFACE

IC6102
AK6440AM-E2
EEPROM

33 TO(5/13)
5 TO(2/13)
E TO(13/13)
57 TO(12/13)
56 TO(10/13)
11 TO(5/13)
57 TO(13/13)
66 TO(3/13)
68 TO(2/13)
5 TO(4/13) (6/13)
48 TO(6/13)
54 TO(8/13)
55 TO(12/13)
12 TO(10/13)
E TO(13/13)
28

•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

4-47 4-48 4-49 4-50

VC-206 (REC/PB HEAD AMP) SCHEMATIC DIAGRAM
— Ref. No.: VC-206 Board; 10,000 Series —

• See page 4-14 for VC-206 BOARD printed wiring board.

VC-206 BOARD (10/13)

REC/PB HEAD AMP
VC-206 (10/13)

4-51

4-52

4-53

4-54

VC-206 (DV PROCESS) SCHEMATIC DIAGRAM

— Ref. No.: VC-206 Board; 10,000 Series —

• See page 4-14 for VC-206 BOARD printed wiring board.

VC-206 BOARD (11/13)
(ID)

NO MARK: REC/PB MODE
R : REC MODE
P : PB MODE

VC-206 BOARD (11/13)
CAMERA REC/PB

VC-206 BOARD (12/13)

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

VC-206 (SERVO), FP-594 (LOADING MOTOR, SENSORS, SWITCHES) SCHEMATIC DIAGRAMS
— Ref. No.: VC-206 Board: 10,000 Series, FP-594 Board: 2,000 Series —

• See page 4-14 for VC-206 BOARD printed wiring board.
• See page 4-58 for VC-206 BOARD waveform.
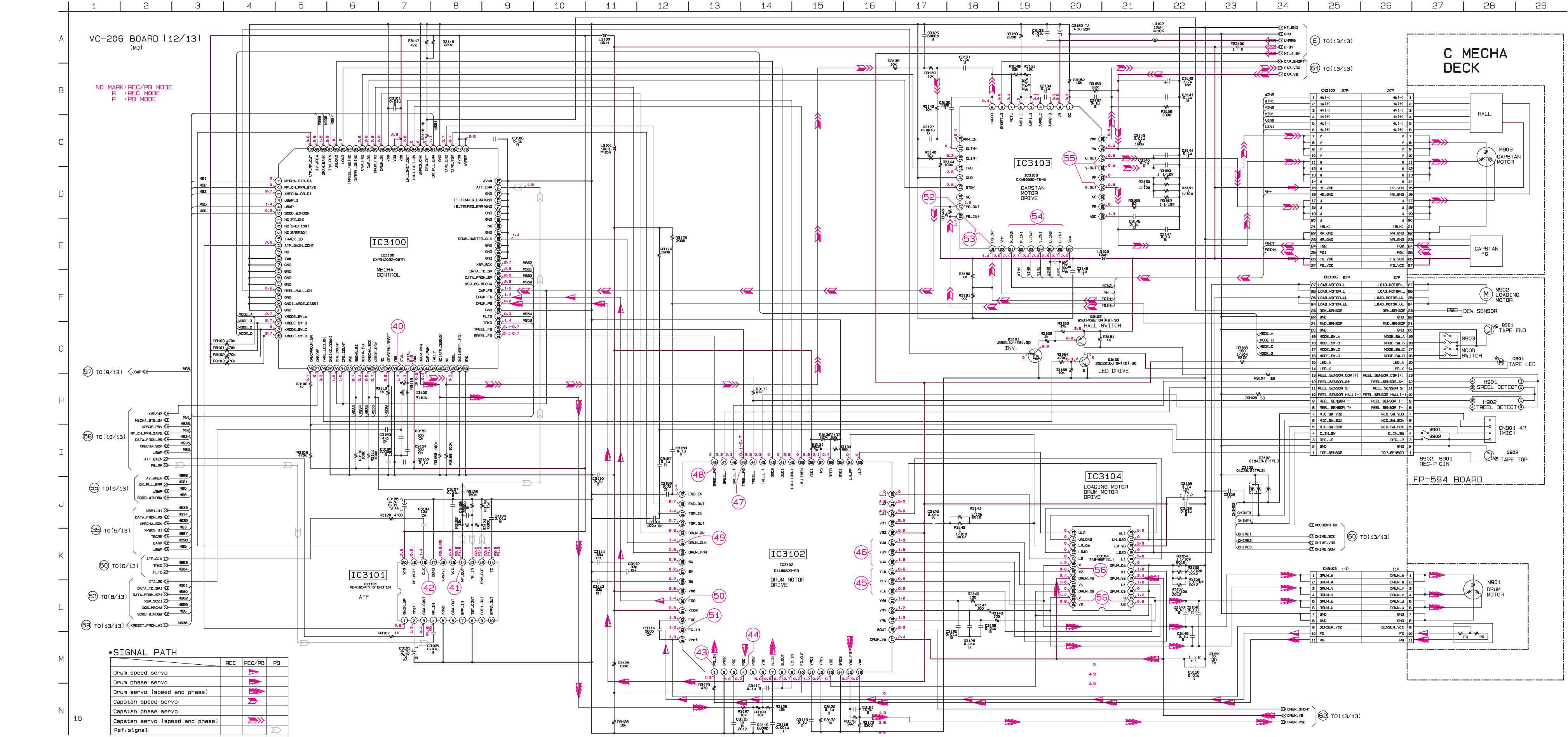
FP-594 (LOADING MOTOR, SENSORS, SWITCHES) PRINTED WIRING BOARD
— Ref. No.: FP-594 Board: 2,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

FP-594 BOARD
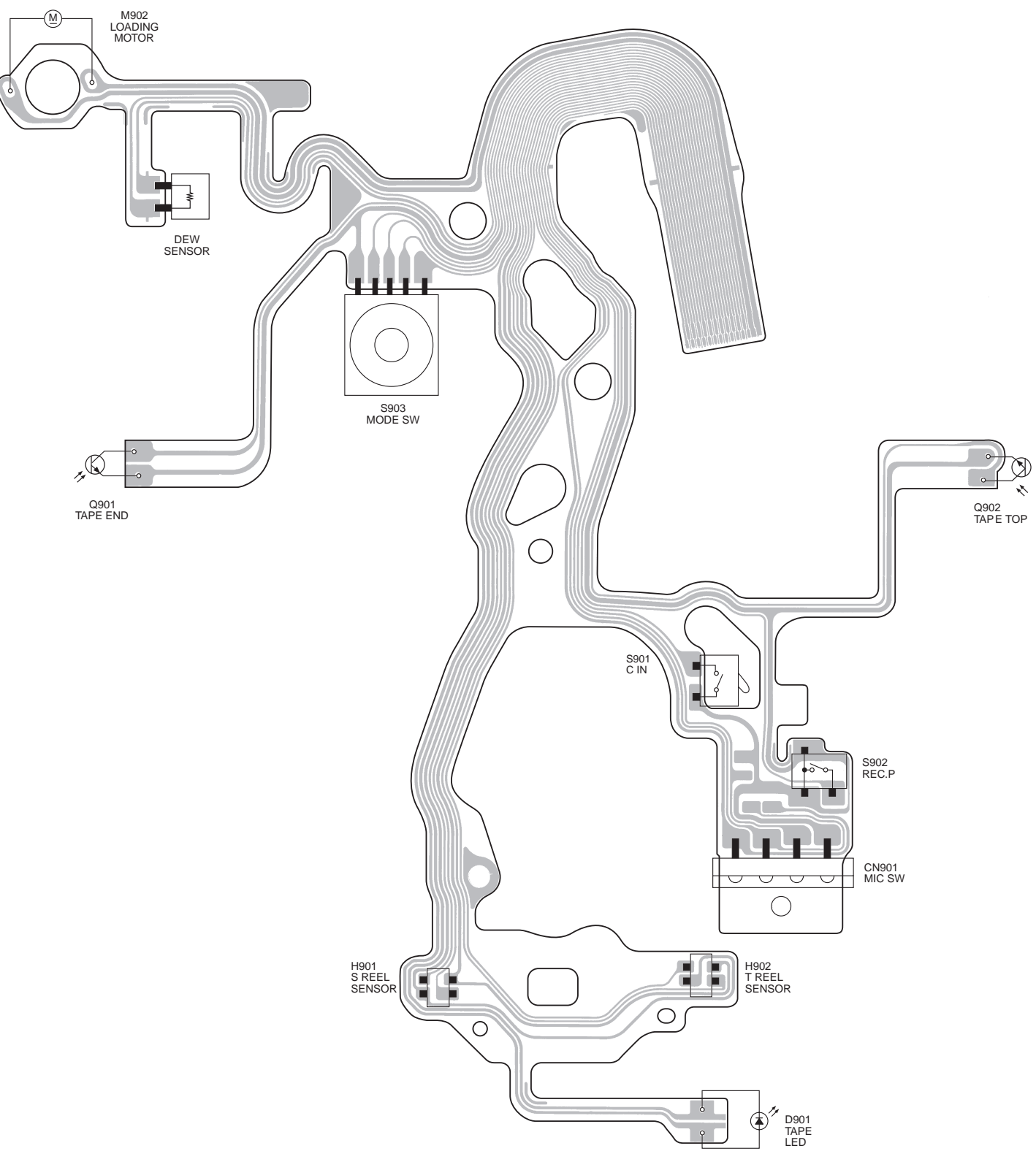
VC-206 (HI CONTROL), LI-64 (LITHIUM BATTERY) SCHEMATIC DIAGRAM AND PRINTED WIRING BOARD   • See page 4-14 for VC-206 BOARD printed wiring board.

— Ref. No.: VC-206 Board; 10,000 Series, LI-64 Board; 40,000 Series —

VC-206 BOARD (13/13)
[HI]

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

LI-64 BOARD

IC2304 I/F

IC8001 EVR DATA

IC2302 HI CONTROL PROCESS

IC2300 CHARGER

IC2301 RESET/BACK UP

IC2303 EEPROM

SIRCS DRIVER

LED DRIVE

SWITCH

FP-653

INTELLIGENT ACCESSORY SHOE

VC-206 BOARD (13/13)

57 IC2302 ⑩ REC/PB

20MHz
NTSC : 3.2Vp-p
PAL : 2.8Vp-p

58 IC2302 ㊷ CAMERA REC/PB

32.7kHz   2.2Vp-p

LI-64 BOARD (SIDE A)

BT9831

1-669-529-

16 1 2 3 4 5 6

LI-64 BOARD (SIDE B)

CN9831

1-669-529-

There are few cases that the part printed on this diagram isn't mounted in this model.
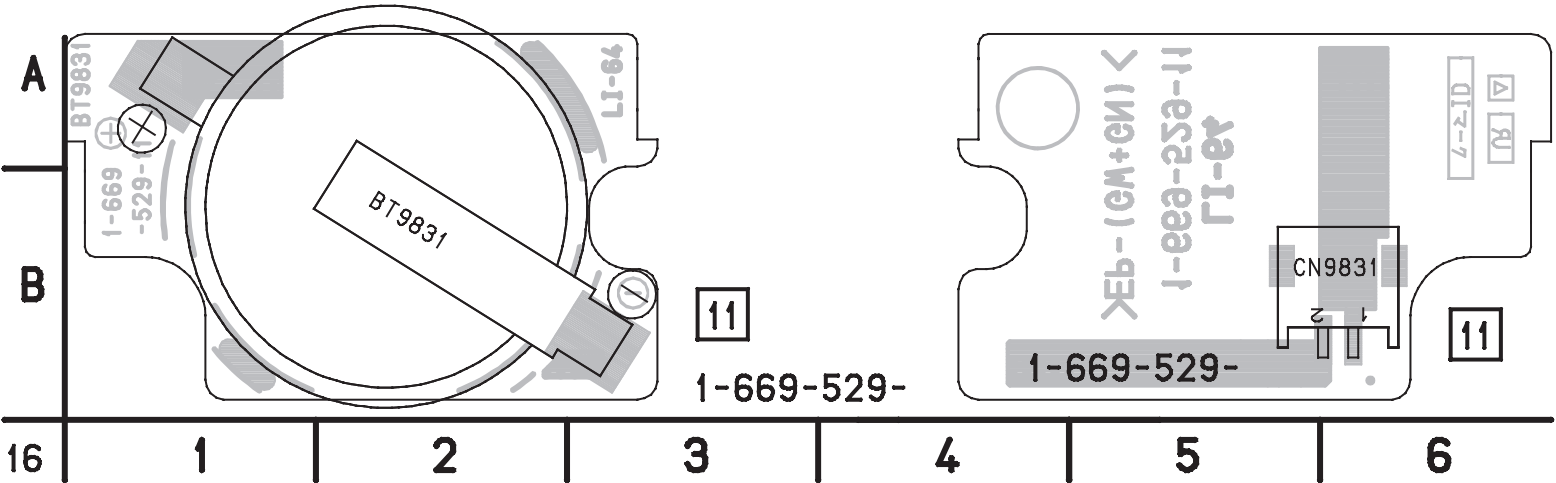
LINE INPUT YES MODEL : DCR-TRV9
DCR-TRV9E(EXCEPT AEP-UK)
LINE INPUT NO MODEL : DCR-TRV9E(AEP-UK)

• SIGNAL PATH

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

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

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

DCR-TRV9/TRV9E

MA-322 (MIC AMP, A/V RF CONVERTER, IR RECEIVER, SIRCS DET) PRINTED WIRING BOARD
— Ref. No.: MA-322 Board; 20,000 Series —

> There are few cases that the part printed on this diagram isn't mounted in this model.

MA-322 (SIRCS DET) SCHEMATIC DIAGRAM
— Ref. No.: MA-322 Board; 20,000 Series —

MA-322 BOARD

Ref	Loc	Ref	Loc	Ref	Loc	Ref	Loc
C7003	H-8	C8408	F-1	FB7002	D-2	R7027	G-9
C7004	H-8	C8409	E-1			R7028	H-9
C7005	H-2	C8410	E-1	IC7001	H-8	R7029	H-9
C7006	H-1	C8411	F-1	IC8401	F-1	R7036	G-2
C7007	H-7	C8412	F-9	IC8651	B-4	R7038	G-2
C7008	H-1	C8413	E-2			R7039	G-8
C7009	H-2	C8414	F-8	J7001	D-8	R7040	G-2
C7010	H-1	C8415	F-2			R7041	H-7
C7011	H-1	C8417	F-2	L8402	F-2	R7043	H-2
C7012	H-1	C8419	F-1	L8403	F-2	R7046	F-2
C7013	H-1	C8420	F-2	L8404	F-2	R7047	F-8
C7014	H-1	C8421	F-1	L8405	B-6	R8401	H-7
C7015	H-1	C8422	F-2			R8403	E-1
C7016	H-7	C8424	F-1	Q8401	F-7	R8405	E-1
C7017	H-7	C8428	F-1	Q8601	F-7	R8406	F-1
C7018	H-1	C8429	F-8	Q8603	F-7	R8407	F-9
C7019	H-1	C8430	F-7	Q8604	G-8	R8409	F-1
C7020	H-7	C8431	F-2	Q8605	E-7	R8410	F-2
C7021	H-7	C8432	F-2	Q8606	F-7	R8411	F-1
C7022	H-7	C8433	F-8	Q8651	B-4	R8413	F-2
C7023	H-9	C8435	F-1			R8415	F-1
C7024	H-9	C8436	F-1	R7006	H-8	R8416	F-1
C7025	H-7	C8437	F-1	R7007	H-8	R8417	F-2
C7026	H-7	C8438	F-1	R7008	H-2	R8418	F-1
C7027	H-7	C8601	F-8	R7009	H-2	R8423	F-1
C7028	H-9	C8603	G-8	R7010	H-1	R8424	F-1
C7029	G-9	C8605	G-1	R7011	H-7	R8429	F-8
C7030	H-9	C8651	A-4	R7012	H-7	R8430	F-8
C7035	G-7			R7013	H-2	R8431	F-8
C7036	H-1	CN7001	F-3	R7014	H-7	R8432	F-8
C7037	G-7	CN7002	F-8	R7015	H-1	R8435	F-7
C7038	G-1	CN7003	H-2	R7016	H-7	R8444	F-1
C7041	G-8			R7017	H-1	R8601	F-7
C7042	G-8	D7002	D-2	R7018	H-7	R8602	E-7
C7043	G-8	D7003	D-1	R7019	H-7	R8603	E-7
C7048	H-3	D7004	F-8	R7020	H-7	R8607	F-8
C8401	F-2	D7005	D-2	R7021	H-9	R8608	G-8
C8402	F-2	D8602	G-1	R7022	H-7	R8609	G-8
C8403	E-8	D8603	G-2	R7023	H-7	R8651	B-4
C8404	E-2	D8651	B-4	R7024	H-7	R8652	B-4
C8405	E-2	FB7001	D-1	R7025	H-9		
C8406	E-8			R7026	H-7		

MA-322 BOARD (SIDE A)

MA-322 BOARD (SIDE B)

1-669-523-

MIC
(PLUG IN POWER)

MA-322 BOARD (3/3)

R :REC/PB MODE
A :REC/PB MODE
AV LASER LINK
ON MODE

CURRENT LIMIT

SWITCH (IR)

IR_DRV

LED DRIVE

BUFFER

IR_EM

IR DRIVE SWITCH

SIRCS DET.

SIRCS_SIG

(TALLY)

LED DRIVE

F_TALLY_LED

IC8651

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

- LB-55 (EVF BACK LIGHT)
- FP-657 (FUNCTION SWITCH)
- KY-39 (PANEL FUNCTION SWITCH)
- VF-121 (COLOR EVF)
- AU-202 (AUDIO DSP, MIC AMP)
- LI-64 (Li BATT)
- MF-4580 (MANUAL FOCUS)
- MA-322 (MIC AMP)
- PD-98 (LCD RGB DECODER, BACK LIGHT)

MIC AMP, A/V RF CONVERTER, IR RECEIVER, SIRCS DET
MA-322

4-66

4-67

SIRCS DET
MA-322 (3/3)

4-68

MA-322 (MIC AMP, SELECT) SCHEMATIC DIAGRAM
— Ref. No.: MA-322 Board; 20,000 Series —

MA-322 (A/V RF CONVERTER, IR RECEIVER, SIRCS DET) SCHEMATIC DIAGRAM
— Ref. No.: MA-322 Board; 20,000 Series —

MIC AMP, SELECT
MA-322 (1/3)

A/V RF CONVERTER, IR RECEIVER, SIRCS DET
MA-322 (2/3)

AU-202 (SP/HP AMP, AUDIO DSP, MIC AMP) PRINTED WIRING BOARD

— Ref. No.: AU-202 Board; 30,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

AU-202 BOARD

C7502	E-11	C7802	C-8	Q7505	E-4	R7544	E-8
C7503	D-11	C7803	C-8	Q7506	C-2	R7545	E-8
C7504	E-11	C7804	C-8	Q7507	D-2	R7546	E-8
C7505	E-10	C7805	C-7	Q7509	E-10	R7547	E-8
C7506	D-10	C7806	C-8	Q7510	D-3	R7548	E-8
C7507	D-11	C7807	C-8	Q7511	D-3	R7549	E-8
C7508	D-10	C7808	C-7	Q7512	D-4	R7550	E-8
C7509	D-10	C7809	C-8	Q7513	D-3	R7562	E-4
C7510	D-10	C7810	C-8	Q7514	C-2	R7563	E-4
C7511	E-10	C7811	C-8	Q7515	D-12	R7567	C-2
C7513	E-4	C7812	D-8	Q7801	C-8	R7568	D-2
C7514	E-9	C7813	D-8	Q7802	C-8	R7569	E-11
C7515	E-9	C7814	E-8			R7570	E-11
C7516	E-4	C7815	D-8	R7501	D-10	R7571	E-10
C7517	B-10	C7817	D-8	R7502	E-10	R7573	D-11
C7518	E-9	C7818	D-8	R7503	E-11	R7574	E-11
C7519	E-9	C7819	D-8	R7504	D-11	R7575	E-11
C7521	E-9	C7820	D-8	R7505	D-10	R7576	E-11
C7522	E-4			R7506	D-10	R7577	E-11
C7523	E-10	CN7501	D-12	R7507	D-10	R7578	D-11
C7525	E-9			R7508	D-10	R7579	C-3
C7526	E-9	D7502	D-10	R7509	E-10	R7587	D-3
C7527	E-8	D7503	D-10	R7510	E-10	R7588	D-3
C7528	E-9	D7504	D-10	R7511	D-10	R7589	D-3
C7529	E-5	D7506	D-9	R7512	D-10	R7590	D-3
C7532	E-8	D7507	D-9	R7513	E-10	R7591	E-11
C7533	D-3	D7508	D-9	R7514	E-10	R7593	D-12
C7536	E-8	D7510	C-2	R7515	D-3	R7594	D-12
C7540	E-8	D7511	C-2	R7516	E-9	R7595	C-12
C7542	E-8	D7512	D-2	R7517	E-9	R7802	C-8
C7543	E-8	D7514	D-12	R7518	E-9	R7803	C-8
C7544	E-8	D7801	C-8	R7519	E-9	R7804	D-9
C7545	E-8			R7520	D-9	R7805	C-8
C7546	E-8	FB7501	D-9	R7522	D-9	R7806	C-8
C7547	E-8			R7523	E-9	R7809	D-8
		IC7501	E-11	R7524	D-4	R7812	D-8
C7559	D-13	IC7504	E-9	R7525	C-10	R7814	D-9
C7560	D-3	IC7505	C-9	R7527	D-9	R7815	D-8
C7563	E-11	IC7508	E-8	R7528	D-9	R7816	D-8
C7564	E-10	IC7801	D-8	R7529	E-9	R7820	D-8
C7565	D-11			R7530	D-9	R7834	D-8
C7566	E-11	L7501	D-10	R7533	E-9	R7835	D-8
C7567	D-11	L7505	D-9	R7536	E-9		
C7572	D-3			R7538	E-8		
C7573	D-3	Q7501	D-10	R7541	E-9		
C7576	D-12	Q7502	D-10	R7542	E-8		
C7578	D-12			R7543	E-8		

LB-55 (EVF BACK LIGHT)
FP-657 (FUNCTION SWITCH)
KY-39 (PANEL FUNCTION SWITCH)
VF-121 (COLOR EVF)
AU-202 (AUDIO DSP, MIC AMP)
LI-64 (LI BATT)
MF-4580 (MANUAL FOCUS)
MA-322 (MIC AMP)
PD-98 (LCD RGB DECODER, BACK LIGHT)

SP/HP AMP, AUDIO DSP, MIC AMP
AU-202

AU-202 BOARD (SIDE A)

1-669-518- 11

AU-202 BOARD (SIDE B)

1-669-518- 11

AU-202 (SP/HP AMP) SCHEMATIC DIAGRAM
— Ref. No.: AU-202 Board; 30,000 Series —

AU-202 BOARD (1/2)

NO MARK:REC/PB MODE
R : REC MODE
P : PB MODE

TO VC-206 BOARD
(SEE PAGE 4-46) CN9902

IC7801 SP/HP AMP

IC7801 BA7785FS-E2

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

AU-202 (AUDIO DSP, MIC AMP) SCHEMATIC DIAGRAM
— Ref. No.: AU-202 Board; 30,000 Series —

• See page 4-74 for AU-202 BOARD printed wiring board.

AU-202 BOARD
(2/2)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

IC7501
MIC AMP

IC7504
D/A, A/D

IC7508
AUDIO
AMP/LPF

IC7505
AUDIO DSP

⟨ Mount table for each function. ⟩
⟨ Difference according to IC type. ⟩

	IC7504	AK4512	PCM3003
R7533	10	XX
R7537	XX	0

	LINE INPUT YES	LINE INPUT NO
C7578	10u 6.3V	XX
D7514	MA2S111-(K...871905623	XX
Q7515	29C3378-H(871DD4077	XX
R7569	33k	XX
R7573	33k	XX
R7593	10k	XX
R7594	10k	XX
R7595	10k	XX

VI-148 BOARD (1/2)

① IC9401 ⑤ VIDEO REC
NTSC: 280mVp-p
PAL : 400mVp-p

② IC9401 ⑦ VIDEO REC
NTSC: 200mVp-p
PAL : 320mVp-p

③ IC9401 ⑰
NTSC: 480mVp-p
PAL: 720mVp-p

④ IC9501 ⑰ S VIDEO REC
NTSC: 770mVp-p
PAL : 500mVp-p

⑤ IC9501 ⑱ S VIDEO REC
NTSC: 1.5Vp-p
PAL : 1.1Vp-p

⑥ IC9501 ㉟ S VIDEO REC
NTSC: 3.579545MHz /1.8Vp-p
PAL : 4.43MHz /1.5Vp-p

LINE INPUT YES MODEL:DCR-TRV9
DCR-TRV9E(EXCEPT AEP,UK)
LINE INPUT NO MODEL:DCR-TRV9E(AEP,UK)

*: Refer to the mount table for each function.

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				⟹
PB				⇨

VI-148 (VIDEO INTERFACE) SCHEMATIC DIAGRAM
— Ref. No.: VI-148 Board; 10,000 Series —

• See page 4-89 for VI-148 BOARD printed wiring board.
• See page 4-84 for VI-148 BOARD waveform.

VI-148 BOARD (1/2) DCR-TRV9/TRV9E(EXCEPT AEP,UK) MODEL ONLY

NO MARK:REC/PB MODE
      R :REC MODE
      P :PB MODE

IC9401
ICS401
MC141628FUEB
SEP.

IC9601
EVR
ICS601
MB88146APFV-G-BND-ER

IC9502
BUFFER
ICS502 TC7W125FU-TE12A

IC9501
ICS601
MC68HC68VB1FB
SIGNAL
INTERFACE

*: Refer to the mount table
    for each function.

•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

⟨ Mount table for
  each function.⟩

	NTSC	PAL
C9508	27p 16V C1	33p 16V C1
C9510	15p 16V C1	XX
L9504	47uH ±5%	39uH ±5%
R9406	10k	XX
R9407	XX	10k

NTSC MODEL:DCR-TRV9
PAL MODEL:DCR-TRV9E

(SEE PAGE 4-26)
TO
VC-206 BOARD
CN9901

4-85   4-86

VIDEO INTERFACE
VI-148 (1/2)

VI-148 (Y/C SEP., A/D, DECODER, AFC) SCHEMATIC DIAGRAM

— Ref. No.: VI-148 Board; 10,000 Series —

- See page 4-89 for VI-148 BOARD printed wiring board.
- See page 4-89 for VI-148 BOARD waveforms.

VI-148 BOARD (2/2) DCR-TRV9/TRV9E(EXCEPT AEP,UK) MODEL ONLY

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
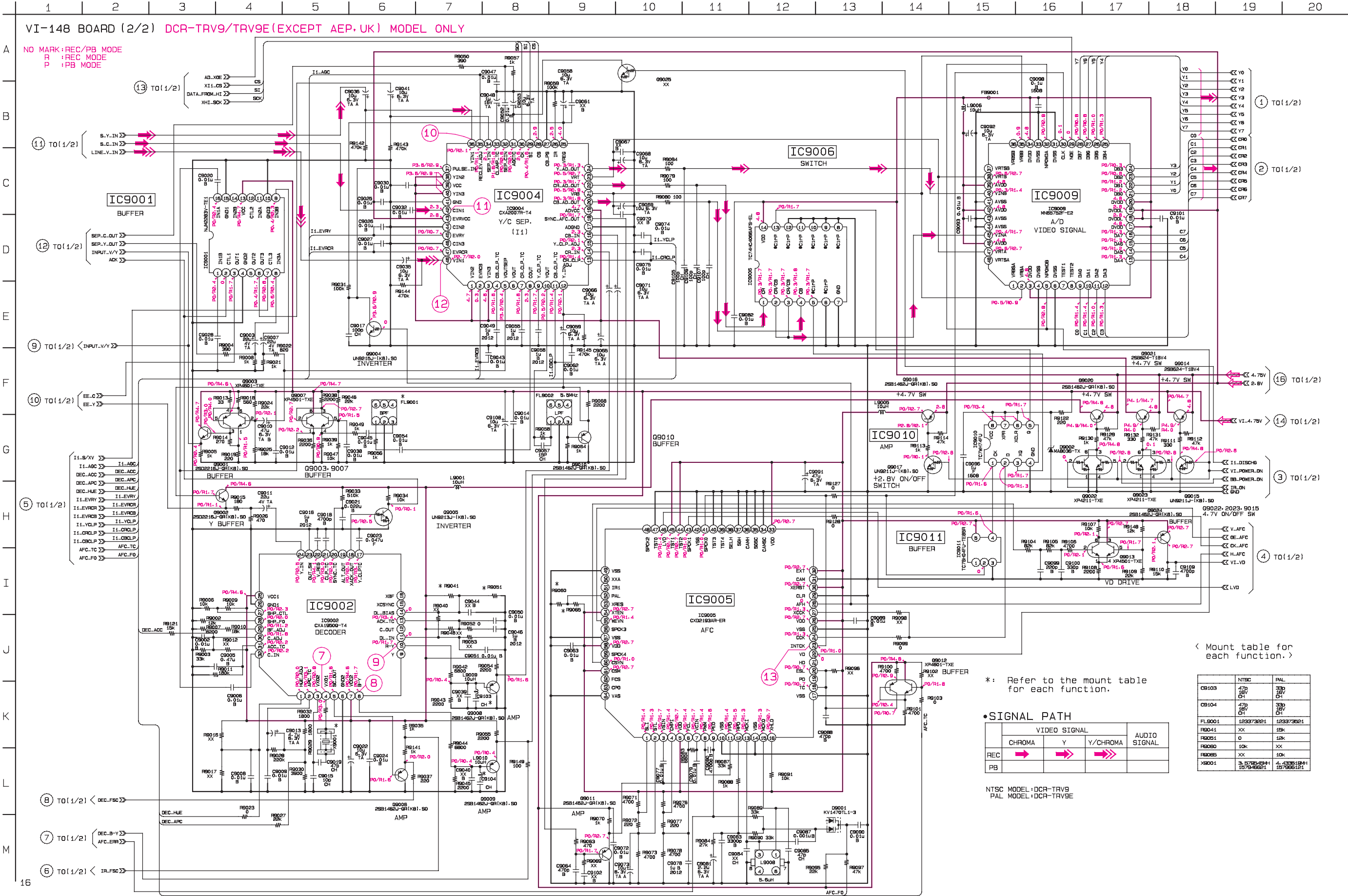
VI-148 (VIDEO INTERFACE, Y/C SEP., A/D, DECODER, AFC) PRINTED WIRING BOARD
— Ref. No.: VI-148 Board; 10,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

VI-148 BOARD

Part	Loc	Part	Loc	Part	Loc	Part	Loc	Part	Loc	Part	Loc	Part	Loc
C9002	B-6	C9064	D-3	C9416	A-2	Q9002	C-6	R9028	A-6	R9097	D-5	R9508	C-5
C9003	A-2	C9065	C-2	C9501	C-4	Q9003	A-1	R9029	B-6	R9099	D-5	R9519	C-5
C9005	B-6	C9066	C-2	C9504	C-4	Q9004	B-2	R9030	B-6	R9100	D-4	R9521	C-4
C9006	A-2	C9068	C-3	C9505	C-5	Q9005	B-5	R9031	B-1	R9101	D-5	R9601	C-1
C9007	A-2	C9069	C-2	C9507	C-5	Q9006	A-5	R9032	A-6	R9103	D-4	R9602	C-1
C9008	B-6	C9071	C-1	C9508	C-5	Q9007	B-1	R9033	B-6	R9104	C-6	R9603	C-1
C9009	B-6	C9072	D-3	C9509	C-5	Q9008	B-5	R9034	C-5	R9105	C-6	R9604	B-1
C9010	A-1	C9073	D-3	C9510	C-5	Q9009	A-5	R9035	A-5	R9106	C-6	R9605	C-1
C9011	B-6	C9074	C-1	C9511	C-5	Q9010	B-1	R9036	B-1	R9107	C-6	R9606	C-1
C9012	B-6	C9075	C-1	C9513	C-5	Q9011	D-3	R9037	A-5	R9108	C-6	R9607	C-1
C9013	B-6	C9077	D-3	C9514	C-5	Q9012	D-5	R9038	B-1	R9109	C-6	R9608	C-1
C9014	B-1	C9078	D-2	C9601	C-1	Q9013	C-6	R9039	B-1	R9110	C-6	R9609	C-1
C9015	A-6	C9079	D-2	C9602	D-1	Q9014	C-6	R9042	B-5	R9111	C-6	R9610	C-1
C9016	B-6	C9080	D-5			Q9015	C-6	R9043	B-5	R9112	C-6	R9611	C-1
C9017	B-2	C9081	D-2	CN9601	C-1	Q9016	B-6	R9044	A-5	R9113	C-5	R9612	C-1
C9018	B-6	C9082	C-3			Q9017	C-5	R9045	A-5	R9114	C-6	R9613	D-1
C9019	A-6	C9083	D-2	D9001	D-5	Q9020	C-6	R9046	A-1	R9121	B-6	R9614	D-1
C9020	B-2	C9085	D-5	D9002	D-2	Q9021	C-6	R9047	B-1	R9122	D-6	R9615	D-1
C9021	B-6	C9087	D-5			Q9022	C-6	R9049	B-1	R9127	D-6	R9616	C-1
C9022	A-5	C9088	D-5	FB9001	D-1	Q9023	C-6	R9050	B-3	R9128	D-6	R9617	C-1
C9023	B-5	C9089	D-5			Q9024	C-6	R9051	B-5	R9129	D-6	R9618	C-1
C9024	B-6	C9090	D-5	FL9001	B-1	Q9025	B-2	R9052	B-5	R9130	D-6	R9619	D-1
C9025	B-2	C9091	D-6	FL9002	B-1	Q9401	B-5	R9054	B-5	R9131	C-6	R9620	D-1
C9026	B-2	C9092	D-1			Q9402	B-5	R9055	A-5	R9132	C-6	R9621	D-1
C9027	B-2	C9093	D-1	IC9001	B-2	Q9403	B-5	R9056	B-1	R9141	A-5	R9622	D-1
C9028	B-3	C9096	C-3	IC9002	B-6	Q9501	C-5	R9057	B-3	R9142	B-3	R9623	C-1
C9030	B-2	C9098	D-1	IC9004	B-2	Q9502	C-2	R9058	B-1	R9143	B-3		
C9032	B-1	C9099	C-6	IC9005	D-1			R9059	B-2	R9144	A-1	X9001	A-6
C9035	A-2	C9100	C-6	IC9006	C-3	R9002	B-6	R9060	C-5	R9145	C-1		
C9036	A-3	C9101	D-2	IC9009	D-2	R9003	B-6	R9063	D-3	R9148	C-6		
C9038	B-1	C9103	B-5	IC9010	C-3	R9004	A-2	R9064	B-1	R9149	B-1		
C9041	B-3	C9104	A-5	IC9011	C-2	R9005	A-1	R9068	B-1	R9401	B-4		
C9043	B-2	C9105	A-3	IC9401	B-4	R9006	A-1	R9070	D-3	R9402	B-4		
C9045	B-1	C9106	C-2	IC9501	C-4	R9007	B-6	R9071	D-2	R9403	B-4		
C9046	B-5	C9107	C-2	IC9502	C-2	R9008	A-2	R9072	D-3	R9404	B-5		
C9047	B-3	C9108	B-1	IC9601	C-2	R9009	B-6	R9073	D-3	R9405	B-5		
C9048	B-3	C9109	C-6			R9010	B-6	R9076	D-2	R9406	B-5		
C9049	B-1	C9401	A-4	L9001	C-6	R9011	B-6	R9077	D-2	R9408	A-2		
C9050	B-5	C9402	B-4	L9005	C-6	R9013	A-1	R9078	D-2	R9409	B-5		
C9051	B-5	C9404	B-4	L9006	D-1	R9014	A-1	R9079	C-2	R9410	C-2		
C9052	B-2	C9405	B-4	L9008	D-4	R9015	C-6	R9080	D-2	R9411	A-2		
C9053	B-3	C9406	C-4	L9009	D-2	R9018	A-1	R9083	D-2	R9412	A-2		
C9054	B-1	C9407	A-5	L9010	A-5	R9019	A-1	R9084	D-2	R9413	B-5		
C9055	B-1	C9408	A-5	L9402	C-5	R9021	A-2	R9087	D-2	R9501	C-4		
C9056	C-2	C9409	B-5	L9403	A-2	R9022	A-2	R9088	D-2	R9502	C-5		
C9057	B-1	C9410	B-5	L9404	A-2	R9023	B-6	R9089	D-5	R9503	C-5		
C9058	B-3	C9411	B-5	L9502	C-5	R9024	A-1	R9090	D-5	R9504	C-5		
C9059	B-1	C9413	A-1	L9504	C-5	R9025	A-1	R9091	D-4	R9505	C-5		
C9062	B-1	C9414	B-5			R9026	C-6	R9094	B-2	R9506	C-5		
C9063	C-5	C9415	A-2	Q9001	A-1	R9027	A-6	R9095	D-5	R9507	C-5		

VI-148 BOARD (2/2)
S VIDEO REC

(7) IC9002 (4) — NTSC 3.579545MHz — 900mVp-p

(11) IC9004 (42) — NTSC: 320mVp-p / PAL: 1.4Vp-p

(7) IC9002 (4) — PAL 4.43MHz — 740mVp-p

(12) IC9004 (48) — NTSC — 220mVp-p

(8) IC9002 (8) — 1.5Vp-p

(12) IC9004 (48) — PAL — 400mVp-p

(9) IC9002 (10) — 1.2Vp-p

(13) IC9005 (23) — 13.5MHz NTSC — 3.0Vp-p

(10) IC9004 (36) — NTSC — 1.0Vp-p

(13) IC9005 (23) — 11.87MHz PAL — 3.0Vp-p

(10) IC9004 (36) — PAL — 2.0Vp-p

FP-676 (HEADPHONE LANC S/S SWITCH)
FK-4580 (VTR FUNCTION SWITCH)
CD-185 (CCD IMAGER)
DD-106 (POWER SUPPLY)
PS4580 (POWER SWITCH)
VC-206 (CAMERA, VIDEO IN/OUT, BLOCKING, ECC, TBC, CHCO, AUDIO PROCESS, RF INTERFACE, REC/PB HEAD AMP, DV PROCESS, SERVO, HI CONTROL)
VI-148 (Except AEP, UK model) (VIDEO INTERFACE)
FP-647 (VIDEO AUDIO IN/OUT)

VI-148 BOARD (SIDE A)

11
1-667-517-

VI-148 BOARD (SIDE B)

11
1-669-517-

VIDEO INTERFACE, Y/C SEP., A/D, DECODER, AFC
VI-148

DCR-TRV9/TRV9E

KY-39 (PANEL FUNCTION SWITCH), FP-649 (PANEL CONDITION DET.), FP-657 (CONTROL SWITCHES) SCHEMATIC DIAGRAM

— Ref. No.: KY-39 Board; 40,000 Series, FP-649 Board; 4000 Series, FP-657 Board; 5,000 Series —
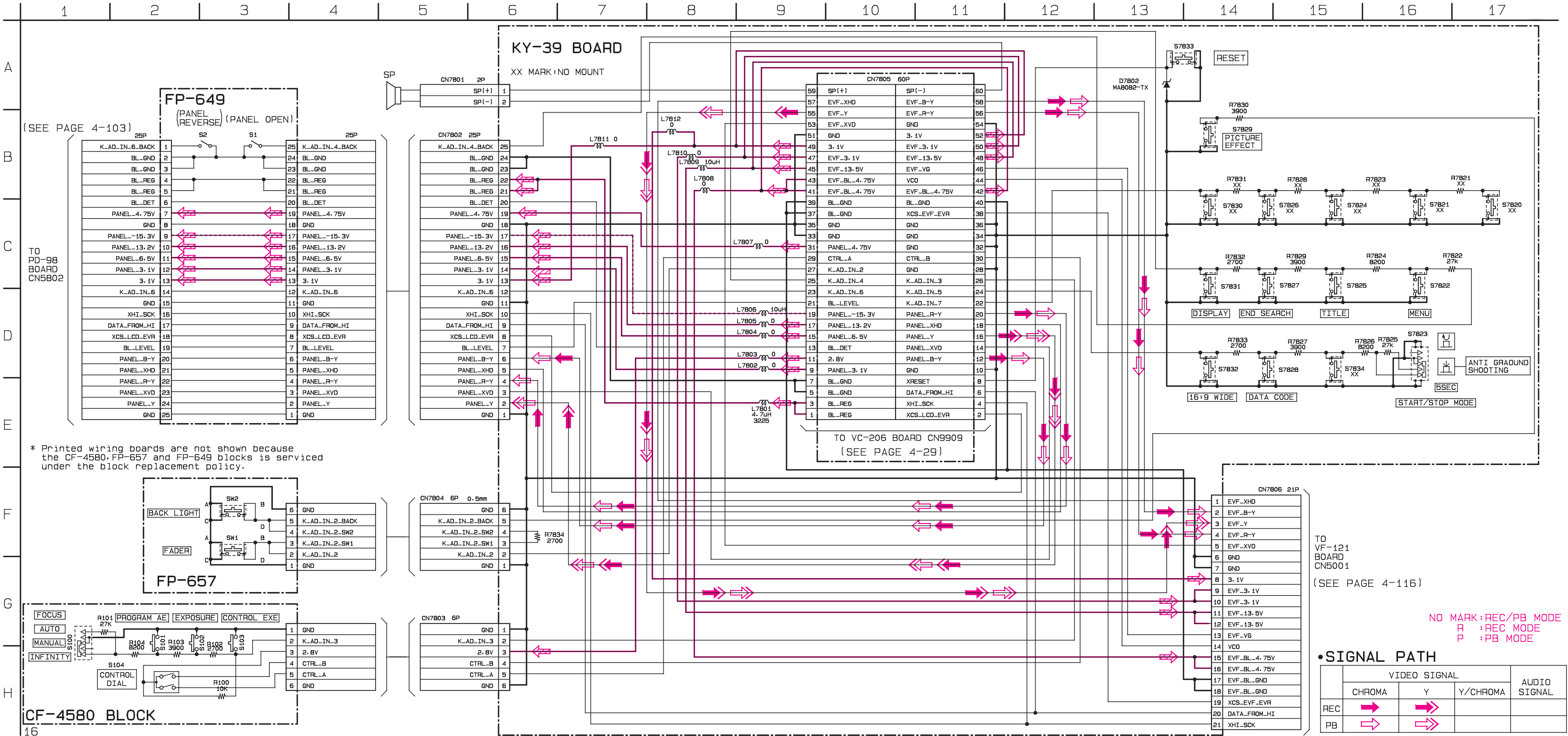
PANEL FUNCTION SWITCH / **CONTROL SWITCHES** / **PANEL CONDITION DET.**

KY-39   FP-657   FP-649

4-93

4-94

KY-39 (PANEL FUNCTION SWITCH), FP-649 (PANEL CONDITION DET.), FP-657 (CONTROL SWITCHES) PRINTED WIRING BOARDS
— Ref. No.: KY-39 Board; 40,000 Series, FP-649 Board; 4000 Series, FP-657 Board; 5,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

FP-657 BOARD

SW2
BACK LIGHT

SW1
FADER

FP-657 1-669-514-■1 F20 △

FP-649 BOARD

KY-39 BOARD (SIDE A)

START/STOP MODE
5 SEC

ANTI GROUND SHOOTING

S7823

DATA CODE | DISPLAY | 16:9 WIDE | END SEARCH | TITLE

PICTURE EFFECT | MENU

(RESET)

1-669-528- 11

KY-39 BOARD (SIDE B)

1-669-528- 11
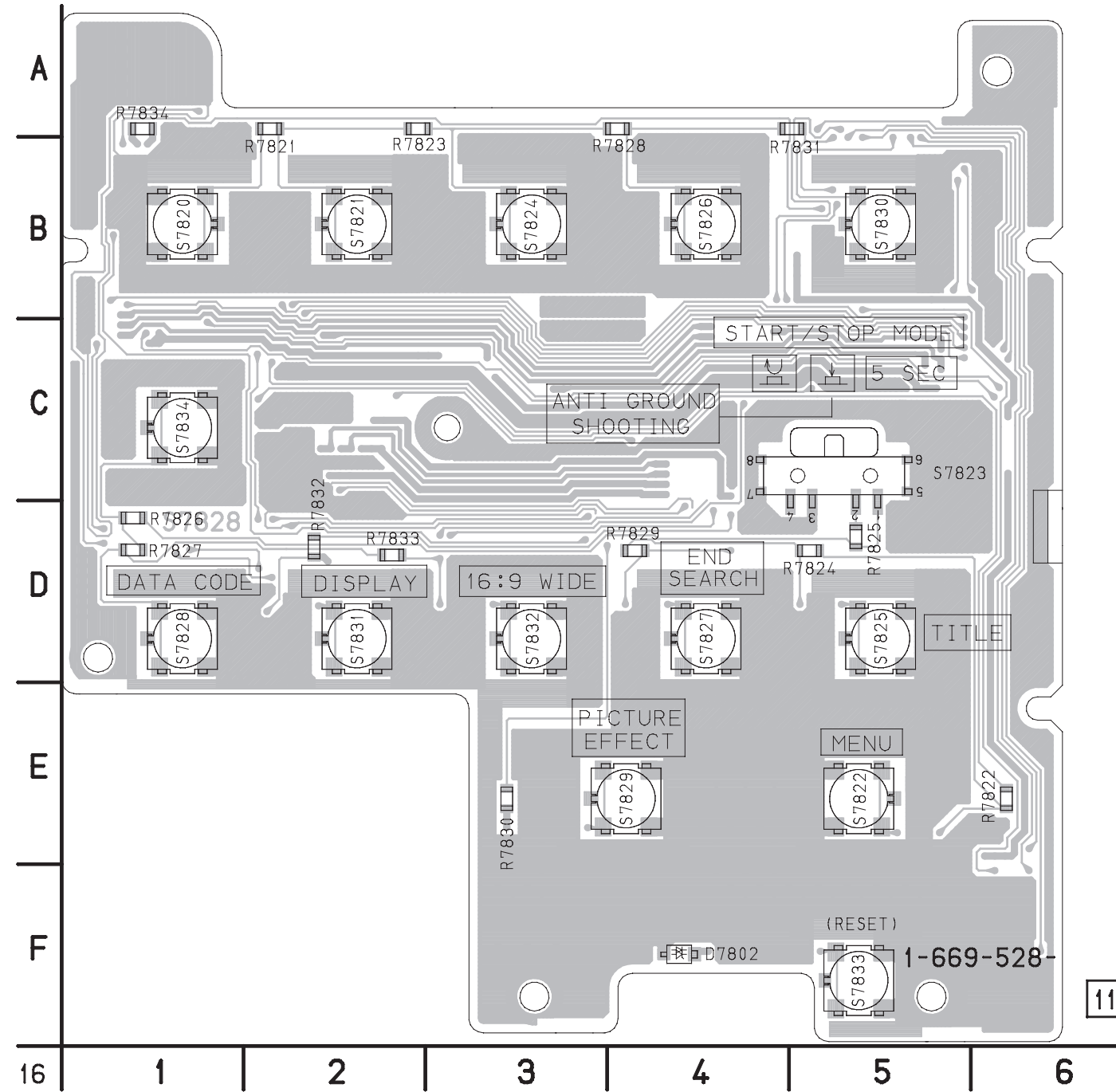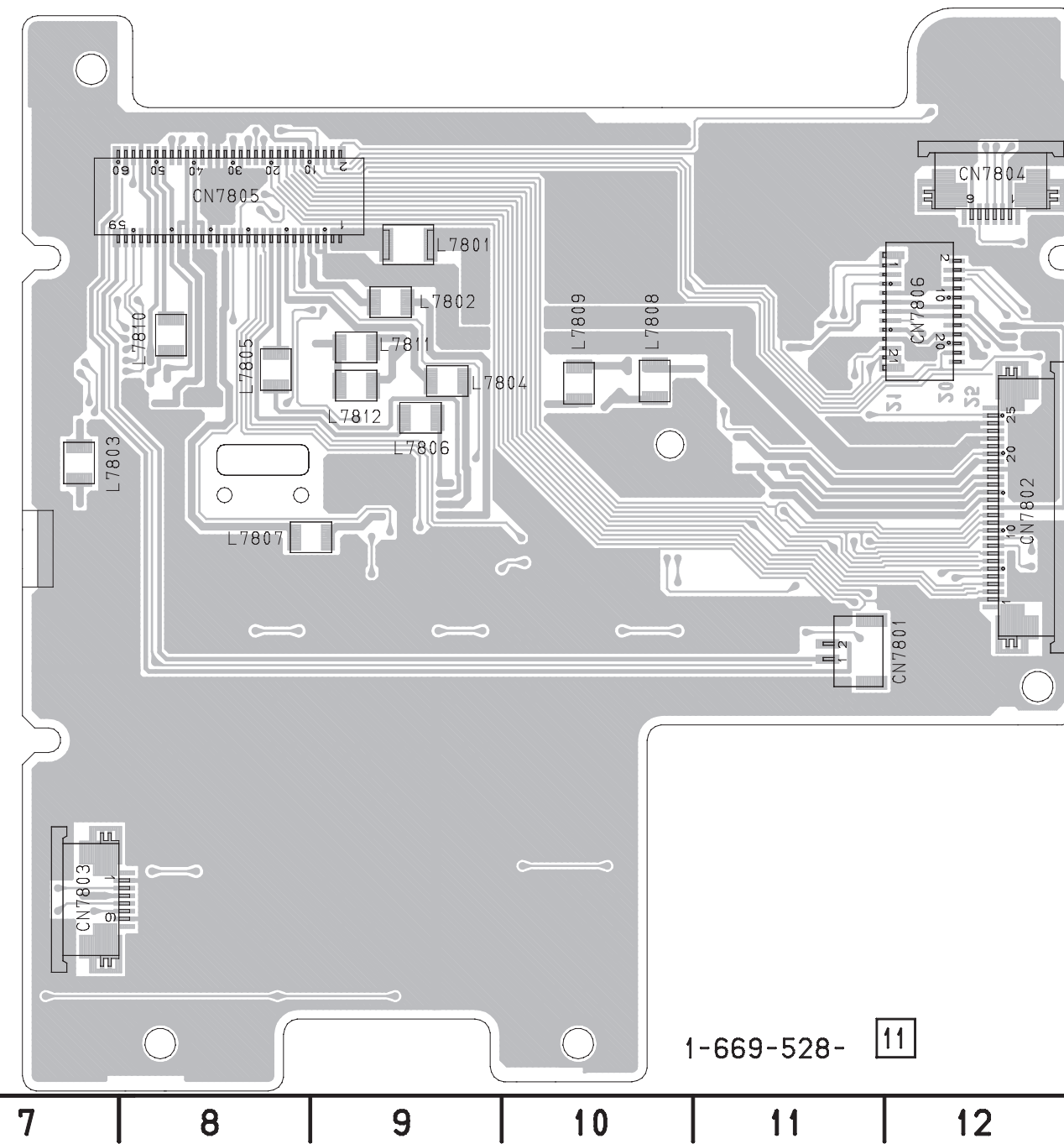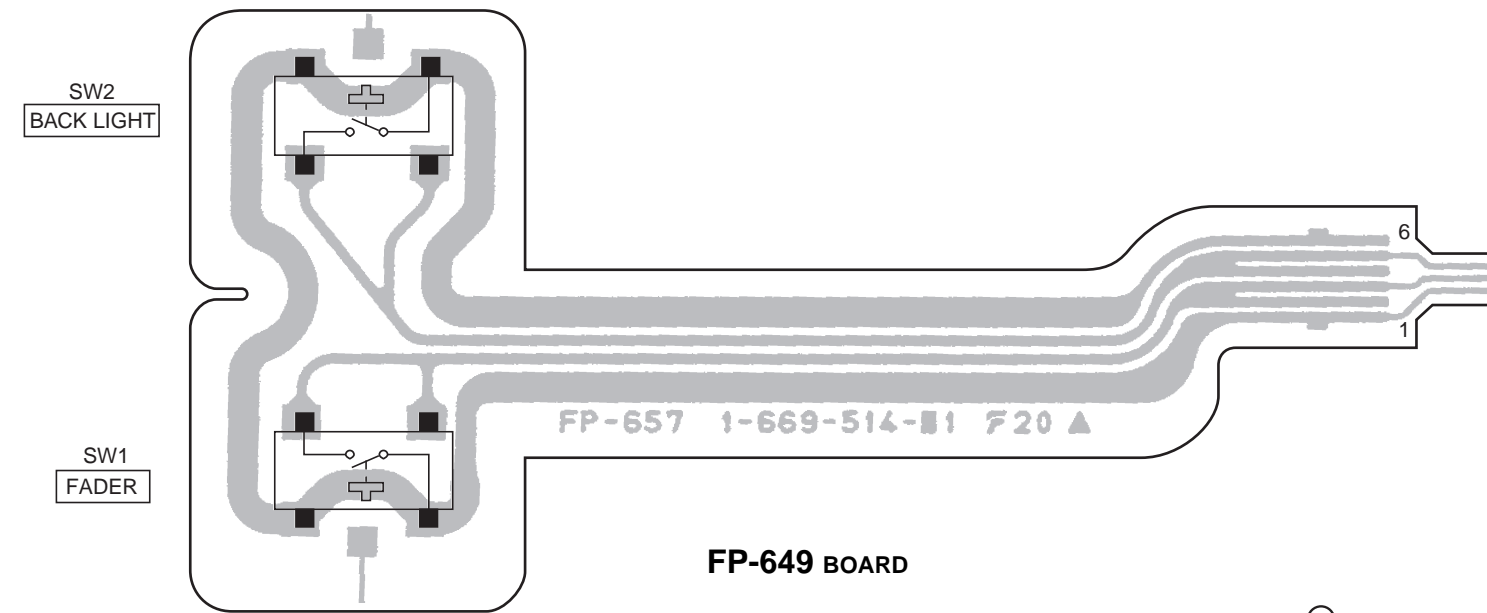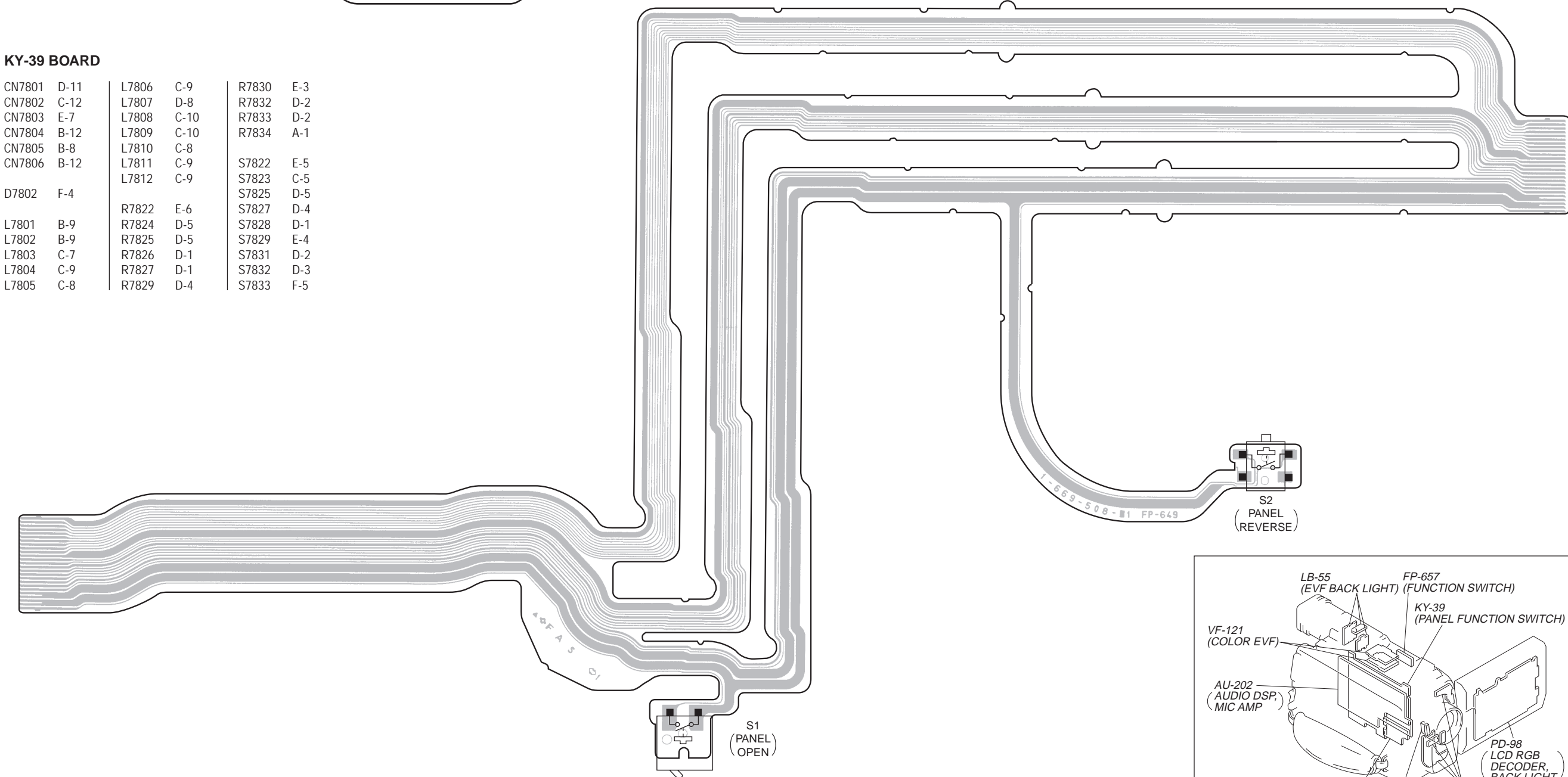
KY-39 BOARD

CN7801	D-11	L7806	C-9	R7830	E-3
CN7802	C-12	L7807	D-8	R7832	D-2
CN7803	E-7	L7808	C-10	R7833	D-2
CN7804	B-12	L7809	C-10	R7834	A-1
CN7805	B-8	L7810	C-8		
CN7806	B-12	L7811	C-9	S7822	E-5
		L7812	C-9	S7823	C-5
				S7825	D-5
D7802	F-4			S7827	D-4
		R7822	E-6	S7828	D-1
L7801	B-9	R7824	D-5	S7829	E-4
L7802	B-9	R7825	D-5	S7831	D-2
L7803	C-7	R7826	D-1	S7832	D-3
L7804	C-9	R7827	D-1	S7833	F-5
L7805	C-8	R7829	D-4		

S2
PANEL
(REVERSE)

LB-55
(EVF BACK LIGHT)

FP-657
(FUNCTION SWITCH)

KY-39
(PANEL FUNCTION SWITCH)

VF-121
(COLOR EVF)

AU-202
(AUDIO DSP,
MIC AMP)

S1
(PANEL
OPEN)

PD-98
LCD RGB
DECODER,
BACK LIGHT

LI-64
(Li BATT)

MF-4580
(MANUAL FOCUS)

MA-322
(MIC AMP)

PANEL FUNCTION SWITCH / CONTROL SWITCHES / PANEL CONDITION DET.
KY-39   FP-657   FP-649

DCR-TRV9/TRV9E
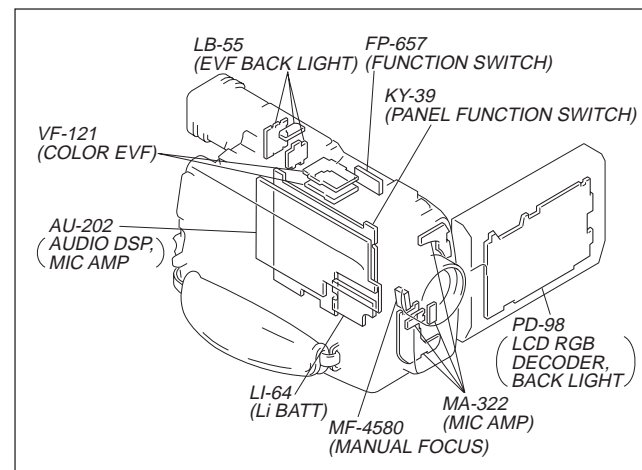
PD-98 (RGB DECODER, TIMING GENERATOR, BACK LIGHT) PRINTED WIRING BOARD
— Ref. No.: PD-98 Board; 50,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

PD-98 BOARD

Part	Loc	Part	Loc	Part	Loc
C5501	C-4	D5801	C-5	R5622	B-10
C5502	C-4			R5623	B-10
C5503	D-5	IC5501	D-4	R5624	B-10
C5504	D-9	IC5502	D-5	R5625	B-5
C5505	D-9	IC5601	B-5	R5627	B-5
C5506	C-9	IC5602	B-9	R5629	B-10
C5507	C-6	IC5701	A-3	R5630	B-10
C5508	D-6			R5633	B-10
C5509	D-5	L5501	C-5	R5634	B-10
C5510	D-6	L5502	D-6	R5640	B-9
C5511	D-6	L5503	D-6	R5641	B-9
C5512	D-6	L5601	B-4	R5643	B-9
C5513	D-6	L5603	B-4	R5644	B-9
C5514	D-6	L5604	B-4	R5647	A-5
C5515	D-6	L5605	B-4	R5648	A-8
C5516	D-6	L5701	B-3	R5650	A-6
C5517	D-6			R5652	A-4
C5520	D-9			R5655	A-4
C5601	B-3	Q5605	B-9	R5656	A-4
C5602	B-4	Q5606	B-9	R5663	A-10
C5603	B-5	Q5607	B-9	R5664	A-10
C5604	B-4	Q5608	C-9	R5665	A-10
C5605	B-4	Q5609	B-6	R5666	A-5
C5607	B-9	Q5701	C-3	R5667	A-9
C5608	B-4	Q5702	A-3	R5668	A-9
C5609	B-4			R5672	A-9
C5610	B-4	R5501	D-8	R5673	A-10
C5611	C-10	R5505	C-8	R5682	A-10
C5612	B-6	R5508	C-6	R5683	A-10
C5613	B-10	R5509	C-6	R5684	A-10
C5616	B-9	R5510	C-9	R5685	C-9
C5620	A-6	R5511	C-9	R5686	B-9
C5621	A-6	R5512	C-6	R5688	B-4
C5622	A-6	R5513	C-6	R5696	B-3
C5623	A-4	R5516	C-6	R5702	D-11
C5624	B-4	R5517	D-8	R5703	C-3
C5701	B-3	R5518	D-8	R5704	C-3
C5702	B-3	R5520	C-5	R5705	A-3
C5703	C-3	R5521	D-8	R5706	A-3
C5704	A-3	R5522	D-8	R5707	A-3
C5705	A-1	R5528	D-5	R5708	A-3
C5706	A-3	R5532	D-9	R5709	A-2
		R5537	A-6	R5801	C-8
CN5501	B-6	R5539	B-6	R5802	C-8
CN5601	A-5	R5602	B-8	R5803	C-8
CN5701	A-2	R5603	B-9	R5804	C-8
CN5802	C-4	R5605	C-3	R5805	C-5
CN5805	C-6	R5608	B-5		
		R5610	B-5		
D5602	B-10	R5614	C-10	T5701	C-12
D5604	A-6	R5615	C-9		
D5704	A-3	R5620	B-10		

PD-98 BOARD (SIDE A)

1-669-527-

PD-98 BOARD (SIDE B)

1-669-527-11

VF-121
(COLOR EVF)

LB-55
(EVF BACK LIGHT)

FP-657
(FUNCTION SWITCH)

KY-39
(PANEL FUNCTION SWITCH)

AU-202
AUDIO DSP,
MIC AMP

PD-98
LCD RGB
DECODER,
BACK LIGHT

LI-64
(LI BATT)

MF-4580
(MANUAL FOCUS)

MA-322
(MIC AMP)

RGB DECODER, TIMING GENERATOR, BACK LIGHT
PD-98

PD-98 (RGB DECODER) SCHEMATIC DIAGRAM
— Ref. No.: PD-98 Board; 50,000 Series —

PD-98 BOARD (1/3)
(RGB)

PD-98 BOARD (1/3)
PB

TO
KY-39
BOARD
CN7802

(SEE PAGE 4-92)

BV-4580 BLOCK

| LCD BRIGHT+ | VOL + |
| LCD BRIGHT- | VOL - |

IC5501
EVR

IC5502
IR9Y3M74
RGB
DECODER

NO MARK: REC/PB MODE
R : REC MODE
P : PB MODE

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB				

CN5501 9P

RGB DECODER
PD-98 (1/3)

4-103   4-104   4-105   4-106

PD-98 (TIMING GENERATOR, BACK LIGHT) SCHEMATIC DIAGRAM • See page 4-99 for PD-98 BOARD printed wiring board.
— Ref. No.: PD-98 Board; 50,000 Series —

PD-98 BOARD (2/3)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

IC5602 VCO/V-COM

Q5605-560B BUFFER

IC5601
CM701BL3-T4
TIMING GENERATOR

LCD 3.5"

SIGNAL PATH

VIDEO SIGNAL			AUDIO
CHROMA	Y	Y/CHROMA	SIGNAL
REC			
PB			

PD-98 BOARD (2/3)

⑦ IC5601 ㉕ PB

NTSC : 16.678MHz
PAL : 16.812MHz

3.0Vp-p

PD-98 BOARD (3/3)

(BL)

LED DRIVER

ND901
BACK LIGHT

CN5701 10P
10 BL_HIGH
9 N.C
8 N.C
7 N.C
6 N.C
5 N.C
4 BL_LOW
3 BL_LOW
2 LED
1 LED_GND

STARTER

IC5701
TA75S393F-TE85R

IC5701
CURRENT DET.

Note:
The components identi-
fied by mark △ or dot-
ted line with mark △
are critical for safety.
Replace only with part
number specified.

Note:
Les composants identifiés par
une marque △ sont critiques
pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spéci-
fié.

LB-55 (EVF BACK LIGHT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS
— Ref. No.: LB-55 Board; 60,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

LB-55 BOARD

C5201	B-1
C5202	B-2
C5203	B-2
C5204	B-1
C5206	B-1
C5207	B-1
C5208	B-1
CN5201	B-4
CN5202	B-4
D5201	C-1
L5201	B-2
L5202	C-2
ND5201	E-4
Q5201	B-1
R5201	B-1
R5202	C-1
T5201	E-1

LB-55 BOARD (SIDE A)

LB-55 BOARD (SIDE B)

LB-55
(EVF BACK LIGHT)
FP-657
(FUNCTION SWITCH)
VF-121
(COLOR EVF)
KY-39
(PANEL FUNCTION SWITCH)
AU-202
(AUDIO DSP)
(MIC AMP)
PD-98
(LCD RGB)
(DECODER,)
(BACK LIGHT)
LI-64
(Li BATT)
MA-322
(MIC AMP)
MF-4580
(MANUAL FOCUS)

1-669-526-

1-669-526-

LB-55 BOARD (1/2)

CN5201 27P
TO VF-121 BOARD CN5101

27	EVF_BL_4.75V
26	EVF_BL_4.75V
25	DRIVE-PULSE
24	EVF_BL_GND
23	EVF_BL_GND
22	EVF_BL_GND
21	BL_LOW
20	LED_K
19	FB
18	LED_A
17	EVF_12.0V
16	EVF_12.0V
15	EVF_GND
14	EVF_GND
13	VST
12	COM
11	G
10	R
9	B
8	BLK
7	VCK2
6	VCK1
5	EN
4	CLR
3	HST
2	HCK2
1	HCK1

(SEE PAGE 4-120)

NO MARK:REC/PB MODE
R   :REC MODE
P   :PB MODE

Q5201 FX21B-TL1 SWITCHING
D5201 1SS3701TEBSL

C5201 0.01μ B 160B
R5201 33k 160B
L5201 10μH 3225
L5202 10μH 3225
C5206 8200p 2012
C5207 8200p 2012
C5208 8200p 2012
C5202 47μ 10V TA C
C5203 4.7μ 16V 3216
R5202 10Ω 160B
C5204 0.033μ 160B
C5205 XX 3216

EVF_BL_4.75V
EVF_BL_4.75V
DRIVE-PULSE
EVF_BL_GND
EVF_BL_GND
BL_LOW
LED_K
LED_A
EVF_12.0V
EVF_12.0V
EVF_GND
EVF_GND
VST
COM
G
R
B
BLK
VCK2
VCK1
EN
CLR
HST
HCK2
HCK1

② TO(2/2)
① TO(2/2)

16

Note:
The components identi-
fied by mark ⚠ or dot-
ted line with mark ⚠
are critical for safety.
Replace only with part
number specified.

Note:
Les composants identifiés par
une marque ⚠ sont critiques
pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spéci-
fié.

LB-55 BOARD (2/2)

CN5202 16P

16	COM [5.7V]
15	G
14	R
13	B
12	BLK
11	HCK1
10	HCK2
9	HST
8	HST [12.0V]
7	CLR
6	EN
5	VCK1
4	VCK2
3	VST
2	VSS
1	VVDD [12.0V]

LCD 0.55"

① TO(1/2)

② TO(1/2)

T5201
EVF_BL_4.75V
EVF_BL_4.75V
DRIVE-PULSE
INVERTER TRANS
ND5201
BACK LIGHT

EVF_BL_GND
EVF_BL_GND
EVF_BL_GND

BL_LOW
LED_K
LED_A

D5202 XX

LND501 BACK_GND
LND502 BACK_GND

16

Note:
The components identi-
fied by mark ⚠ or dot-
ted line with mark ⚠
are critical for safety.
Replace only with part
number specified.

Note:
Les composants identifiés par
une marque ⚠ sont critiques
pour la sécurité.
Ne les remplacer que par une
pièce portant le numéro spéci-
fié.

EVF BACK LIGHT
LB-55

VF-121 (COLOR EVF) SCHEMATIC DIAGRAMS
— Ref. No.: VF-121 Board; 60,000 Series —

VF-121 BOARD (1/2)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

IC5002 EVR

IC5001 LCD DRIVER

IC5002 M52376GP-65AD

(SEE PAGE 4-94)

CN5001 21P

TO KY-39 BOARD CN7806

SIGNAL PATH

VIDEO SIGNAL			AUDIO SIGNAL
CHROMA	Y	Y/CHROMA	
REC			
PB			

VF-121 BOARD (2/2)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

IC5102 CXD8586R-T4 TIMING GENERATOR
NTSC(11.06MHz) PAL (8.97MHz)

IC5101 M83789PFV-G-BND-ER DC/AC CONV

Q5102,5103 +B SWITCH

SCP SWITCH

CN5101 30P

TO LB-55 BOARD CN5201 (SEE PAGE 4-113)

SIGNAL PATH

VIDEO SIGNAL			AUDIO SIGNAL
CHROMA	Y	Y/CHROMA	
REC			
PB			

COLOR EVF
VF-121 (1/2) (2/2)

4-116   4-117   4-118   4-119   4-120

VF-121 (COLOR EVF) PRINTED WIRING BOARD
— Ref. No.: VF-121 Board; 60,000 Series —

VF-121 BOARD
CAMERA REC/PB

There are few cases that the part printed on this diagram isn't mounted in this model.

VF-121 BOARD (SIDE A)

VF-121 BOARD (SIDE B)

① IC5001 ⑧ — 0.26Vp-p
② IC5001 ⑨ — 0.25Vp-p
③ IC5001 ⑩ — 0.34Vp-p
④ IC5001 ⑲ — 7Vp-p (2H)
⑤ IC5001 ㉒ — 7Vp-p (2H)
⑥ IC5001 ㉘ — 7Vp-p (2H)
⑦ IC5101 ⑬ — 11Vp-p
⑧ IC5102 ④ — NTSC : 11.05MHz PAL : 10.97MHz 2.6Vp-p
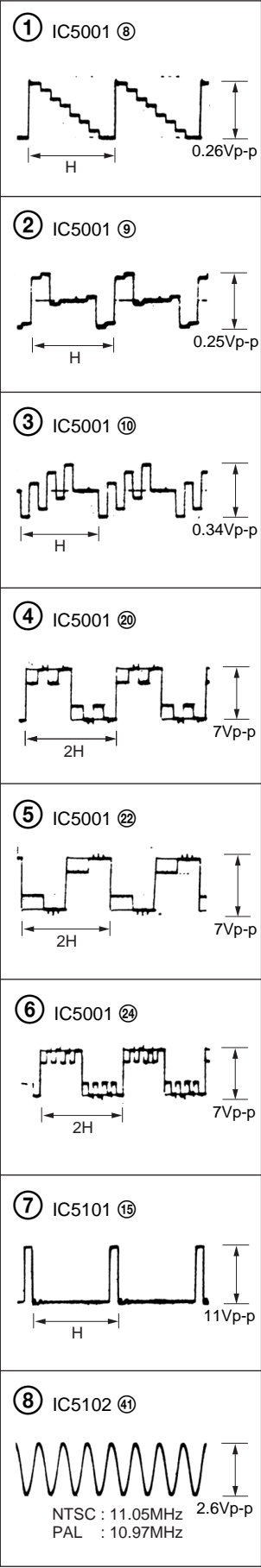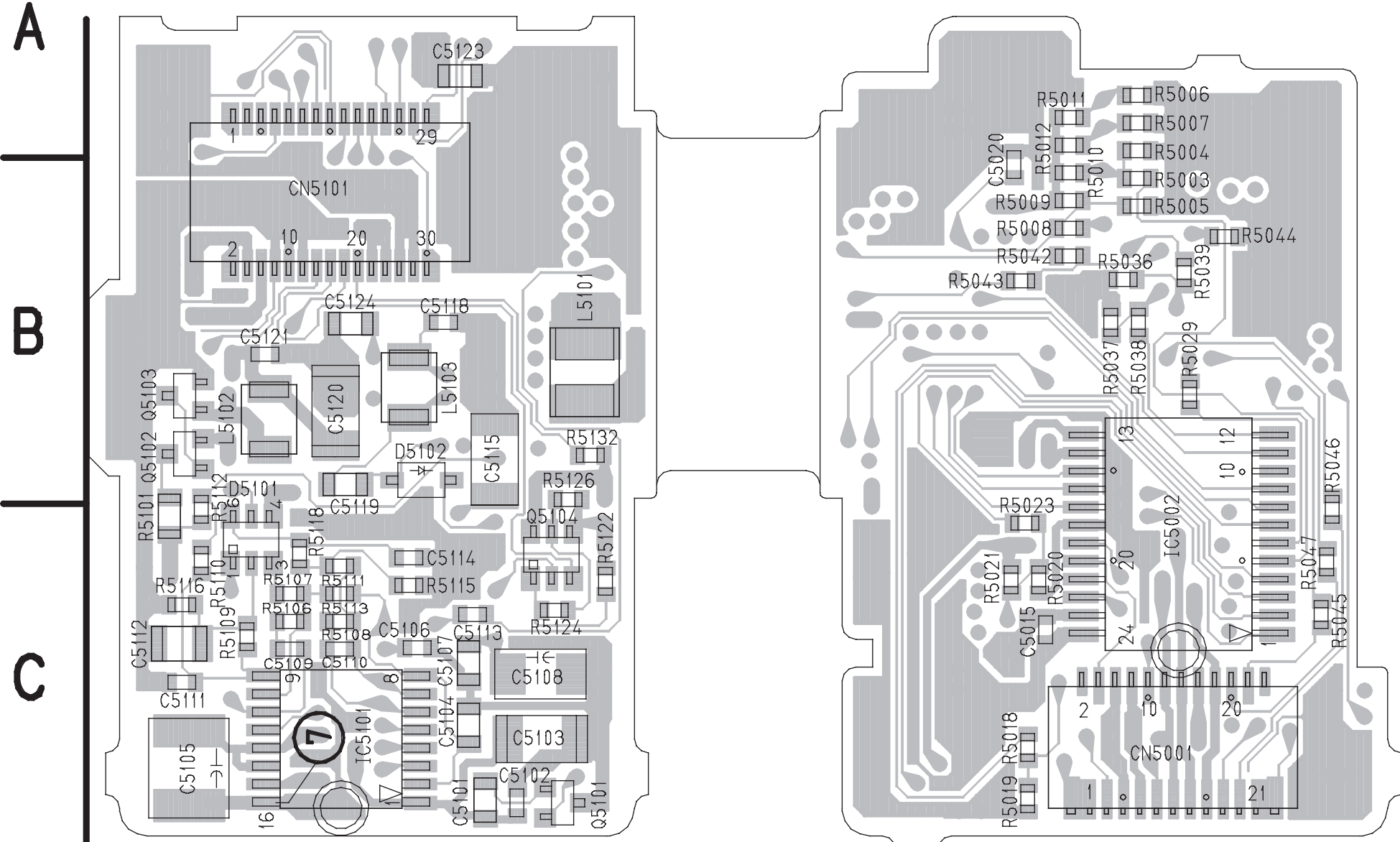
1-669-525-
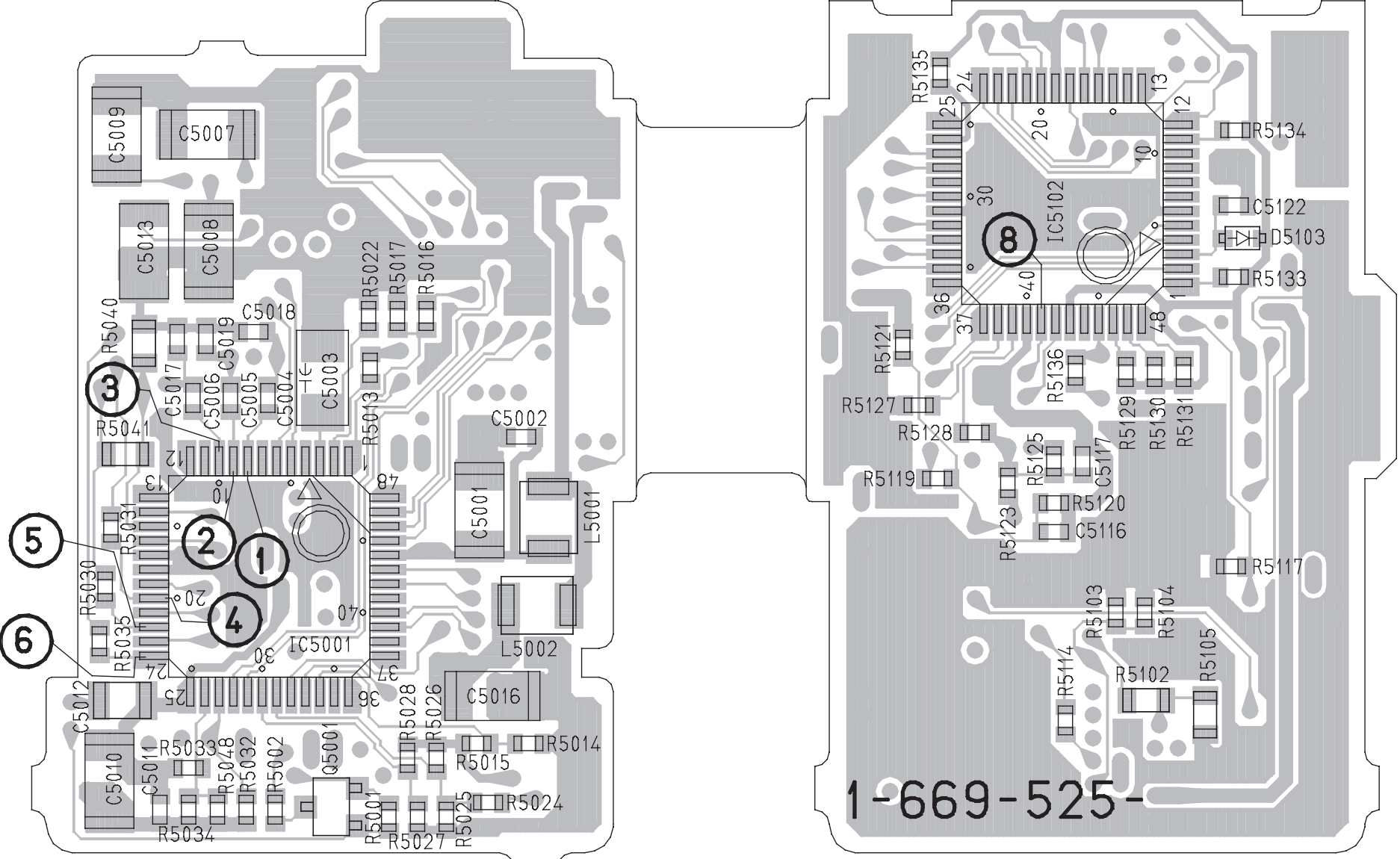
1-669-525-

VF-121 BOARD

Ref	Loc	Ref	Loc	Ref	Loc
C5001	B-7	CN5001	C-4	R5031	C-6
C5002	B-7	CN5101	B-1	R5035	C-6
C5003	B-6			R5038	B-4
C5004	B-6	D5101	C-1	R5039	B-4
C5005	B-6	D5102	B-1	R5040	B-6
C5006	B-6			R5041	B-6
C5007	A-6	IC5001	C-6	R5042	B-3
C5008	B-6	IC5002	C-4	R5044	C-4
C5009	A-6	IC5101	C-1	R5045	C-4
C5010	C-6	IC5102	B-8	R5046	C-4
C5011	C-6			R5047	C-4
C5012	C-6	L5001	C-9	R5101	C-1
C5013	B-6	L5002	C-9	R5102	C-9
C5015	C-3	L5101	B-2	R5103	C-8
C5016	C-7	L5102	B-1	R5104	C-9
C5020	B-3	L5103	B-1	R5105	C-9
C5101	C-2			R5106	C-1
C5102	C-2	Q5101	C-2	R5107	C-1
C5103	C-2	Q5102	B-1	R5108	C-1
C5104	C-2	Q5103	B-1	R5109	C-1
C5105	C-1			R5110	C-1
C5106	C-2	R5001	C-6	R5111	C-1
C5108	C-2	R5003	B-4	R5113	C-1
C5109	C-1	R5005	B-4	R5114	C-1
C5110	C-1	R5008	C-6	R5115	C-1
C5111	C-1	R5009	B-3	R5116	C-1
C5112	C-1	R5013	B-4	R5117	C-1
C5113	C-2	R5016	B-3	R5118	C-1
C5114	C-1	R5018	C-3	R5119	B-8
C5115	B-2	R5020	C-3	R5121	B-8
C5116	C-8	R5021	C-3	R5123	B-8
C5117	B-2	R5022	B-6	R5125	B-8
C5118	B-2	R5023	C-3	R5128	B-8
C5119	B-1	R5024	C-7	R5133	B-9
C5120	B-1	R5025	C-7	R5135	A-8
C5121	B-1	R5026	C-7	R5136	B-8
C5122	B-9	R5029	B-4		
C5123	A-2	R5030	C-6		

LB-55 (EVF BACK LIGHT)
FP-657 (FUNCTION SWITCH)
KY-39 (PANEL FUNCTION SWITCH)
VF-121 (COLOR EVF)
AU-202 (AUDIO DSP, MIC AMP)
PD-98 (LCD RGB DECODER, BACK LIGHT)
LI-64 (LI BATT)
MF-4580 (MANUAL FOCUS)
MA-322 (MIC AMP)

COLOR EVF
VF-121

DCR-TRV9/TRV9E
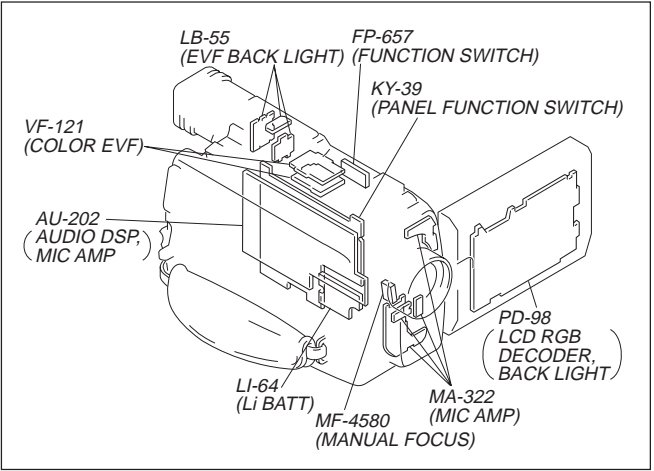
DD-106 (POWER SUPPLY) PRINTED WIRING BOARD
— Ref. No.: DD-166 Board; 30,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.
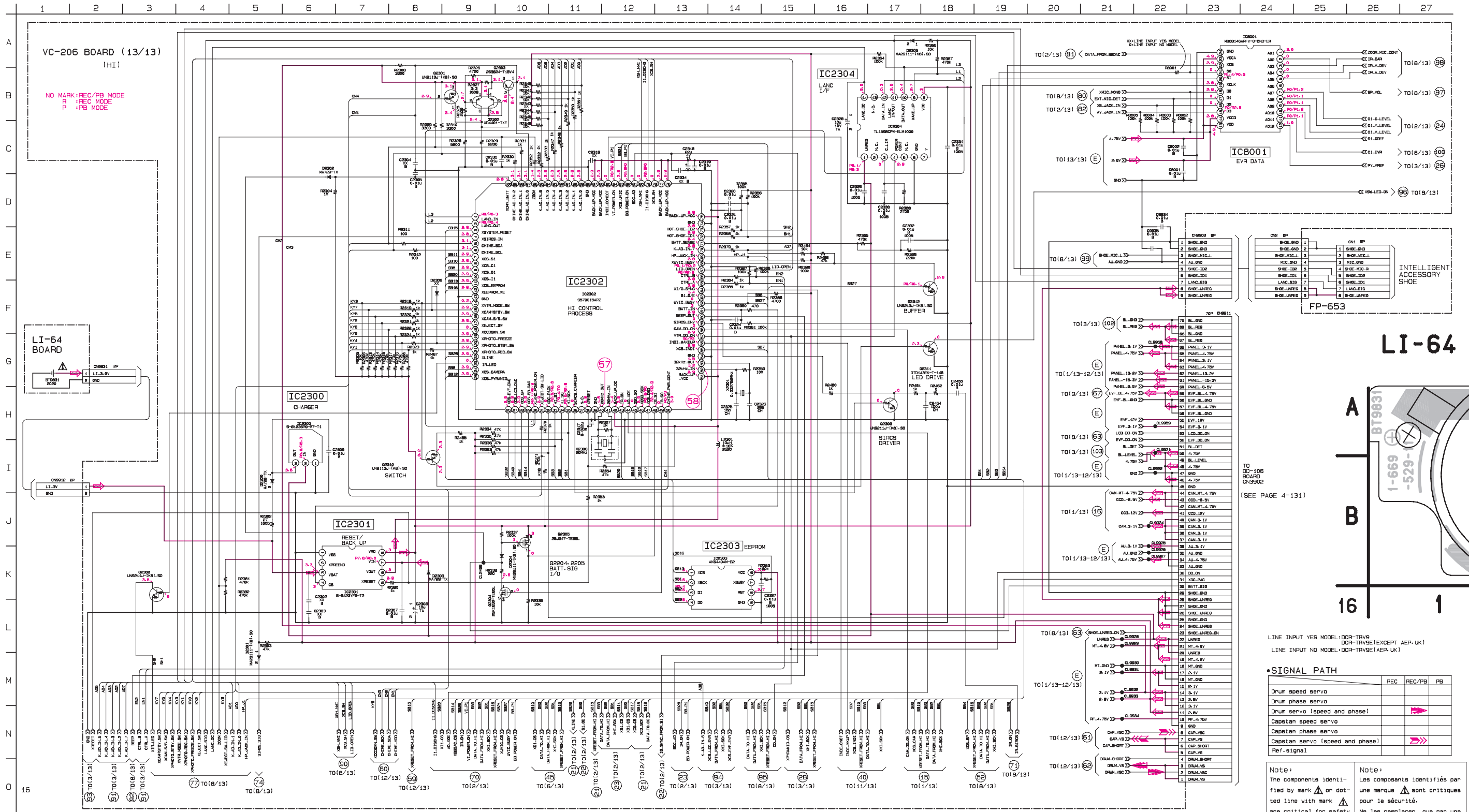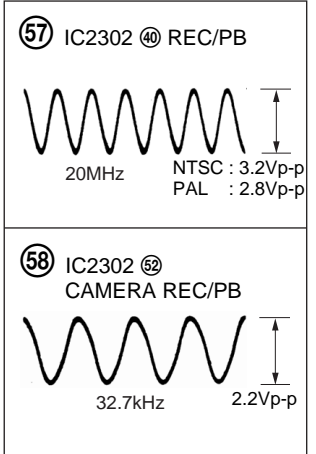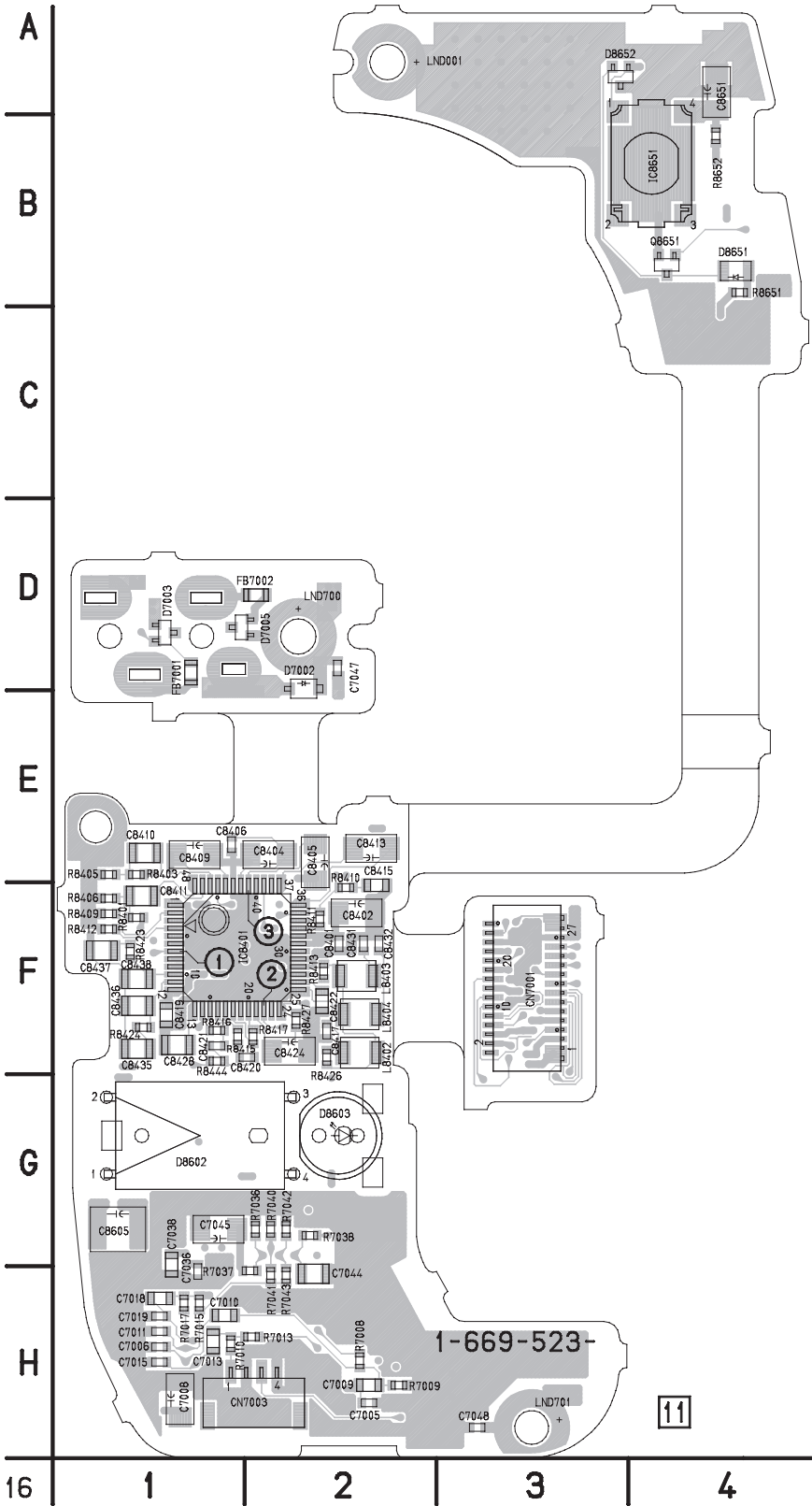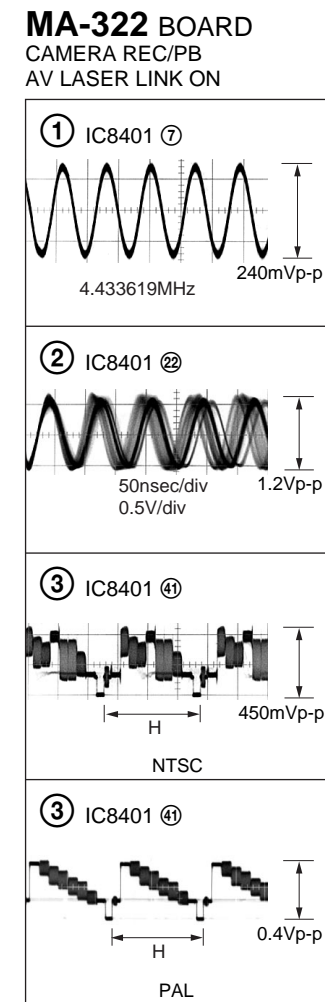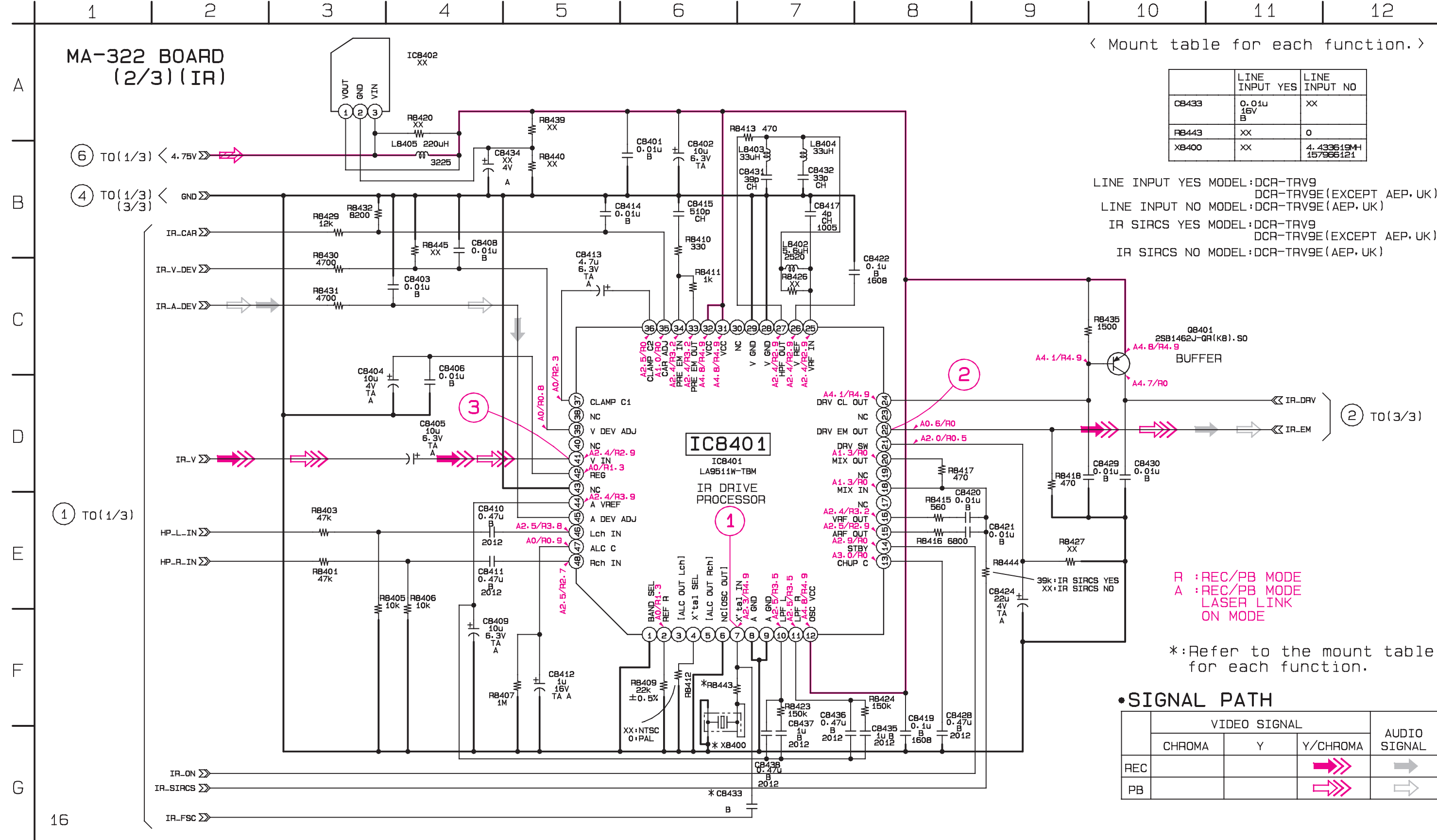
DD-106 BOARD

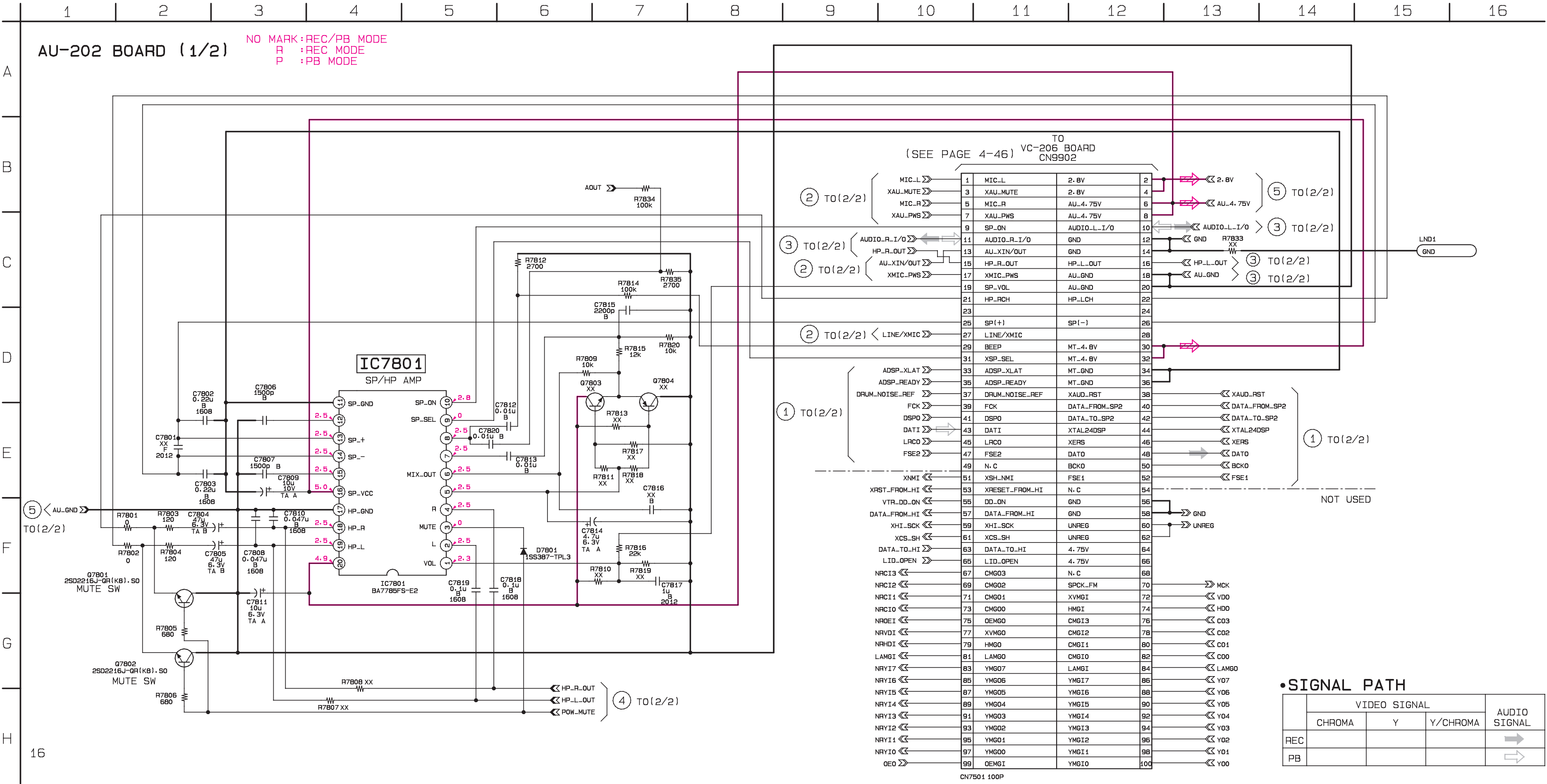| Ref	Loc	Ref	Loc	Ref	Loc	Ref	Loc	Ref	Loc	Ref	Loc
C801	A-7	C854	B-1	L805	B-1	Q833	B-1	R835	A-8	R897	B-1
C802	A-7	C855	B-9	L806	B-1	Q834	A-11	R836	A-8	R898	B-12
C803	A-7	C856	B-4	L806	B-4	Q835	A-2	R837	B-8	R899	B-12
C804	A-7	C857	B-9	L807	A-4	Q836	B-2	R838	A-8	R900	A-11
C805	B-7	C858	B-2	L808	B-12	Q838	B-12	R840	A-8	R901	A-11
C806	B-7	C860	A-11	L809	A-3	Q839	B-2	R841	B-4	R902	A-11
C807	B-7	C861	B-12	L810	A-9	Q840	B-2	R842	A-5	R903	A-2
C808	B-8	C862	B-1	L811	B-10	Q841	B-12	R843	B-4	R904	A-2
C809	B-8	C863	B-1	L812	B-9	Q842	A-11	R844	B-5	R905	A-2
C810	B-8	C864	B-11	L813	B-10	Q843	A-11	R845	B-5	R906	A-2
C811	B-8	C865	B-2	L814	B-9	Q844	B-2	R846	B-5	R907	A-2
C812	A-8	C866	B-2	L815	B-9	Q845	B-2	R847	B-5	R908	B-8
C813	B-8	C867	B-12	L816	B-3	Q846	B-12	R848	B-5	R910	B-8
C814	A-8	C868	B-11	L817	B-9	Q847	A-11	R849	B-5	R911	B-8
C815	A-8	C869	A-2	L818	B-8	Q848	A-2	R850	B-5	R912	B-8
C816	A-5	C870	A-9	L819	B-9	Q849	A-2	R851	B-5	R914	B-3
C817	A-9	C871	B-9	L820	B-3	Q850	A-2	R852	B-3	R3969	B-2
C819	A-9	C872	A-9	L3920	B-12	Q852	B-7	R853	B-7	R3970	B-2
C820	A-9	C3900	B-5	PS801	A-6	Q853	B-7	R854	B-7	R3972	A-8
C821	B-8	C3901	B-5	PS802	A-6	Q854	B-8	R855	B-11	R3973	A-8
C822	B-5	C3961	B-12	PS803	B-6	Q855	B-8	R859	B-4	R3974	A-8
C823	A-9	C3965	B-2	PS804	B-6	Q856	A-11	R864	B-4	T801	A-3
C824	A-10	C3966	B-2	PS805	B-6	Q3922	B-7	R865	B-10		
C825	A-9	C3967	B-8					R866	A-10		
C826	B-4	C3968	B-8	Q806	B-4	R801	B-2	R868	B-1		
C828	B-3	C3969	A-8	Q807	A-10	R802	A-7	R869	A-10		
C829	B-5			Q808	A-9	R803	A-7	R870	B-11		
C830	B-3	CN3901	A-5	Q809	A-9	R804	A-7	R872	A-11		
C831	B-5	CN3902	B-10	Q810	A-10	R805	A-7	R873	A-11		
C832	A-10			Q811	B-5	R806	A-7	R874	B-1		
C833	A-10	D801	A-9	Q812	B-5	R807	A-7	R875	B-1		
C834	A-10	D802	A-9	Q813	B-5	R808	A-7	R876	B-1		
C835	B-5	D803	B-12	Q814	B-12	R809	A-7	R878	B-1		
C836	B-12	D804	B-12	Q815	B-12	R810	B-1	R879	A-11		
C837	B-12	D805	A-10	Q816	B-4	R811	B-8	R880	A-7		
C838	A-10	D806	A-10	Q817	A-10	R812	B-7	R881	A-11		
C839	A-5	D807	B-3	Q818	A-5	R813	B-12	R882	A-11		
C840	B-3	D808	B-4	Q819	B-5	R814	B-1	R883	A-2		
C841	B-9	D809	A-10	Q820	B-5	R818	B-8	R884	B-2		
C842	B-5	D810	A-10	Q821	B-5	R819	B-8	R885	B-12		
C843	B-10	D812	A-11	Q822	A-11	R820	A-5	R887	B-5		
C844	B-9	D3903	A-4	Q823	A-10	R821	B-5	R888	A-2		
C845	B-5			Q824	B-4	R822	A-7	R890	A-11		
C846	B-9	IC801	A-8	Q826	B-11	R823	A-7	R891	A-2		
C847	A-2	IC802	B-5	Q827	B-1	R824	A-7	R892	B-2		
C848	A-2	IC3902	B-2	Q828	B-1	R829	B-8	R893	B-3		
C849	B-9			Q829	B-8	R830	B-8	R894	B-12		
C850	B-9	L801	A-4	Q830	A-11	R831	A-7	R895	A-11		
C851	B-9	L802	B-4	Q831	B-12	R833	A-7	R896	B-1		
C852	A-3	L803	A-3	Q832	A-11	R834	B-8				
C853	A-3	L804	B-4								

DD-106 BOARD (SIDE A)

DD-106 BOARD (SIDE B)

A

B

1-669-519-

16 1 2 3 4 5 6 7 8 9 10 11 12

11 11

FP-676
(HEADPHONE LANC
S/S SWITCH)

FK-4580
(VTR FUNCTION SWITCH)

CD-185
(CCD IMAGER)

DD-106
(POWER
SUPPLY)

PS4580
(POWER
SWITCH)

VC-206
CAMERA, VIDEO IN/OUT, BLOCKING,
ECC, TBC, CHCO, AUDIO PROCESS,
RF INTERFACE, REC/PB HEAD AMP,
DV PROCESS, SERVO, HI CONTROL

VI-148 (Except AEP, UK model)
(VIDEO INTERFACE)

FP-647
(VIDEO AUDIO IN/OUT)

POWER SUPPLY
DD-106

DD-106 (POWER SUPPLY) SCHEMATIC DIAGRAM
— Ref. No.: DD-166 Board; 30,000 Series —

DD-106 BOARD
CAMERA REC/PB

DD-106 BOARD

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

BATTERY TERMINAL

IC801
DC/DC CONVERTER
DRUM/CAPSTAN PWM

IC802
REG

IC3902
S-8132DG-KW-T1

IC3902
2.1V REG

TO
VC-206
BOARD
CN9911
(SEE PAGE
4-64)

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

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

•SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		➤➤	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		➤➤➤	
Ref.signal			

POWER SUPPLY
DD-106

SECTION 5
ADJUSTMENTS

5-1. CAMERA SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 5-28.

NTSC model : DCR-TRV9
PAL model : DCR-TRV9E

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools
• Oscilloscope   • Regulated power supply   • Vectorscope
• Color monitor   • Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0 ND filter 0.3	J-6080-808-A J-6080-818-A	White balance check White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded). Note	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	Multi CPC jig	J-6082-311-A	For adjusting the LCD
J-9	CPC-8 jig	J-6082-388-A	For adjusting the video section For adjusting the viewfinder
J-10	Extension cable (100P, 0.4mm)	J-6082-413-A	For extension between the AU-202 board (CN7501) and the VC-206 board (CN9902)
J-11	Extension cable (70P, 0.5 mm)	J-6082-414-A	For extension between the DD-106 board (CN3902) and the VC-206 board (CN9911)
J-12	IR receiver jig	J-6082-383-A	For adjusting the IR transmitter

Note: If the microprocessor IC in the adjustment remote commander is not the new microprocessor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new microprocessor (8-759-148-35).
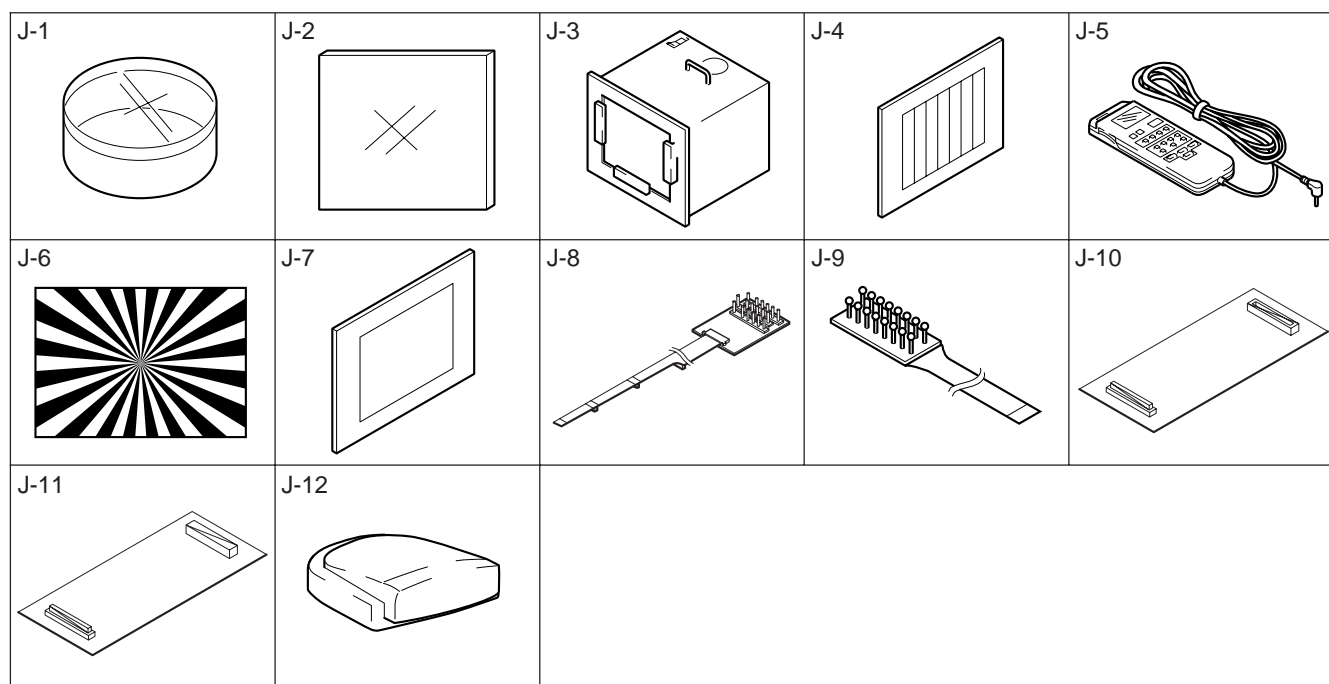
Fig. 5-1-1.

1-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

Note 2: When performing only the adjustments, the lens block and boards need not be disassembled.

1) Connect the equipment for adjustments according to Fig. 5-1-2.

2) The front panel block (MA-322 board, focus ring, microphone unit) must be assembled because the focus ring is used for manual focusing.

Note 3: As removing the cabinet (R) (removing the VC-206 board CN9912) means removing the lithium 3V power supply (LI-64 board), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and the data on history use (data of page: 2, address: 35 to 3D). (Refer to the "Service Mode" for the data on the history use.)

Note 4: Setting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander. The above procedure will enable the camera power to be turned on with the power switch block (PS-4580) removed. After completing adjustments, be sure to exit the "Forced Camera Power ON Mode".

Note 5: Exiting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.
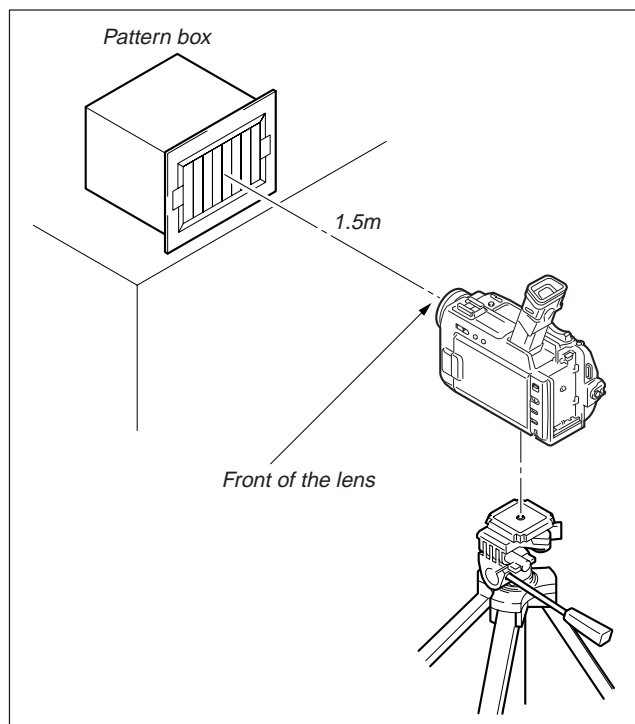
Fig. 5-1-2.

Fig. 5-1-3

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch (PS-4850 block) .... CAMERA
2. NIGHT SHOT switch (Lens block) ....OFF
3. DEMO MODE (Menu display) ....OFF
4. DIGITAL ZOOM (Menu display) ....OFF
5. STEADY SHOT (Menu display) ....OFF
6. DISPLAY (Menu display) .... V-OUT/LCD
7. FOCUS switch (CF-4850 block) .... MANUAL
8. PROGRAM AE (CF-4850 block) .... Auto
9. BACK LIGHT (FP-657 flexible) ....OFF
10. PICTURE EFFECT (KY-39 board) ....OFF
11. 16 : 9 WIDE (KY-39 board) ....OFF

2. Order of Adjustments

Basically carry out adjustments in the order given.

Color bar chart standard picture frame

Fig. a (Video output terminal output waveform)

Fig. b (TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.
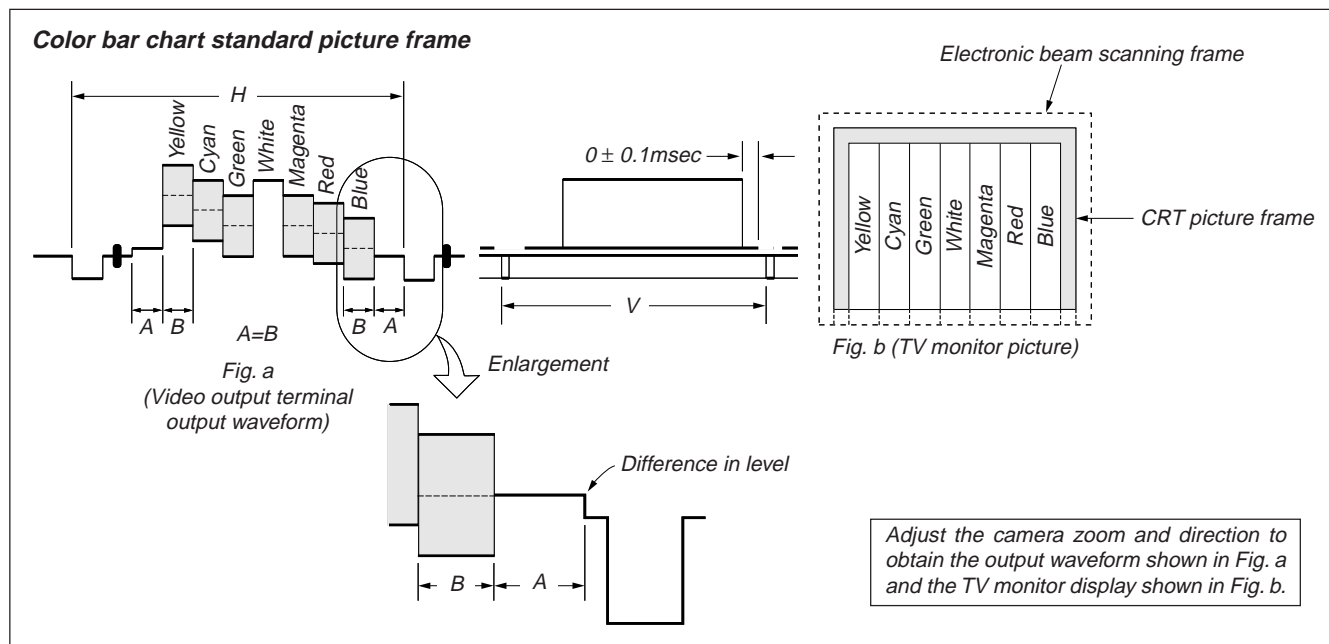
Fig. 5-1-4

3. Subjects

1) Color bar chart (Standard picture frame).
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-4. (Standard picture frame)

2) Clear chart (Standard picture frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)

3) Flange back adjustment chart
   Make the chart shown in Fig. 5-1-5 using A0 size (1189 mm × 841 mm) black and white vellum paper.
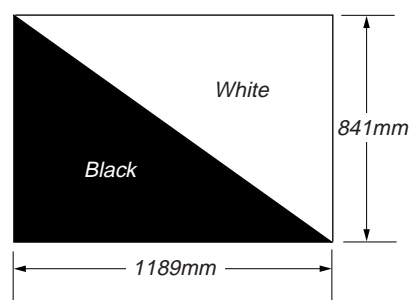
Fig. 5-1-5

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2.   INITIALIZATION OF F, E PAGE DATA

1. Initializing the F, E Page Data

Note: If the F, E page data has been initialized, "Modification of F, E PAGE Data" and the camera system adjustments need to be performed again.

Adjusting page	F
Adjusting Address	00 to FF
Adjusting page	E
Adjusting Address	00 to 33

Initializing Method:
1)   Select page: 6, address: 00, and set data: 01.
2)   Select page: 6, address: 01, and set data: 2D (NTSC) or data: 2F (PAL).
3)   Select page: 6, address: 03, set data: 01, and press the PAUSE button of the adjustment remote commander.
4)   Select page: 6, address: 02, and check that the data is "01".
5)   Select page: 6, address: 00, and set data: 00.
6)   Perform "Modification of F, E Page Data".

2. Modification of F, E PAGE Data

If the F, E PAGE data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:
1)   Before changing the data, select page: 6, address: 00, and set data: 01.
2)   New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
     Note: If copy the data built in the different model, the camcorder may not operate.
3)   When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
4)   Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
5)   After changing the data, select page: 6, address: 00, and set data: 00.

3. F Page Table

Note: Fixed data-1 : Initialized data. (Refer to "1. Initializing the F, E Page Data".)
Fixed data-2 : Modified data. (Refer to "2. Modification of F, E PAGE Data").

Address	Initial value NTSC	Initial value PAL	Remark
00 to 0F			
10			Fixed data-1
11			(Initialized data)
12			
13			
14			
15			
16			
17			
18			
19			
1A			
1B			
1C	80	80	36MHz origin osc. adj.
1D			Fixed data-1
1E	80	80	HALL adj.
1F	40	40	
20	90	90	AWB standard data input adj.
21	3E	3E	
22	43	43	
23	59	59	
24	FB	FB	Flange back adj.
25	1D	1D	
26	87	87	
27	2A	2A	
28	79	79	
29	13	13	
2A	00	00	
2B	00	00	
2C	64	64	Max gain adj.
2D			Fixed data-1
2E	22	22	Color reproduction adj.
2F			Fixed data-1
30	27	27	Color reproduction adj.
31			Fixed data-1
32			(Initialized data)
33			
34	88	88	Auto white balance adj.
35	6C	6C	
36	00	00	Flange back adj.
37	00	00	
38	46	46	
39	00	00	
3A	19	19	
3B	00	00	
3C	21	21	
3D	02	02	
3E	34	34	AWB standard data input adj.
3F	7A	7A	

Address	Initial value NTSC	PAL	Remark
40			Fixed data-2
41	60	60	Angular velocity sensor sensitivity adj.
42	60	60	
43			Fixed data-1
44	00	00	Color reproduction adj.
45	F1	EF	
46			Fixed data-1
47			(Initialized data)
48			
49			
4A			
4B			
4C			
4D			
4E			
4F			
50			
51			
52			
53	3F	3F	G-CAM flip discrimination adj.
54			Fixed data-1
55			(Initialized data)
56			
57			
58			
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
6A			
6B			
6C			
6D			
6E			
6F			
70			
71			
72			
73			
74			
75			
76			
77			

Address	Initial value NTSC	PAL	Remark
78			Fixed data-1
79			(Initialized data)
7A			
7B			
7C			Fixed data-2
7D			
7E			Fixed data-1
7F			(Initialized data)
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
8A			
8B			
8C			
8D			
8E			
8F			
90			
91			Fixed data-2
92			
93			Fixed data-1
94			(Initialized data)
95			
96			
97			
98			
99			
9A			Fixed data-2
9B			Fixed data-1
9C			(Initialized data)
9D			
9E			
9F			
A0			
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			
AD			
AE			
AF			

Address	Initial value		Remark
	NTSC	PAL	
B0			Fixed data-1
B1			(Initialized data)
B2			
B3			
B4			
B5			
B6			
B7			
B8			
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			
D0			
D1			
D2			
D3			
D4			
D5			
D6			
D7			
D8			
D9			
DA			
DB			
DC			
DD			
DE			
DF			
E0			
E1			
E2			
E3			
E4			
E5			
E6			
E7			

Address	Initial value		Remark
	NTSC	PAL	
E8			Fixed data-1
E9			(Initialized data)
EA			
EB			
EC			
ED			
EE			
EF			
F0			
F1			
F2			
F3			
F4			
F5			
F6			
F7			Fixed data-2
F8			Fixed data-1
F9			(Initialized data)
FA			
FB			
FC			
FD			
FE			
FF			

Table. 5-1-1

4. E Page table

Note: Fixed data-1 : Initialized data. (Refer to "1. Initializing the F, E Page Data".)
Fixed data-2 : Modified data. (Refer to "2. Modification of F, E PAGE Data").

Address	Remark
00	Fixed data-2
01	Fixed data-1
02	(Initialized data)
03	
04	
05	
06	
07	
08	Fixed data-2
09	
0A	
0B	
0C	
0D	
0E	Fixed data-1
0F	(Initialized data)
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
1A	
1B	
1C	
1D	
1E	
1F	Fixed data-2
20	Fixed data-1
21	Fixed data-2
22	
23	Fixed data-1
24	(Initialized data)
25	
26	
27	
28	
29	
2A	
2B	Fixed data-2
2C	
2D	
2E	
2F	Fixed data-1
30	(Initialized data)
31	
32	
33	

Table. 5-1-2

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified value of "Composite Output Y Level Adjustment" and "Composite Output Chroma Level Adjustment" of "Base band Block Adjustment" of "VIDEO SYSTEM ADJUSTMENT" are satisfied.

1. 36 MHz Origin Oscillation Adjustment (VC-206 board)

Set the frequency of the clock for synchronization. If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	Pin ⑯ of IC203 (CL200)
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	1C
Specified Value	f=18000000 ± 180Hz (NTSC) f=18000000 ± 126Hz (PAL)

Adjusting method:
1) Select page: 6, address: 00, and set data: 01.
2) Select page: F, address: 1C, change the data and set the clock frequency (f) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 6, address: 00, and set data: 00.

2. Zoom Key Center Adjustment (VC-206 board)

Set the A/D value center of the microprocessor to the center voltage of the zoom key.

If deviated, the zoom lens operates of itself ,even if the zoom key is the center position.

Subject	Not required
Measurement Point	Display data of page: 2, address: 63
Measuring Instrument	of the adjustment remote commander
Adjustment Page	D
Adjustment Address	5B
Specified Value	The same data as page: 2, address: 63. (The data should be "6D" to "93".)

Note: Perform this adjustment when the operation switch block (FK-4580) is replaced.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 63, read the data, and this data is named D_{63}. (The data of address: 63 should be "6D" to "93".)
3) Select page: D, address: 5B, set data: D_{63}.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 0, address: 01, and set data: 00.

3. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	DDS display data of LCD or TV
Measuring Instrument	monitor (Note 3)
Adjustment Page	F
Adjustment Address	1E, 1F
Specified Value	80 to 82 during IRIS OPEN (Note 1) 13 to 17 during IRIS CLOSE (Note 2)

Note 1: Select page: 6, address: 01, set data: 01, and press the PAUSE button of the adjustment remote commander.
Note 2: Select page: 6, address: 01, set data: 03, and press the PAUSE button of the adjustment remote commander.
Note 3: DDS display data of LCD or TV monitor.

CA 00 00<u>XX</u>
　　　　　└──Object data

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, set data: 02, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 00, and set data: 01.
4) Select page: 6, address: 04, and set data: 03.
5) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
6) Select page: F, address: 1F, set data: 40, and press the PAUSE button.
7) Select page: F, address: 1E, set data: 40, and press the PAUSE button.
8) Read the DDS display data (the bottom two digits of the display data at the bottom right of the LCD display or the TV monitor), and this data is named K_2.
9) Select page: F, address: 1E, set data: 30, and press the PAUSE button.
10) Read the DDS display data, and this data is named K_1.
11) Select page: 6, address: 01, set data: 01, and press the PAUSE button.
12) Read the DDS display data, and this data is named W_1.
13) Select page: F, address: 1E, set data: 40, and press the PAUSE button.
14) Read the DDS display data, and this data is named W_2.
15) Convert W_1, W_2, K_1, K_2, to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to "Hexadecimal-decimal Conversion Table". of "5-4. Service mode".)
16) Calculate X_1' using the following equations (decimal notation calculation).
$A' = W_2' + K_1' - W_1' - K_2'$ .... Equation 1
$B' = W_1' - K_1'$ .... Equation 2
$X_1' = [1728 + (48 \times A') - (16 \times B')]/A'$ .... Equation 3
17) Convert X_1' to hexadecimal notation, and obtain X_1.
(Round off to one decimal place)
18) Select page: F, address: 1E, set data: X_1, and press the PAUSE button.
19) Select page: 6, address: 01, and set data: 03, and press the PAUSE button.
20) Select page: F, address: 1F, change the data and adjust the DDS display data to "15".
21) Press the PAUSE button of the adjustment remote commander.
22) Select page: 6, address: 01, and set data: 01, and press the PAUSE button.

23) Read the DDS display data, and this data is named W_0. If W_0 lies within the "80" to "82" range, perform "Processing after completing adjustments". If it is lies outside the range, perform the following adjustments.
24) Convert W_0 to decimal notation, and obtain W_0'.
25) Calculate X_2' using the following equations (decimal notation calculation).
$C' = W_0 - B' - 23$ .... Equation 4
$X_2' = [(108 - B') \times (X_1' - 48) + (48 \times C')]/C'$ .... Equation 5
(X_1' and B' are values obtained from equations 2) and 3))
26) Convert X_2' to hexadecimal notation, and obtain X_2. (Round off to one decimal place)
27) Select page: F, address: 1E, set data: X_2, and press the PAUSE button.
28) Select page: 6, address: 01, set data: 01, and press the PAUSE button.
29) Select page: F, address: 1F, change the data and adjust the DDS display data to "81".
30) Press the PAUSE button of the adjustment remote commander.
31) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
32) Check the DDS display data lies within the "13" to "17" range.

Processing after Completing Adjustments

1) Select page: D, address: 11, and set data: 00, and press the PAUSE button.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 6, address: 01, and set data: 00, and press the PAUSE button.
4) Select page: 6, address: 04, and set data: 00.
5) Select page: 6, address: 00, and set data: 00.

4. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

4-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 230 ± 30 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	24 to 2B, 36 to 3D

Switch setting:
1) NIGHT SHOT switch ....OFF

Adjusting method:
1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Select page: 6, address: 00, and set data: 01.
3) Check that the data of page: F, address: 24 to 2B, 36 to 3D is the initial value (See table below).

Address	Data	Address	Data
24	FB	36	00
25	1D	37	00
26	87	38	46
27	2A	39	00
28	79	3A	19
29	13	3B	00
2A	00	3C	21
2B	00	3D	02

4) Select page: 6, address: 02, and check that the data is "00".
5) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 01, set data: 15, and press the PAUSE button of the adjustment remote commander.
   (The adjustment data will be automatically input to page: F, addresses: 24 to 2B, 36 to 3D.)
7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:
1) Turn OFF the main power supply (8.4V).
2) Perform "Flange Adjustment (2)".

4-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	24 to 2B, 36 to 3D

Switch setting:
1) NIGHT SHOT switch ....OFF

Adjusting method:
1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
2) Select page: 6, address: 00, and set data: 01.
3) Select page: 6, address: 02, and check that the data is "00".
4) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
5) Place a ND filter on the lens so that the optimum image is obtain.
6) Select page: 6, address: 01, set data: 29, and press the PAUSE button of the adjustment remote commander.
   (The adjustment data will be automatically input to page: F, addresses: 24 to 2B, 36 to 3D.)
7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:
1) Select page: 6, address: 00, and set data: 00.
2) Turn OFF the main power supply (8.4V).
3) Perform "Flange Back Check".

5. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance: approx. 230 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Note 1: The front panel block must be assembled.

Switch setting:
1) NIGHT SHOT switch ....OFF
2) STEADY SHOT (Menu display) ....OFF
3) DIGITAL ZOOM (Menu display) ....OFF

Checking method:
1) Place the Siemens star 2.0m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
3) Shoot the Siemens star with the zoom TELE end.
4) Turn on the auto focus.
5) Check that the lens is focused (Note 2).
6) Select page: 6, address: 21, and set data: 10.
7) Shoot the Siemens star with the zoom WIDE end.
8) Observe the TV monitor and check that the lens is focused.

Note 2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page A of the adjustment remote commander.
    1) Select page: 6, address: 04, and set data: 0F.
    2) Page A shows the state of the focus.
        A : 00 : XX
                    Odd: Focused
                    Even: Unfocused

Processing after Completing Adjustments:
1) Select page: 6, address: 04, and set data: 00.
2) Select page: 6, address: 21, and set data: 00.

6. Picture Frame Setting

Subject	Color bar chart standard picture frame (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, t=0 ± 0.1msec

Setting method:
1) Adjust the zoom and the camera direction, and set to the specified position.
2) 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".

Check on the oscilloscope

1. Horizontal period
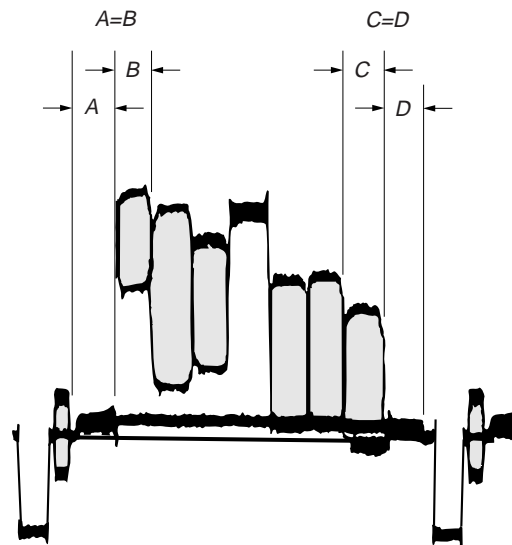
Fig. 5-1-6

2. Vertical period
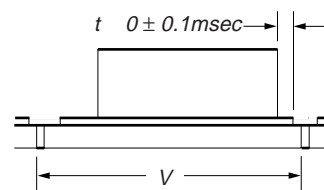
Fig. 5-1-7

Color on the TV monitor
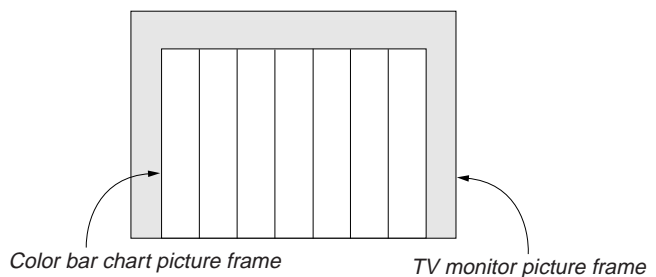
Color bar chart picture frame   TV monitor picture frame
Fig. 5-1-8

7. G-CAM flip Adjustment

Set the color reproduction conditions to optimum.

Subject	Color bar chart standard picture frame
Measurement Point	Display data of page A of the
Measuring Instrument	adjustment remote commander (Note)
Adjustment Page	F
Adjustment Address	53

Note: Displayed data of page A of the adjusting remote commander.
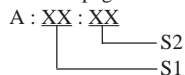
A : XX : XX
                     └──── S2
          └──────── S1

Adjusting method:
1) Select page: 6, address: 00, and set data: 01.
2) Select page: 6, address: 01, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 04, and set data: 16.
4) Select page: F, address: 53, set data: 3F, and press the PAUSE button of the adjustment remote commander.
5) Select page A of the adjustment remote commander, and compare the higher 2 digits (S1) and lower 2 digits (S2) of the 4-degits display data.
   When $S1 < S2$
        Perform steps 6) onwards.
   When $S1 \geqq S2$
   Perform steps "Processing after Completing Adjustments".
6) Select page: F, address: 53, set data: BF, and press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: 6, address: 04, and set data: 00.
2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 00, and set data: 00.

8. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	2E, 30, 44, 45
Specified Value	All color luminance points should settle within each color reproduction frame.

Switch setting:
1) NIGHT SHOT switch .... OFF

Adjusting method:
1) Select page: 6, address: 00, and set data: 01.
2) Select page: 6, address: 01, set data: 3D, and press the PAUSE button of the adjustment remote commander.
3) Select page: F, address: 16, set data: 37, and press the PAUSE button of the adjustment remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of page: F, address: 2E, 30, 44 and 45, and settle each color luminance point in each color reproduction frame.
   Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.
6) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 6, address: 00, and set data: 00.

For NTSC model

Burst position
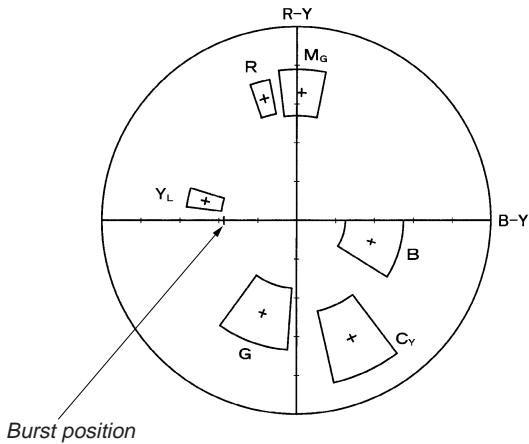
For PAL mode
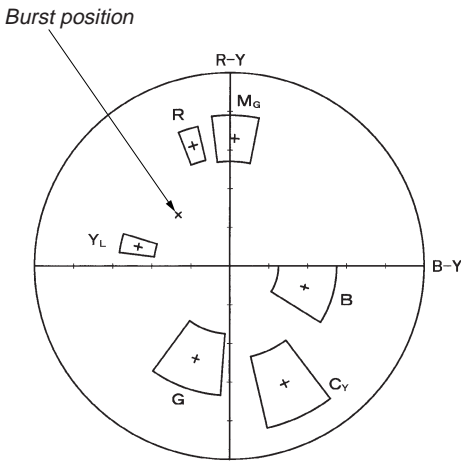
Fig. 5-1-9

9. MAX GAIN Adjustment

Setting the minimum illumination.

If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note)
Adjustment Page	F
Adjustment Address	2C
Specified Value	88 to 90 (NTSC) 88 to 90 (PAL)

Note: The right two digits of the display data at the right bottom side of the LCD and TV monitor is the object data.

CA 00 00XX
└──Object data

Switch setting:
1) STEADY SHOT (Menu display) ....OFF
2) NIGHT SHOT switch ....OFF

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 00, and set data: 01.
4) Select page: 6, address: 04, and set data: 01.
5) Select page: 6, address: 40, and set data: 02.
6) Select page: 6, address: 56, and set data: 40.
7) Select page: 6, address: 01, set data: 19 and press the PAUSE button of the adjustment remote commander.
8) Select page: F, address: 2C, change the data and adjust the DDS display data (Note) to the specified value.
9) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: D, address: 11, and set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 6, address: 00, and set data: 00.
4) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjustment remote commander.
5) Select page: 6, address: 40, and set data: 00.
6) Select page: 6, address: 56, and set data: 00.

10. Auto White Balance Standard Data Input

Subject	Clear chart (Color bar standard picture frame)
Adjustment Page	F
Adjustment Address	20 to 23, 3E, 3F

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.
Note 2: Check that the data of page: 6, address: 02 is 00. If not, turn the power of the unit OFF/ON.

Switch setting:
1) NIGHT SHOT switch ....OFF

Adjusting method:
1) Select page: 6, address: 00, and set data: 01.
2) Wait for 2 seconds.
3) Select page: 6, address: 01, and set data: 11, and press the PAUSE button of the adjustment remote commander.
4) Select page: 6, address: 01, and set data: 0D, and press the PAUSE button of the adjustment remote commander. (When the standard data is take in, the data will be automatically input to page: F, address: 20 to 23, 3E, 3F.)
5) Select page: 6, address: 02, and check that the data is "01".
6) Perform "Auto White Balance Adjustment".

Processing after Completing Adjustments:
1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 6, address: 00, and set data: 00.

11. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.

If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note 1)
Adjustment Page	F
Adjustment Address	34, 35
Specified Value	R ratio: 2B40 to 2BC0 B ratio: 5E40 to 5EC0

Note 1: Perform "Auto White Balance Standard Data Input" before this adjustment.

Note 2: The right four digits of the display data at the right bottom side of the LCD and TV monitor is the object data.

CA 00 XXXX

└── Object data

Switch setting:
1) NIGHT SHOT switch ....OFF

Adjusting method:
1) Place the C14 filter for color temperature correction on the lens.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjustment remote commander.
4) Select page: 6, address: 00, and set data: 01.
5) Select page: 6, address: 01, and set data: 3F, and press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 04, and set data: 04.
7) Select page: F, address: 34, change the data and adjust the average value of the DDS display data (Note 2) to the R ratio specified value.
8) Press the PAUSE button of the adjustment remote commander.
9) Select page: 6, address: 04, and set data: 05.
10) Select page: F, address: 35, change the data and adjust the average value of the DDS display data (Note 2) to the B ratio specified value.
11) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: D, address: 11, and set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 6, address: 00, and set data: 00.
4) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjustment remote commander.
5) Select page: 6, address: 04, and set data: 00.

12. White Balance Check

Subject	Clear chart (Color bar 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. 5-1-10. (A) to (C)

Switch setting:
1) NIGHT SHOT switch ....OFF

Checking method:
1) Check that the lens is not covered with either filter.
2) Select page: 6, address: 01, set data: 0F, and press the PAUSE button of the adjustment remote commander.
3) Check that the center of the white luminance point is within the circle shown Fig. 5-1-10 (A).
4) Select page: 6, address: 01, set data: 23, and press the PAUSE button of the adjustment remote commander.
5) Place the C14 filter on the lens.
6) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-10 (B).
7) Remove the C14 filter, and place the ND filter 1.3 (1.0 + 0.3) on the lens.
8) Check that the white luminance point stopped moving, and then remove the ND filter 1.3.
9) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-10 (C).

Processing after Completing Adjustments:
1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjustment remote commander.
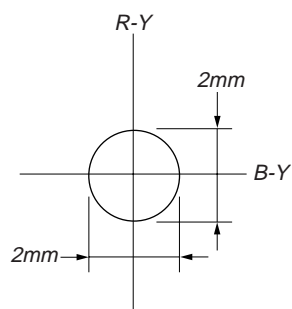
Fig. 5-1-10 (A)
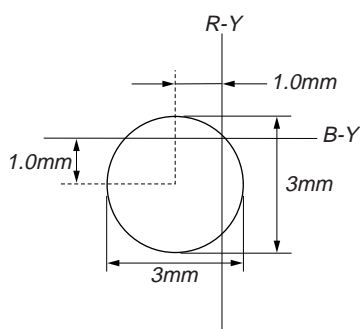
Fig. 5-1-10 (B)
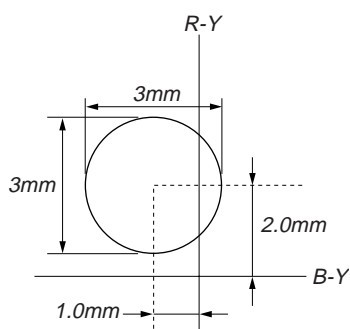
Fig. 5-1-10 (C)

13. Angular Velocity Sensor Sensitivity Adjustment

- This adjustment is performed only when replacing the angular velocity sensor.
  Although this adjustment need not be performed when the circuit is damaged, etc., check the operations.
- Note down the sensitivity displayed on the angular velocity sensor of the repair parts. At this time, note down also to which board it was attached to.
  Be sure to check because if attached incorrectly, the screen will vibrate up and down or left and right during hand-shake correction operations.

Precautions on the Parts Replacement

There are two types of repair parts.
Type A   ENC03JA or ENC03GA
Type B   ENC03JB or ENC03GB
Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, re-adjust according to the adjusting method after replacement.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Adjustment Page	F
Adjustment Address	41, 42

Note: The sensor sensitivity of SE451 and SE452 of the CD-185 board is written only on the repair parts.

Adjusting method:

1) Select page: 6, address: 00, and set data: 01.
2) Read the sensor sensitivity written on SE451 of the CD-185 board, and take this as S_{451}.
3) Read the sensor sensitivity written on SE452 of the CD-185 board, and take this as S_{452}.
4) Calculate D_{43}' and D_{44}' using the following equation (decimal calculation).
   NTSC model: $D_{41}' = 85/S_{452}$
                            $D_{42}' = 90/S_{451}$
   PAL model: $D_{41}' = 118/S_{452}$
                            $D_{42}' = 106/S_{451}$
5) Convert D_{41}' and D_{42}' into hexadecimal digits, to obtain D_{41} and D_{42}. (Round off decimal points)
6) Select page: F, address: 41, set data: D_{41}, and press the PAUSE button of the adjustment remote commander.
7) Select page: F, address: 42, set data: D_{42}, and press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:

1) Select page: 6, address: 00, and set data: 00.
2) Check that the steady shot operations have been performed normally.

1-4. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the VF BRIGHT (Menu display) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN9903 of the VC-206 board. Connect the Measuring Instruments via the CPC-8 jig (J- 6082-388-A).

The following table shows the Pin No. and signal name of CN9903.

Pin No.	Signal Name	Pin No.	Signal Name
1	TCK	2	TMS
3	TDI	4	GND
5	AFC ERR	6	JSWP
7	IR FSC	8	RF MONITOR
9	VCC2	10	AGC IN
11	VCC1	12	EQ IN
13	LOCK	14	EVF BL 4.75V
15	ENV OUT	16	EVF 4.75V (–)
17	TDO8	18	VCO
19	DEC B-Y	20	EVF VG

CN9903 (CPC)

LI-64 board
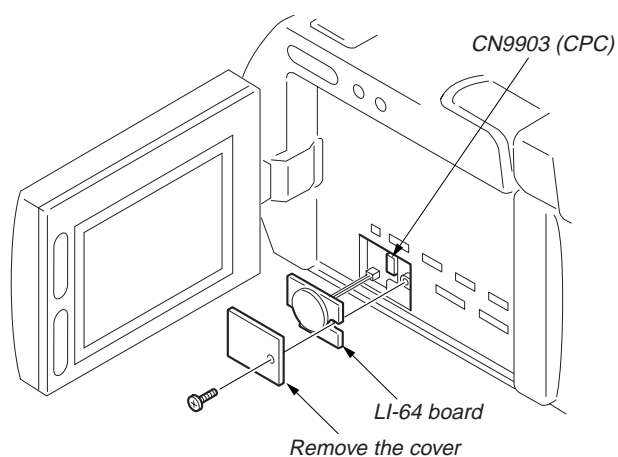
Remove the cover

Note 1: Don't disconnect the connector. If disconnect, data such as, time, user-set menus will be lost.

Note 2: When removing cable from the LI-64 board, remove the connector of the LI-64 board's side.

Fig. 5-1-11

1. EVF Initial Data Input

Mode	VTR stop
Signal	No signal
Adjustment Page	D
Adjustment Address	70 to 7B, 7E, 7F, 87 to 8F, 99

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, and input the data in the following table.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
3) Select page: 0, address: 01, and set data: 00.

Address	Data		Remark
	NTSC	PAL	
70	5E	5E	Fixed value
71	80	80	White balance adjustment
72	80	80	White balance adjustment
73	77	77	Contrast adjustment
74	40	40	Fixed value
75	5E	5E	Fixed value
76	90	90	VCO adjustment
77	B0	B0	Backlight consumption current adjustment
78	70	70	Fixed value
79	EA	EA	Fixed value
7A	82	82	Bright adjustment
7B	9F	9F	Fixed value
7E	A7	A7	Fixed value
7F	A0	A0	Fixed value
87	85	E5	Fixed value
88	38	38	Fixed value
89	00	00	Fixed value
8A	20	20	Fixed value
8B	20	20	Fixed value
8C	00	00	Fixed value
8D	00	00	Fixed value
8E	12	12	Fixed value
8F	40	40	Fixed value
99	31	31	Fixed value

2. VCO Adjustment (VF-121 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑱ of CN9903 (VCO) on VC-206 board
Measuring Instrument	Oscilloscope (DC range)
Adjustment Page	D
Adjustment Address	76
Specified Value	A = 1.80 ± 0.05Vdc

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Check the GND level of the oscilloscope.
3) Select page: D, address: 76, change the data and set the VCO output voltage (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 0, address: 01, and set data: 00.
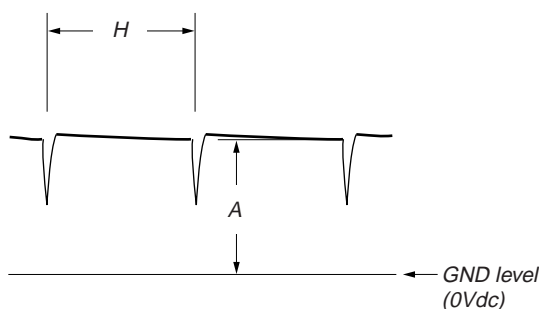
Fig. 5-1-12

3. Bright Adjustment (VF-121 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑳ of CN9903 (EVF VG) on VC-206 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7A
Specified Value	A = 7.1 ± 0.1V (NTSC) A = 7.1 ± 0.1V (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 11, set data: 04, and press the PAUSE button of the adjustment remote commander.
3) Input the following data to page: D, address: 88 to 8D.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	88	89	8A	8B	8C	8D
Data	00	00	00	00	00	00

4) Select page: D, address: 7A, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Input the following data to page: D, address: 88 to 8D.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	88	89	8A	8B	8C	8D
Data	38	00	20	20	00	00

7) Select page: 2, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.
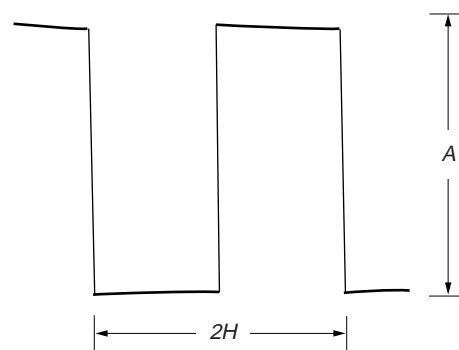
Fig. 5-1-13

4. Contrast Adjustment (VF-121 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑳ of CN9903 (EVF VG) on VC-206 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	73
Specified Value	A = 1.45 ± 0.1V (NTSC) A = 1.35 ± 0.1V (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 11, set data: 04, and press the PAUSE button of the adjustment remote commander.
3) Input the following data to page: D, address: 88 to 8D.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	88	89	8A	8B	8C	8D
Data	00	27	00	00	00	00

4) Select page: D, address: 73, change the data and set the voltage (A) between the white (30%) and pedestal to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Input the following data to page: D, address: 88 to 8D.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	88	89	8A	8B	8C	8D
Data	38	00	20	20	00	00

7) Select page: 2, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.

White (30%)　Pedestal
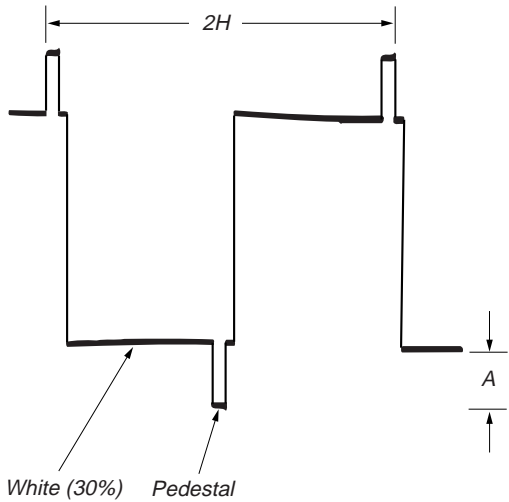
Fig. 5-1-14

5. Backlight Consumption Current Adjustment (VF-121 board)

Set the backlight luminance and color temperature. If deviated, the image may become dark or bright.

Mode	VTR stop
Signal	No signal
Measurement Point	+ Probe: Pin ⑭ of CN9903 (EVF BL 4.75V) on VC-206 board – Probe: Pin ⑯ of CN9903 (EVF BL 4.75V(–)) on VC-206 board
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	77
Specified Value	A = 21.0 ± 1.0mVdc

Note: Adjust 30 seconds after running on the power supply. Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 77, change the data and set the voltage difference (A) between Pin ⑭ of CN9903 (EVF BL 4.75V) and Pin ⑯ of CN9903 (EVF BL 4.75V(–)) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

6. White Balance Adjustment (VF-121 board)

Correct the white balance.

If deviated, the reproduction of the EVF screen may degenerate.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	D
Adjustment Address	71, 72
Specified Value	The EVF screen should not be colored

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.

2) Input the following data to page: D, address: 88 to 8D.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	88	89	8A	8B	8C	8D
Data	00	27	00	00	00	00

3) Select page: D, address: 71 and 72, set the data to the initial value.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	71	72
Data	80	80

4) Check that the LCD screen is not colored. If colored, change the data of page: D, address: 71 and 72 so that the EVF screen is not colored.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

5) Input the following data to page: D, address: 88 to 8D.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	88	89	8A	8B	8C	8D
Data	38	00	20	20	00	00

6) Select page: 0, address: 01, and set data: 00.

1-5. LCD SYSTEM ADJUSTMENT

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the LCD BRIGHT to the center. Set the LCD COLOR (Menu display) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD display are concentrated in the following connector. CN5501 of the PD-98 board Connect the Measuring Instruments via the multi CPC jig (J-6082-311-A).

The following table shows the Pin No. and signal name of the connector.

Pin No.	Signal Name	Pin No.	Signal Name
1	VR	6	PANEL XHD
2	VG	7	HSY
3	VB	8	SYF
4	PANEL COM	9	X TEST
5	GND		

CN5501 (CPC)
9 pin
1 pin
PD-98 board

Remove the cover.
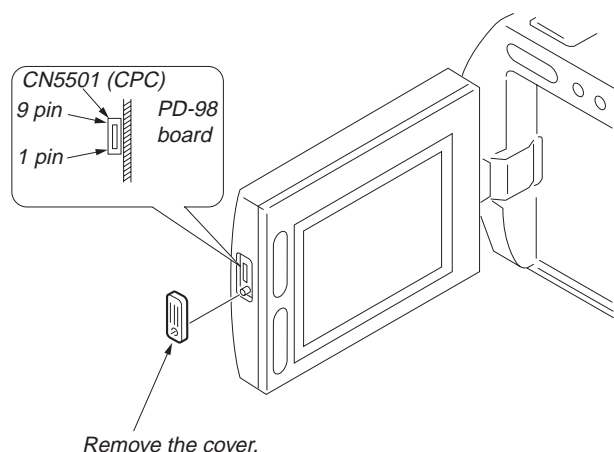
Fig. 5-1-15

1. LCD Initial Data Input

Mode	VTR stop
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	60 to 67, 6A to 6F, 80 to 86, 8E, 8F, 99

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, and input the data in the following table.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
3) Select page: 0, address: 01, and set data: 00.

Address	Data NTSC	Data PAL	Remark
60	A0	A0	White balance adjustment
61	73	73	White balance adjustment
62	C7	C7	Contrast adjustment
63	70	70	D range adjustment
64	59	59	V-COM level adjustment
65	B0	A0	VCO adjustment
66	96	96	V-COM adjustment
67	00	FF	Fixed value
6A	94	94	Fixed value
6B	E6	E6	Fixed value
6C	7A	7A	Bright adjustment
6D	6C	6C	Color adjustment
6E	24	24	Fixed value
6F	44	44	Fixed value
80	38	38	Fixed value
81	00	00	Fixed value
82	20	20	Fixed value
83	20	20	Fixed value
84	00	00	Fixed value
85	00	00	Fixed value
86	85	E5	Fixed value
8E	12	12	Fixed value
8F	40	40	Fixed value
99	31	31	Fixed value

2. VCO Adjustment (PD-98 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑦ of CN5501 (HSY)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	65
Specified Value	f = 15734 ± 30Hz (NTSC) f = 15625 ± 30Hz (PAL)

Note: Press the DISPLAY button (KY-39 board S7831) and erase the screen indictors on the LCD screen.

Connections:
Connect Pin ⑧ (SFY) and Pin ⑤ (GND) of CN5501 with a jumper wire.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Adjust the power supply voltage so that the DC voltage of the battery terminal becomes 7.2 ± 0.1Vdc.
3) Select page: D, address: 65, change the data and set the HSY frequency (f) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Adjust the power supply voltage so that the DC voltage of the battery terminal becomes 8.4Vdc.
6) Select page: 0, address: 01, and set data: 00.

3. Horizontal Position check (PD-98 board)

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	CH1: Pin ⑥ of CN5501 (PANEL XHD) CH2: Pin ⑦ of CN5501 (HSY)
Measuring Instrument	Oscilloscope
Specified Value	T = 1.5 ± 0.3μsec (NTSC) T = 3.1 ± 0.3μsec (PAL)

Checking method:
1) Check that the delay time (T) satisfies the specified value.
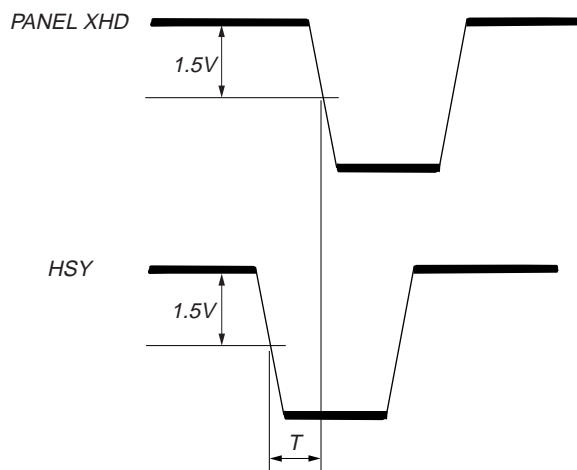
Fig. 5-1-16

4. D range Adjustment (PD-98 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	Pin ② of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	63
Specified Value	A = 3.00 ± 0.05V (NTSC) A = 3.00 ± 0.05V (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: D, address: 82 and 83
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	82	83
Data	00	00

3) Select page: D, address: 63, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Input the following data to page: D, address: 82 and 83.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	82	83
Data	20	20

6) Select page: 0, address: 01, and set data: 00.

For NTSC model
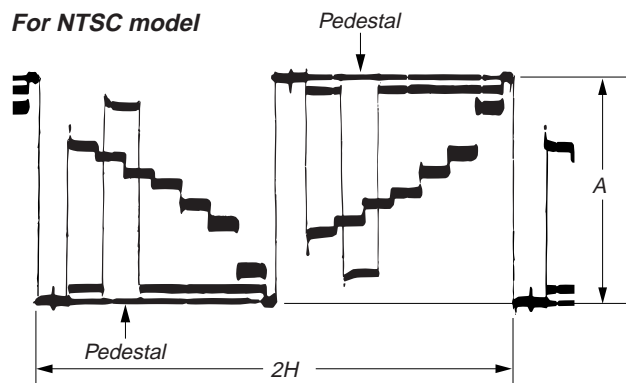
For PAL model
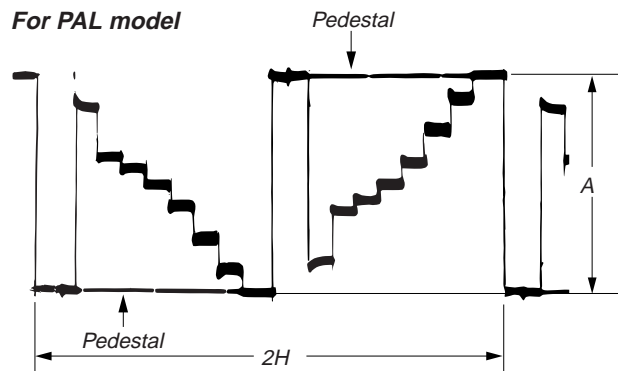
Fig. 5-1-17

5. Bright Adjustment (PD-98 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR playback

Signal	Alignment tape:
	    For audio operation check
	    (XH5-3 (NTSC))
	    (XH5-3P (PAL))

Measurement Point	Pin ② of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	6C
Specified Value	A = 1.40 ± 0.05V (NTSC) A = 1.40 ± 0.05V (PAL)

Connections:
Connect Pin ⑨ (X-TEST) and Pin ⑤ (GND) of CN5501 with a jumper wire.

Adjusting method:
1)   Select page: 0, address: 01, and set data: 01.
2)   Input the following data to page: D, address: 82 and 83.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	82	83
Data	00	00

3)   Select page: D, address: 6C, change the data and set the voltage (A) between the pedestal and white to the specified value. (The data of address: 6C should be "41" to "BF".)
4)   Press the PAUSE button of the adjusting remote commander.
5)   Input the following data to page: D, address: 82 and 83.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	82	83
Data	20	20

6)   Select page: 0, address: 01, and set data: 00. 7) Perform "Contrast Adjustment".
7)   Perform "Contrast Adjustment".

For NTSC model
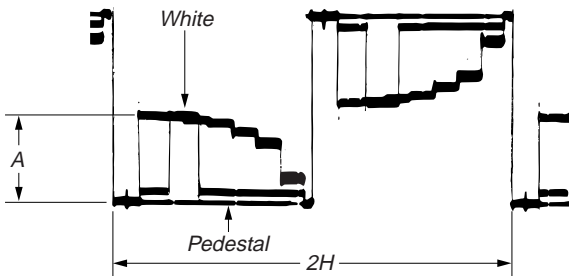
For PAL model
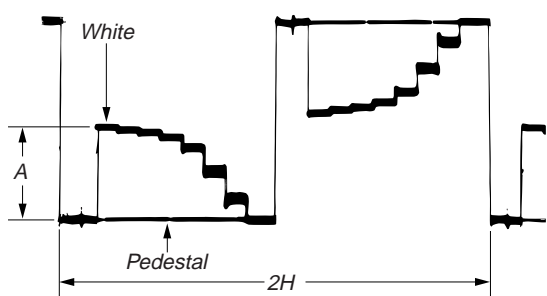
Fig. 5-1-18

6. Contrast Adjustment (PD-98 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR playback

Signal	Alignment tape:
	    For audio operation check
	    (XH5-3 (NTSC))
	    (XH5-3P (PAL))

Measurement Point	Pin ② of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	62
Specified Value	A = 2.54 ± 0.07V (NTSC) A = 2.54 ± 0.07V (PAL)

Adjusting method:
1)   Select page: 0, address: 01, and set data: 01.
2)   Input the following data to page: D, address: 82 and 83.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	82	83
Data	00	00

3)   Select page: D, address: 62, change the data and set the voltage (A) between the 0 IRE (pedestal) and 100 IRE to the specified value.
4)   Press the PAUSE button of the adjusting remote commander.
5)   Input the following data to page: D, address: 82 and 83.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	82	83
Data	20	20

6)   Select page: 0, address: 01, and set data: 00.
7)   Check that the specified value of "Bright Adjustment" is satisfied, if not perform "Bright Adjustment".

For NTSC model
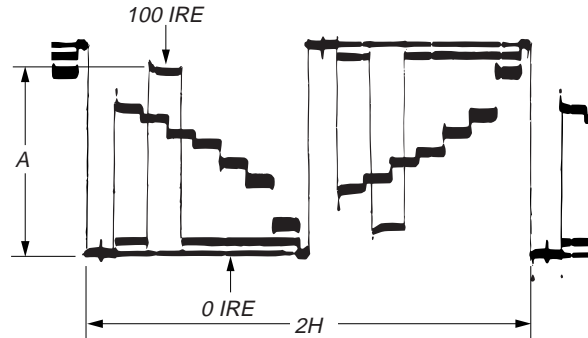
For PAL model
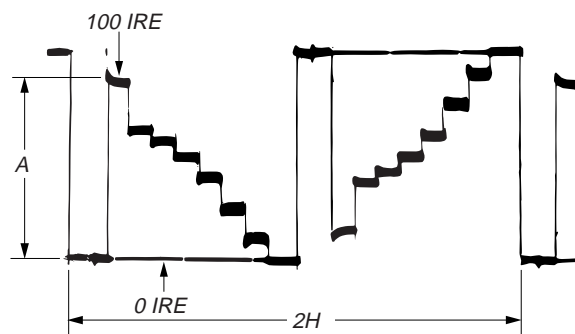
Fig. 5-1-19

7. V-COM Level Adjustment (PD-98 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	64
Specified Value	A = 4.95 ± 0.05V (NTSC) A = 4.95 ± 0.05V (PAL)

Note: Perform "Bright Adjustment" and "Contrast Adjustment" before this adjustment.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 64, change the data and set the PANEL COM signal level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.
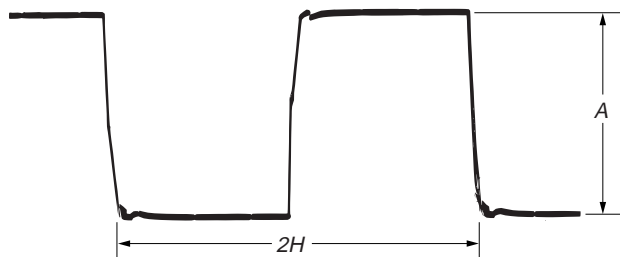
Fig. 5-1-20

8. Color Adjustment (PD-98 board)

Set the color saturation to the standard value. If deviated, the color will be to dark or light.

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	Pin ② of CN5501 (VG) External trigger : Pin ④ of CN5501 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	6D
Specified Value	A = 0.15 ± 0.05V (NTSC) A = 0.99 ± 0.05V (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 1F, set data: 02.
3) Select page: D, address: 6D, change the data and set the voltage (A) between the white and green to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 1F, set data: 00.
6) Select page: 0, address: 01, and set data: 00.

For NTSC model
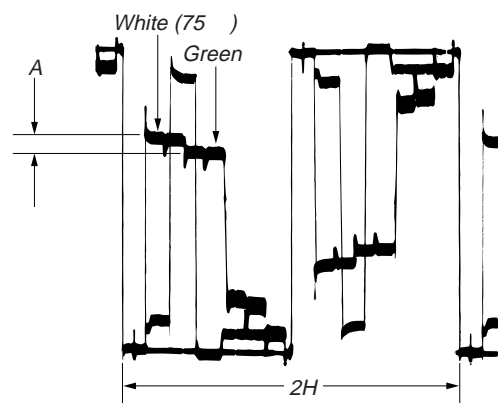
For PAL model
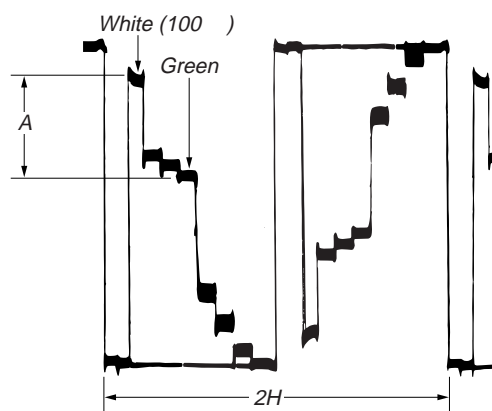
Fig. 5-1-21

9. V-COM Adjustment (PD-98 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	66
Specified Value	The brightness difference between the section A and section B is minimum.

Note: Perform "Bright Adjustment" and "Contrast Adjustment" before this adjustment.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 10, set data: 01, and press the PAUSE button of the adjusting remote commander.
3) Select page: 2, address: 1F, and set data: 01.
4) Select page: D, address: 66, change the data so that the brightness of the section A and that of the section B is equal.
5) Press the PAUSE button of the adjusting remote commander.
6) Select page: 2, address: 10, set data: 00, and press the PAUSE button of the adjusting remote commander.
7) Select page: 2, address: 1F, and set data: 00.
8) Select page: 0, address: 01, and set data: 00.
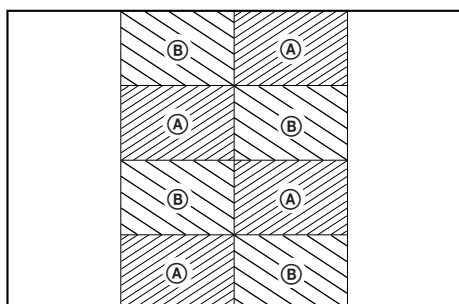
Fig. 5-1-22

10. White Balance Adjustment (PD-98 board)

Correct the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	60, 61
Specified Value	The LCD screen should not be colored.

Note: Check the white balance only when replacing the following parts. If necessary, adjust them.
    1. LCD panel
    2. Light induction plate
    3. IC5502

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: D, address: 80 to 83.
    Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	80	81	82	83
Data	00	27	00	00

3) Select page: D, address: 60 and 61, and set the data to the initial value.
    Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	60	61
Data	A0 (NTSC), A0 (PAL)	73 (NTSC), 73 (PAL)

4) Check that the LCD screen is not colored. If colored, change the data of page: D, address: 60 and 61 so that the LCD screen is not colored.
    Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
5) Input the following data to page: D, address: 82 and 83. Note: Press the PAUSE button of the adjusting remote commander each time to set the data.

Address	80	81	82	83
Data	38	00	20	20

6) Select page: 0, address: 01, and set data: 00.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-206 board (SIDE A)

PD-98 board (SIDE A)

IC202
CL200
R1901
CN5601
(CPC)

VC-206 board (SIDE B)

IC203
CL9912
(CPC)
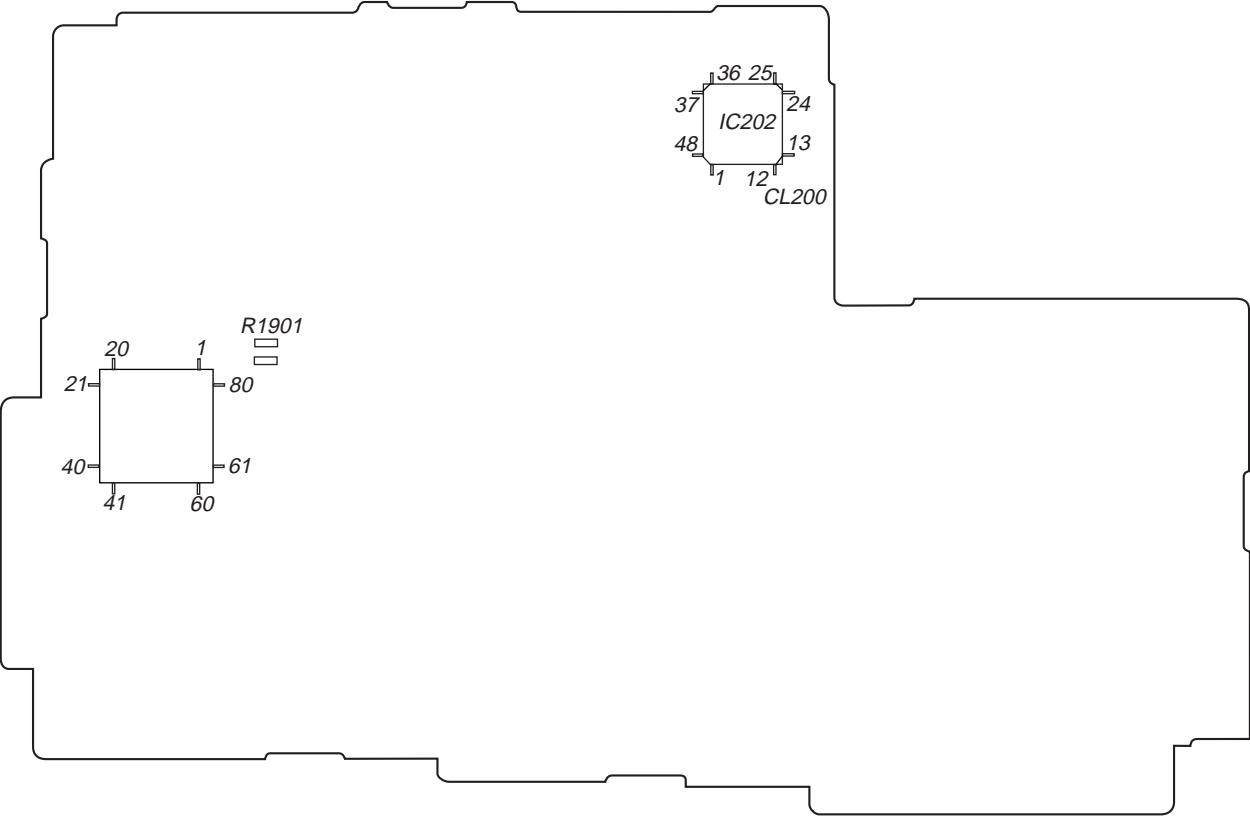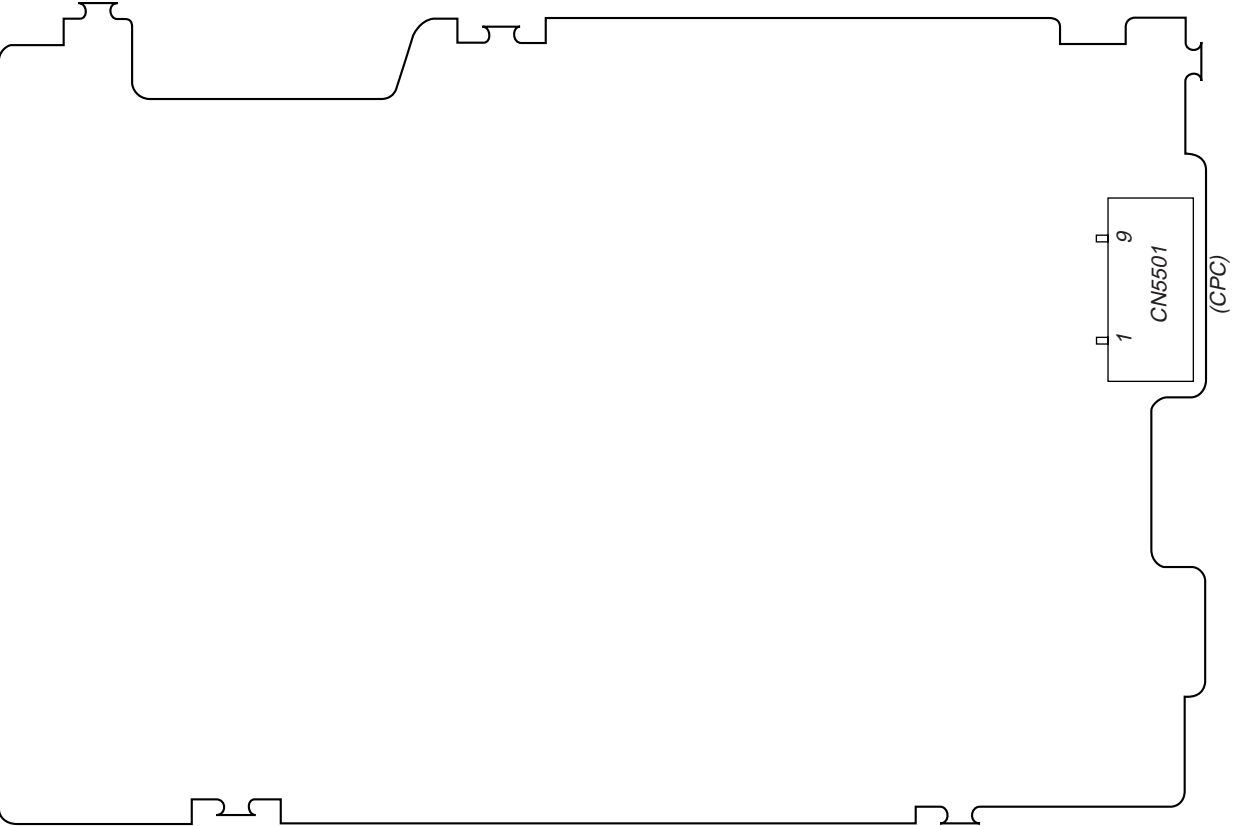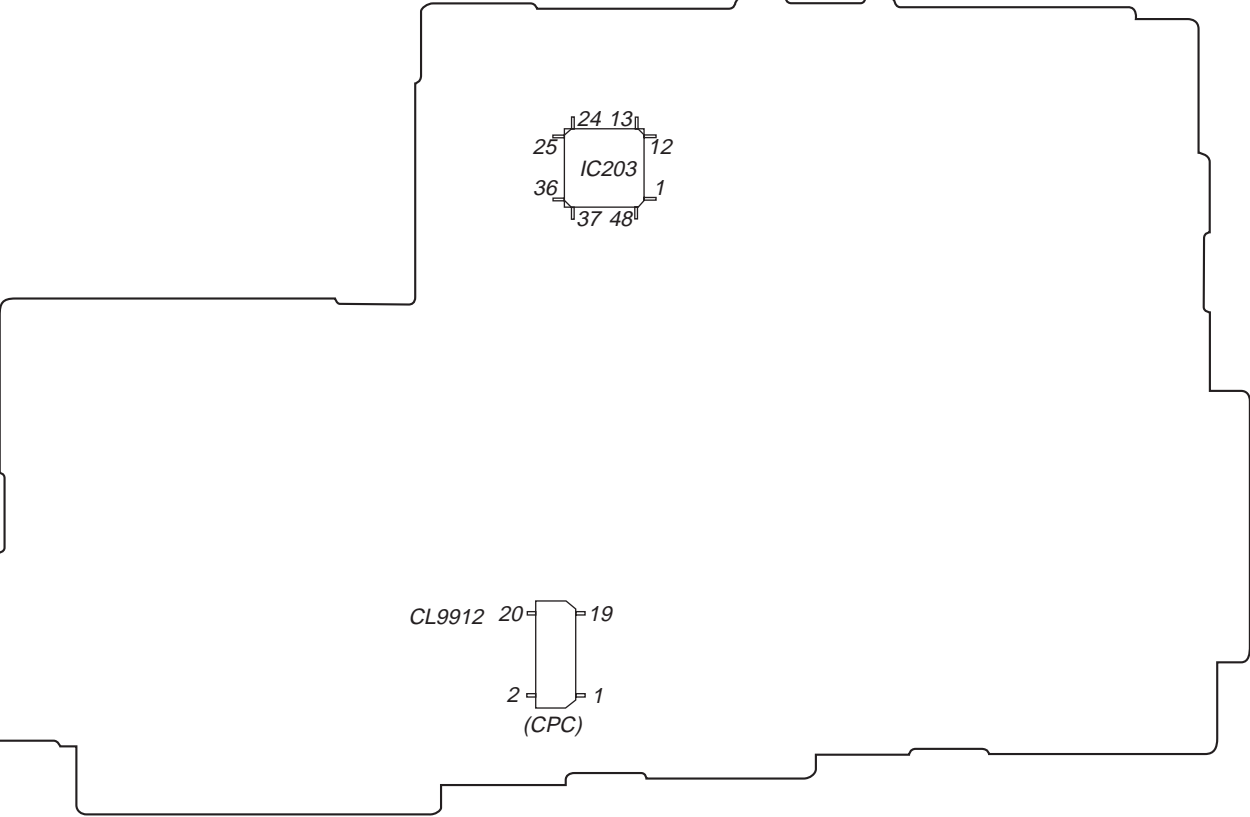
5-2. MECHANISM SECTION ADJUSTMENT

For details of mechanism section adjustments, checks, and replacement of mechanism parts, refer to the separate volume "DV MECHANICAL ADJUSTMENT MANUAL Ⅳ C Mechanism ".

2-1. OPERATING WITHOUT CASSETTE
1) Refer to "2. Removal" and supply the power with the cabinet assembly removed.
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Close the cassette compartment without the cassette.
5) Select page: 0, address: 01, and set data: 01.
6) Select page: C, address: 52, and set data: FD, and press the PAUSE button of the adjustment remote commander.
7) Select page: D, address: 10, and set data: 10, and press the PAUSE button of the adjustment remote commander.
8) Turn off the HOLD switch of the adjustment remote commander.
9) Turn the power off and then on.

The above procedure enables the mechanism to operate without the cassette. After checking operations be sure to perform "Procedure After Checking Operations". To use the "No-Cassette Operation Mode" and "Forced Power ON Mode" together, set the following data to page: D, address: 10.

Forced VTR power ON mode 12
Forced Camera power ON mode 11

[Procedure after checking operations]
1) Select page: 0, address: 01, and set data: 01.
2) Select page: C, address: 52, and set data: FF, and press the PAUSE button of the adjustment remote commander.
3) Select page: D, address: 10, and set data: 00, and press the PAUSE button.
4) Select page: 0, address: 01, and set data: 00.
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for Adjustment
1) Clean the tape running side (tape guide, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Select page: 3, address: 3C, and set data: 07.
5) Connect the oscilloscope.
   Channel 1: VC-206 board, CN9903 Pin ⑧ (Note)
   External trigger: VC-206 board, CN9903 Pin ⑥
   (Connect the oscilloscope via CPC-8 jig (J-6082- 388-A)
6) Playback an alignment tape (XH2-1) for tracking.
7) Check that the oscilloscope RF waveform is flat at the entrance and exit.
   If not flat, adjust according to the separate volume "DV MECHANICAL ADJUSTMENT MANUALⅣ C Mechanism ".
8) After completing the adjustment, perform "2. Procedure after checking operations".

Note: Connect Pins ⑧ and ④ (GND) of CN9903 with a 75Ω resistor.

CN9903 of VC-206 board

Pin No.	Signal Name	Pin No.	Signal Name
1	TCK	2	TMS
3	TDI	4	GND
5	AFC ERR	6	JSWP
7	IR FSC	8	RF MONITOR
9	VCC2	10	AGC IN
11	VCC1	12	EQ IN
13	LOCK	14	EVF BL 4.75V
15	ENV OUT	16	EVF 4.75V (–)
17	TDO8	18	VCO
19	DEC B-Y	20	EVF VG

[Procedure after operations]
1) Connect the adjustment remote commander, and turn on the HOLD switch.
2) Select page: 3, address: 3C, and set data: 00.
3) Disconnect the power supply of the unit.
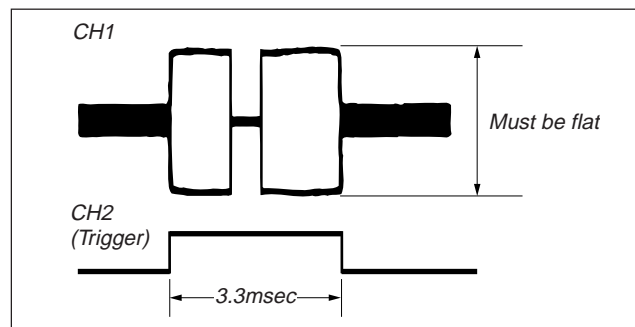
Fig. 5-2-1.

5-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams
for adjustment related parts beginning from page 5-62.

NTSC model : DCR-TRV9
PAL model :   DCR-TRV9E

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section
adjustments.

3-1-1. Equipment Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band above 30 MHz with
    delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
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 tapes
    • Tracking standard (XH2-1)
      Parts code: 8-967-997-01
    • SW/OL standard (XH2-3)
      Parts code: 8-967-997-11
    • Audio operation check for NTSC (XH5-3)
      Parts code: 8-967-997-51
    • System operation check for NTSC (XH5-5)
      Parts code: 8-967-997-61
    • BIST check for NTSC (XH5-6)
      Parts code: 8-967-997-71
    • Audio operation check for PAL (XH5-3P)
      Parts code: 8-967-997-55
    • System operation check for PAL (XH5-5P)
      Parts code: 8-967-997-66
    • BIST check for PAL (XH5-6P)
      Parts code: 8-967-997-76
12) Adjustment remote commander (J-6082-053-B)
13) CPC-8 jig (J-6082-388-A)
14) IR receiver jig (J-6082-383-A)
15) Extension cable (100P, 0.4 mm)
    For extension between the AU-202 board (CN7501) and the
    VC-206 board (CN9902) (J-6082-413-A)
16) Extension cable (70P, 0.5 mm)
    For extension between the DD-106 board (CN3902) and the
    VC-206 board (CN9911) (J-6082-414-A)

3-1-2. Precautions on Adjusting

1) The adjustments of this unit are performed in the VTR mode or camera mode.

   To set to the VTR mode, set the power switch to "VTR" (or "PLAYER") or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note 1). To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note 2). After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note 3)

2) The front panel block (MA-322 board, microphone unit, focus ring) need not be connected except during "Battery End Adjustment", "IR Transmitter Adjustments" and "Audio adjustments". To remove, disconnect the following connectors.

   VC-206 board CN9905 (27P, 0.3mm)

3) The lens block (CD-185 board) need not be connected except during "Battery End Adjustment". To remove, disconnect the following connectors.

   VC-206 board CN201 (50P, 0.5mm)

4) The intelligent accessory shoe need not be assembled. If removing it. Disconnect the following connector.

   VC-206 board CN9908 (9P, 0.5mm)

5) Cabinet (R) (Camera function switch (KY-39 board, CF-4580 block), LCD block, viewfinder) need not be connected. But removing the cabinet (R) (removing the VC-206 board CN9912) means removing the lithium 3V power supply (LI-64 board) , data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and the data on the history use (data of page: 2, address: 35 to 3D). (Refer to the "Service Mode" for the data on the history use.) To remove the cabinet (R), disconnect the following connectors.

   1. VC-206 board CN9909 (50P, 0.5mm)
   2. VC-206 board CN9912 (2P, 1.5mm)

Note 1: Setting the "Forced VTR Power ON" mode (VTR mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the VTR power to be turned on with the power switch block (PS-4580) removed.
   After completing adjustments, be sure to exit the "Forced VTR Power ON mode".

Note 2: Setting the "Forced Camera Power ON" mode (Camera mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the camera power to be turned on with the power switch block (PS-4580) removed.
   After completing adjustments, be sure to exit the "Forced Camera Power ON mode".

Note 3: Exiting the "Forced Power ON" mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-206 board CN9903. Connect the measuring instruments via the CPC-8 jig (J-6082-388-A). The following table lists the pin numbers and signal names of CN9903.

Pin No.	Signal Name	Pin No.	Signal Name
1	TCK	2	TMS
3	TDI	4	GND
5	AFC ERR	6	JSWP
7	IR FSC	8	RF MONITOR
9	VCC2	10	AGC IN
11	VCC1	12	EQ IN
13	LOCK	14	EVF BL 4.75V
15	ENV OUT	16	EVF 4.75V (–)
17	TDO8	18	VCO
19	DEC B-Y	20	EVF VG

CN9903 (CPC)

LI-64 board
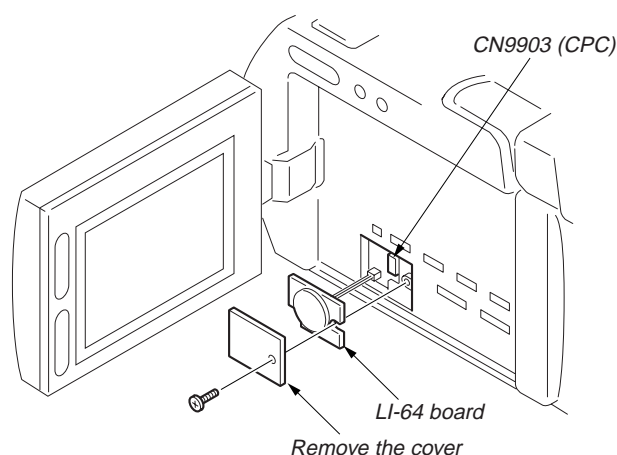
Remove the cover

Note 1: Don't disconnect the connector. If disconnect, data such as, time, user-set menus will be lost.
Note 2: When removing cable from the LI-64 board, remove the connector of the LI-64 board's side.

Fig. 5-3-1

3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 5-3-2, and perform the adjustments.
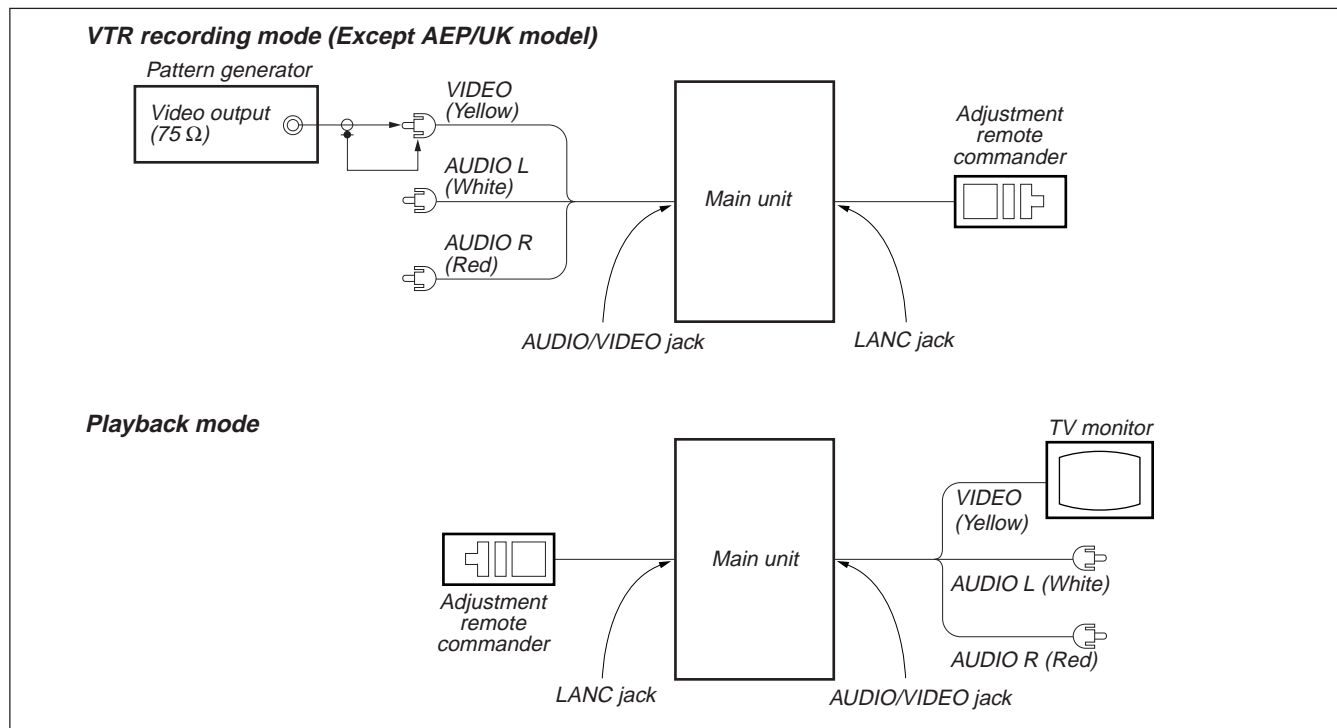
Fig. 5-3-2

3-1-5. Checking the Input Signals
(Except AEP/UK model)

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications. Connect the oscilloscope to the video terminal of the AUDIO/VIDEO jack, and check that the sync signal amplitude of the video signal is approximately <0.286V> [0.30V], the amplitude of the video section is approximately <0.714> [0.70V], the amplitude of the burst signal is approximately <0.286> [0.30V] and flat, and that the level ratio of the burst signal to the "red" signal is 0.30 : 0.60. The video signal used for adjusting the video section is shown in Fig. 5-3-3.

      < > : NTSC model
      [   ] : PAL model

3-1-6. Alignment Tapes

Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
Tracking standard (XH2-1)	Tape path adjustment
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check
BIST check (XH5-6 (NTSC), XH5-6P (PAL))	BIST check

Fig. 5-3-3 shows the 75% color bar signals recorded on the alignment
tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75 Ω)
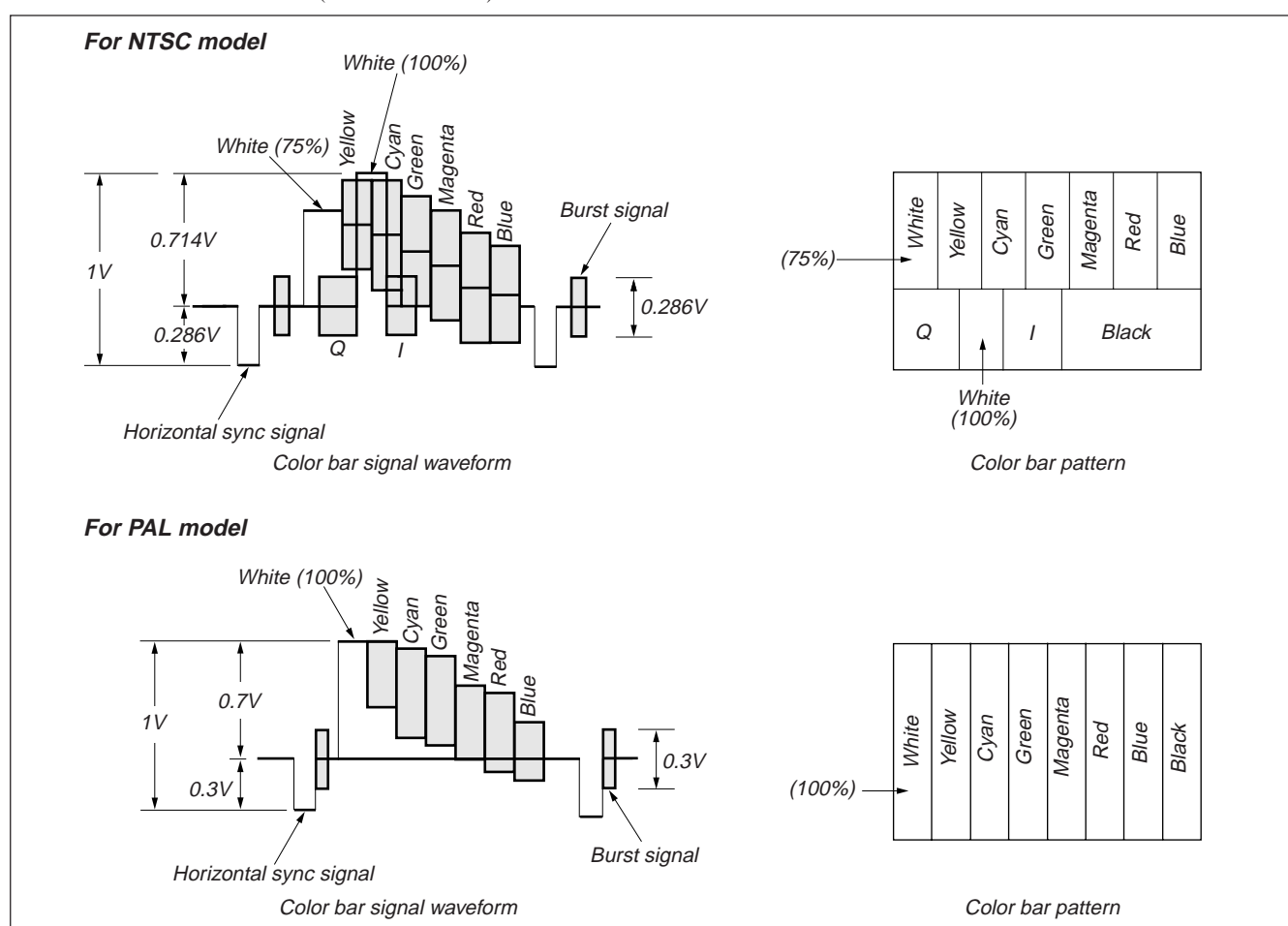
Fig. 5-3-3 Color bar signal of alignment tapes

3-1-7. Input/Output Level and Impedance

Video input/output
    Special stereo mini jack
    Video signal: 1 Vp-p, 75 Ω unbalanced,
                        sync negative

S video input/output
    4-pin mini DIN
    Luminance signal: 1 Vp-p, 75 Ω unbalanced,
                        sync negative
    Chrominance signal: 0.286 Vp-p, 75 Ω unbalanced (NTSC)
                    : 0.300 Vp-p, 75 Ω unbalanced (PAL)

Audio input/output
    Special stereo mini jack
    Input level: 327mV
    Input impedance: More than 47kΩ
    Output level: 327 mV (at load impedance 47 kΩ)
    Output impedance: Below 2.2 kΩ

3-2. INITIALIZATION OF D, C PAGE DATA

1. Initializing the D Page Data

Note: If the page D data is initialized, the following adjustments must be performed again.
1) Modification of D page data
2) Clock adjustments of the video system adjustments
3) Base band block adjustments of the video system adjustments
4) Zoom Key Center Adjustment of the camera system adjustments
5) Color electronic viewfinder system adjustments
6) LCD system adjustments
7) IR transmitter adjustments
8) Battery end adjustment

Adjusting page	D
Adjusting Address	00 to FF

Initializing Method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 00, and set data: 2D, and press the PAUSE button of the adjusting remote commander.
3) Select page: 2, address: 01, set data: 2D, and press the PAUSE button.
4) Select page: 2, address: 02, and check that the data is "01".
5) Select page: 0, address: 01, and set data: 00.
6) Perform "Modification of D Page Data".

2. Modification of D Page Data

If the D Page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:
1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
5) After changing the data, select page: 0, address: 01, and set data: 00.

3. D Page Table

Note: Fixed data-1 : Initialized data. (Refer to "1. Initializing the D Page Data".)
Fixed data-2 : Modified data. (Refer to "2. Modification of D Page Data").

Address	Initial value NTSC	Initial value PAL	Remark
00 to 0F			
10	00	00	Test mode
11	00	00	Test mode
12			Fixed data-1
13			Fixed data-2
14			(Modified data, copy the data built in
15			the same model.)
16			Fixed data-1
17			Fixed data-2
18			Fixed data-1
19			
1A			Fixed data-2
1B			Fixed data-1
1C			
1D			Fixed data-2
1E			
1F			Fixed data-1
20			
21			Fixed data-2
22			Fixed data-1
23			Fixed data-2
24			(Modified data, copy the data built in
25			the same model.)
26			
27			
28	70	70	Battery end adj.
29	77	77	
2A	A0	A0	
2B	AD	AD	
2C	C0	C0	
2D			Fixed data-1
2E			
2F			Fixed data-2
30			
31			Fixed data-1
32			(Initialized data)
33			
34			
35			
36			
37	70	70	Battery end adj.
38			Fixed data-2
39			Fixed data-1
3A			(Initialized data)
3B			
3C			
3D			
3E			Fixed data-2
3F			Fixed data-1 (Initialized data)

Address	Initial value		Remark
	NTSC	PAL	
40			Fixed data-1
41			(Initialized data)
42			
43			
44			
45			
46			
47			
48			
49			Fixed data-2
4A			
4B			
4C			Fixed data-1
4D			
4E			
4F			
50			Fixed data-2
51			(Modified data, copy the data built in
52			the same model.)
53			
54			
55			
56			
57			
58			
59			
5A			Fixed data-1
5B	7D	7D	Zoom key center adj.
5C			Fixed data-2
5D			Fixed data-1
5E			
5F			
60	A0	A0	White balance adj. (LCD)
61	73	73	
62	C7	C7	Contrast adj. (LCD)
63	70	70	D range adj. (LCD)
64	59	59	V-COM level adj. (LCD)
65	B0	A0	VCO adj. (LCD)
66	96	96	V-COM adj. (LCD)
67			Fixed data-2
68			Fixed data-1
69			(Initialized data)
6A			
6B			
6C	7A	7A	Bright adj. (LCD)
6D	6C	6C	Color adj. (LCD)
6E			Fixed data-1
6F			
70			Fixed data-2
71	80	80	White balance adj. (EVF)
72	80	80	
73	77	77	Contrast adj. (EVF)
74			Fixed data-2
75			
76	90	90	VCO adj. (EVF)
77	B0	B0	Inverter current adj. (EVF)

Address	Initial value		Remark
	NTSC	PAL	
78			Fixed data-1
79			Fixed data-2
7A	82	82	Bright adj. (EVF)
7B			Fixed data-2
7C			Fixed data-1
7D			(Initialized data)
7E			
7F			
80			
81			
82			
83			
84			Fixed data-2
85			
86			
87			
88			Fixed data-1
89			(Initialized data)
8A			
8B			
8C			Fixed data-2
8D			Fixed data-1
8E			
8F			
90	40	40	IR video carrier adj.
91	20	20	IR video deviation adj.
92	20	20	IR audio deviation adj.
93			Fixed data-1
94	40	40	S-C output level adj.
95	40	40	S-Y output level adj.
96	40	40	Composite Y level adj.
97	40	40	Composite chroma level adj.
98	4C	4C	27MHz XTAL f0 adj.
99			Fixed data-1
9A	2F	2F	AGC adj.
9B	2A	2A	EVR Y adj.
9C	32	32	EVR CR adj.
9D	1C	1C	EVR CB adj.
9E	85	85	Decoder ACC adj.
9F	A3	A3	Decoder APC adj.
A0	69	69	Decoder hue adj.
A1	69	69	AFC f0 adj.
A2	92	92	AFC TC adj.
A3			Fixed data-1
A4			
A5			Fixed data-2
A6			
A7			
A8			
A9			Fixed data-1
AA			
AB			
AC			Fixed data-2
AD			Fixed data-1
AE			
AF			Fixed data-2

Address	Initial value NTSC	Initial value PAL	Remark
B0			Fixed data-1
B1			(Initialized data)
B2			
B3			Fixed data-2
B4	FF	FF	CR clamp adj.
B5	FF	FF	CB clamp adj.
B6	FF	FF	Y clamp adj.
B7			Fixed data-1
B8			(Initialized data)
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			
D0			Fixed data-2
D1			(Modified data, copy the data built in
D2			the same model.)
D3			
D4			
D5			Fixed data-1
D6			
D7			Fixed data-2
D8			
D9			Fixed data-1
DA			(Initialized data)
DB			
DC			
DD			
DE			
DF			
E0			
E1			
E2			
E3			
E4 to FF			

Table. 5-3-1

4. Initializing the C Page Data

Note: If the page C data is initialized, the following adjustments must be performed again.
1) Modification of C page data
2) All RF block adjustments of the video system adjustments
3) Servo system adjustments

Adjusting page	C
Adjusting Address	00 to 6F

Initializing Method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 4, address: 02, set data: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the data of page: 4, address: 02 changes in order of "01", "03", "05", "00".
4) Select page: 0, address: 01, and set data: 00.
5) Perform "Modification of C Page Data".

5. Modification of C Page Data

If the C Page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:
1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
5) After changing the data, select page: 0, address: 01, and set data: 00.

6. C Page Table

Note: Fixed data-1 : Initialized data. (Refer to "4. Initializing the C Page Data".)
Fixed data-2 : Modified data. (Refer to "5. Modification of C PAGE Data").

Address	Initial value NTSC	Initial value PAL	Remark
00			Fixed data-1
01			Fixed data-2
02			Fixed data-1
03			
04			
05			
06			
07			
08			Fixed data-2
09			Fixed data-1
0A			
0B			
0C			
0D			
0E			
0F			
10			
11			

Address	Initial value NTSC	PAL	Remark
12			Fixed data-1
13			Fixed data-2
14			Fixed data-1
15			
16			
17			
18			
19			Fixed data-2
1A			Fixed data-1
1B			Fixed data-2
1C			Fixed data-1
1D			
1E			
1F			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
2A			Fixed data-2
2B			Fixed data-1
2C			
2D			
2E			
2F			
30	00	00	Emergency memory address
31	00	00	
32	00	00	
33	00	00	
34	00	00	
35	00	00	
36	00	00	
37	00	00	
38	00	00	
39	00	00	
3A	00	00	
3B	00	00	
3C	F0	F0	PLL f_0 adj.
3D	F0	F0	
3E	70	70	REC current adj.
3F	70	70	
40	C0	C0	AEQ adj.
41	C0	C0	
42	90	90	
43	90	90	
44	90	90	AGC center level adj.
45			Fixed data-1
46	80	80	PLL capture range adj.
47	C0	C0	CLK DELAY adj.
48			Fixed data-1
49			

Address	Initial value NTSC	PAL	Remark
4A			Fixed data-1
4B			
4C	00	00	Switching position adj.
4D	00	00	
4E	00	00	
4F	00	00	
50			Fixed data-1
51			
52			
53			
54			
55			
56			
57			
58			
59	00	00	T reel FG duty adj.
5A			Fixed data-2
5B			Fixed data-1
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
6A			
6B			
6C			
6D			
6E			
6F	00	00	T reel FG duty adj.

Table. 5-3-2

3-3. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Battery End Adjustment (VC-206 board)

Set the battery end voltage.

If the voltage is incorrect, the life of the battery will shorten. The image at the battery end will also be rough.

Mode	Camera recording
Subject	Arbitrary
Measurement Point	LCD display of the adjustment remote
Measuring Instrument	commander
Adjustment Page	D
Adjustment Address	28 to 2C, 37

Note: The lens block and cabinet (R) must be connected. Switch setting
1) AUTO FOCUS   OFF
2) LCD screen   Closed
3) NIGHT SHOT   OFF

Connection:

1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-3-4.
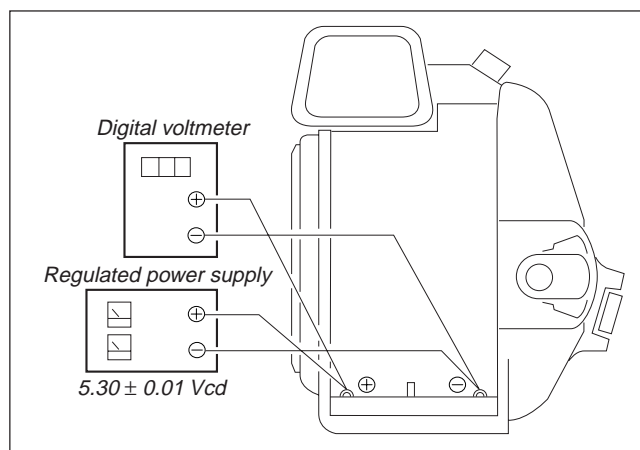
Fig. 5-3-4

Adjusting method:

1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.1 ± 0.1Vdc.
2) Turn off the power supply.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Turn on the power supply.
5) Load a cassette, and set to the camera recording mode.
6) Select page: 0, address: 01, and set data: 01.
7) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is 5.30 ± 0.01Vdc.
8) Select page: 2, address: 51, read the data, and this data is named Dref.
9) Select page: D, address: 28, set data: Dref, and press the PAUSE button of the adjustment remote commander.
10) Select page: D, address: 37, set data: Dref, and then press the PAUSE button of the adjustment remote commander.
11) Convert Dref to decimal notation, and obtain Dref'. (Refer to "Hexadecimal-decimal conversion table" of "Service mode")
12) Calculate D_{29}', D_{2A}', D_{2B}' and D_{2C}' using following equations (decimal calculation), convert it to a hexadecimal number, and input each adjustment address.
    Address: 29 $D_{29}' = Dref' + 11$
    Address: 2A $D_{2A}' = Dref' + 36$
    Address: 2B $D_{2B}' = Dref' + 58$
    Address: 2C $D_{2B}' = Dref' + 66$
    Note: After setting each data, be sure to press the PAUSE button.
13) Select page: 0, address: 01, and set data: 00.

3-4. SERVO SYSTEM ADJUSTMENTS

1. T Reel FG Duty Adjustment (VC-206 Board)

Measurement Point	Adjustment remote commander
Measuring Instrument	display data
Adjustment Page	C
Adjustment Address	59, 6F
Specified Value	T reel FG Duty Adjustment: The data of page: C, address: 6F is "01", or "02" , "03".

Adjusting Method:

1) Set the POWER switch to VTR (or PLAYER).
2) Close the cassette compartment without inserting a cassette.
3) Set the HOLD switch of the Adjustment remote commander to ON (SERVICE position).
4) Select page: 0, address: 01, and set data: 01.
5) Select page: C, address: 6A, set data: 10, and press the PAUSE button of the Adjustment remote commander.
6) Select page: 3, address: 09, set data: 00, and press the PAUSE button.
7) Select page: 3, address: 01, set data: 1A, and press the PAUSE button. (to start up automatic "T reel FG Duty Adjustments".)
8) Select page: 3, address: 02, and check that the data is changed from "17" to "00".
9) Set the HOLD switch of the Adjustment remote commander to OFF, and wait more than 2 seconds.
10) Set the HOLD switch to ON.
11) Check that the data of page: 3, address: 04 and that of page: C, address: 6F are the same.
12) Select page: C, address: 6F. If the data is "01", or "02", "03", it means that the automatic T reel FG adjustment has ended normally.
13) Select page: C, address: 6A, set data: 00, and press the PAUSE button of the Adjustment remote commander.
14) Select page: 0, address: 01, and set data: 00.
15) Turn OFF the power supply.

2. Switching Position Adjustment (VC-206 Board)

Mode	VTR Playback
Signal	SW/OL reference tape (XH2-3)
Measurement Point	Display data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	4C, 4D, 4E, 4F
Specified Value	The data of page: 3, address: 03 is "00".

Adjusting Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 0E, and press the PAUSE button of the Adjustment remote commander.
3) Select page: 3, address: 02, and check that the data is changed from "0E" to "00".
4) Select page: 3, address: 03, and check that the data is "00".
5) Set the HOLD switch of the Adjustment remote commander to OFF, and wait more than 2 seconds (so that the adjustment data is automatically written in page: C, address: 4C to 4F).
6) Set the HOLD switch of the Adjustment remote commander to ON.
7) Select page: 0, address: 01, and set data: 00.
8) Set to the stop mode.
9) Turn OFF the power supply.

3-5. VIDEO SYSTEM ADJUSTMENTS

Before perform the video system adjustments, check that the specified value of "36 MHz Origin Oscillation Adjustment" of "CAMERA SYSTEM ADJUSTMENT" is satisfied.

3-5-1. RF Block Adjustments
1. Recording Current Adjustment (VC-206 Board)

Mode	VTR stop
Measurement Point	ODDch adjustment CH1: Pin ⑤ of CN2701 (CL2718) CH2: Pin ⑥ of CN2701 (CL2719) EVENch adjustment CH1: Pin ⑨ of CN2701 (CL2722) CH2: Pin ⑧ of CN2701 (CL2721)
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	C
Adjustment Address	3E, 3F
Specified Value	A = 3.1 ± 0.1 Vp-p

Connection:

Disconnect CN2701 and connect as follows.
1) ODDch adjustment: Connect a 180 Ω resistor between Pin ⑤ of CN2701 (CL2718) and Pin ⑥ of CN2701 (CL2719).
2) EVENch adjustment: Connect a 180 Ω resistor between Pin ⑨ of CN2701 (CL2722) and Pin ⑧ of CN2701 (CL2721).
   180 Ω resistor (Parts code: 1-249-408-11)

Adjusting method:
1) Equalize the vertical range of CH1 and CH2 of the oscilloscope.
2) Set the oscilloscope to the ADD mode, and set CH2 to the INV mode.
3) Select page: 0, address: 01, and set data: 01.
4) Select page: 3, address: 01, set data: 0C, and press the PAUSE button of the Adjustment remote commander.
5) Select page: 3, address: 34, and set data: 01.
6) Select page: C, address: 3F (ODDch adjustment) or address: 3E (EVENch adjustment), change the data and adjust the signal voltage (A) to the specified value.
7) Press the PAUSE button of the adjustment remote commander.
8) Select page: 3, address: 34, and set data: 04.
9) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the Adjustment remote commander.
10) Select page: 0, address: 01, and set data: 00.

0.1 μsec

A
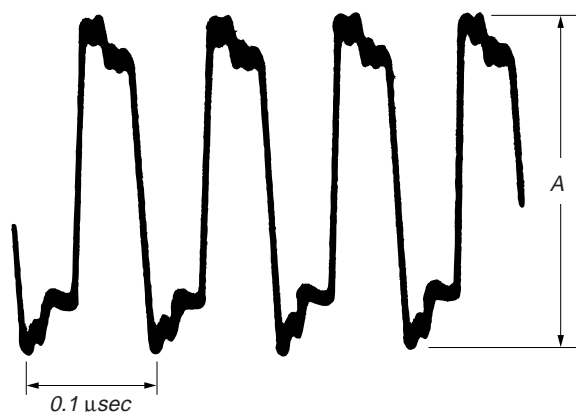
Fig. 5-3-5

2. PLL f_0 Adjustment (VC-206 Board)

Mode	VTR stop
Measurement Point	Display data of page: 3, address: 04
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	3C, 3D
Specified Value	Displayed data is "FD" to "FF" or "00" to "03". ("FF", "00" are center values)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 05, and press the PAUSE button of the Adjustment remote commander.
3) Select page: 3, address: 36, and set data: 04.
4) Select page: 3, address: 04, and check that the average value D_{04} of the displayed data is "FD" to "FF" or "00" to "03". If outside this range, change the data of page: C, address: 3C, and check again.
   [If D_{04} is "80" to "FC"]
   Decrease the data of page: C, address: 3C. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander.)
   [If D_{04} is "04" to "7F"]
   Increase the data of page: C, address: 3C. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander.)
5) Select page: 3, address: 36, and set data: 05.
6) Select page: 3, address: 04, and check that the average value D04 of the displayed data is "FD" to "FF" or "00" to "03". If outside this range, change the data of page: C, address: 3D, and check again.
   [If D_{04} is "80" to "FC"]
   Decrease the data of page: C, address: 3D. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander.)
   [If D_{04} is "04" to "7F"]
   Increase the data of page: C, address: 3D. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander.)
7) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the Adjustment remote commander.
8) Select page: 3, address: 36, and set data: 02.
9) Select page: 0, address: 01, and set data: 00.

3. CLK DELAY Adjustment (VC-206 Board)

Mode	Camera recording /playback (LP mode)
Subject	Arbitrary
Signal	Playback signal of recorded tape
Measurement Point	CH1: CL9912 (Pin 203 of IC1701) (C1ERP) CH2: Pin ⑥ of CN9903 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	47

Adjusting method:
1) Record for two minutes on any tape.
2) Select page: 0, address: 01, and set data: 01.
3) Write the following data in page: C, addresses: 40 to 44, 47, 4B, 5A.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)
   Page: C, address: 40, data: C0
   Page: C, address: 41, data: C0
   Page: C, address: 42, data: 90
   Page: C, address: 43, data: 90
   Page: C, address: 44, data: 90
   Page: C, address: 47, data: C0
   Page: C, address: 4B, data: 80
   Page: C, address: 5A, data: 00
4) Playback the recorded portion.
5) Increase the data of page: C, address: 47 from "C0", and read the data D_1 when the CH1 pulse is set to the whole audio and video areas.
6) Decrease the data of page: C, address: 47 from "C0", and read the data D_2 when the CH1 pulse is set to the whole audio and video areas.
7) Obtain the average value of D_1 and D_2, and take it as D_3.
8) Select page: C, address: 47, set data: D_3, and press the PAUSE button of the Adjustment remote commander.
9) Select page: C, address: 4B, set data: 00, and press the PAUSE button.
10) Select page: C, address: 5A, set data: 8C, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.
12) After completing the adjusting, perform "5. AEQ Adjustment".

When the CH1 pulse is not set.
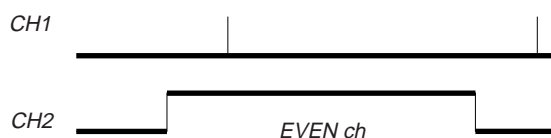
When the CH1 pulse is set.
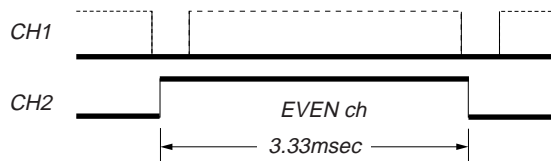
Fig. 5-3-6

4. AGC Center Level Adjustment (VC-206 Board)

Mode	Camera recording /playback (LP mode)
Subject	Arbitrary
Signal	Playback signal of recorded tape
Measurement Point	CH1: CL9912 (Pin 203 of IC1701) (C1ERP) CH2: Pin ⑥ of CN9903 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	44

Adjusting method:
1) Record for two minutes on any tape.
2) Select page: 0, address: 01, and set data: 01.
3) Write the following data in page: C, addresses: 40 to 44, 4B, 5A.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)
   Page: C, address: 40, data: C0
   Page: C, address: 41, data: C0
   Page: C, address: 42, data: 90
   Page: C, address: 43, data: 90
   Page: C, address: 44, data: 90
   Page: C, address: 4B, data: 80
   Page: C, address: 5A, data: 00
4) Playback the recorded portion.
5) Increase the data of page: C, address: 44 from "90", and read the data D_1 when the CH1 pulse is set to the whole audio and video areas.
6) Decrease the data of page: C, address: 44 from "90", and read the data D_2 when the CH1 pulse is set to the whole audio and video areas.
7) Obtain the average value of D_1 and D_2, and take it as D_3.
8) Select page: C, address: 44, set data: D_3, and press the PAUSE button of the Adjustment remote commander.
9) Select page: C, address: 4B, set data: 00, and press the PAUSE button.
10) Select page: C, address: 5A, set data: 8C, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.
12) After completing the adjusting, perform "5. AEQ Adjustment".

When the CH1 pulse is not set.
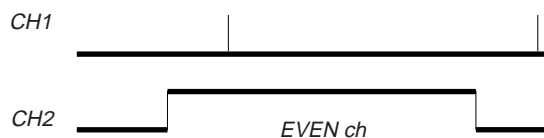
When the CH1 pulse is set.
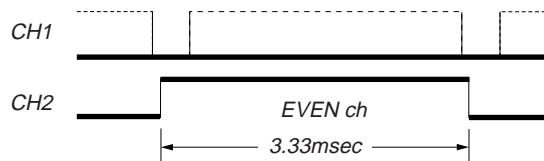
Fig. 5-3-7

5. AEQ Adjustment (VC-206 Board)

Mode	Camera recording /playback (LP mode)
Subject	Arbitrary
Signal	Playback signal of recorded tape
Measurement Point	CH1: Pin ⑧ of CN9903 (RF MONITOR) CH2: Pin ⑥ of CN9903 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	40, 41, 42, 43, 5A

Note: Connect a 75 Ω resister between Pin ⑧ (RF MONITOR) and Pin ④ (GND) of CN9903.
　　　　75 Ω resister (Parts code: 1-247-804-11)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Write the following data in page: C, addresses: 40 to 43, 4B, 5A.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)
   　Page: C, address: 40, data: C0
   　Page: C, address: 41, data: C0
   　Page: C, address: 42, data: 90
   　Page: C, address: 43, data: 90
   　Page: C, address: 4B, data: 80
   　Page: C, address: 5A, data: 00
3) Record for two minutes from tape top.
4) Rewind the tape, and play back from the tape top.
5) When the RF output stabilizes, select page: 3, address: 01, set data: 07, and press the PAUSE button of the adjusting remote commander.
6) About 20 to 30 seconds after pressing the PAUSE button, check that the data of page: 3, address: 02 changes from "07" to "00".
7) Check that the data of page: 3, address: 03 is following value.
   　　When "00" : Normal
   　　When "01" : EVENch is faulty
   　　When "02" : ODDch is faulty
   　　When "03" : EVENch and ODDch are faulty
   Perform the following procedure only when "00" is displayed.
8) Read the data of page: 3, address: 04 to 07, and take the values as D_{04}, D_{05}, D_{06} and D_{07}.
9) Select page: C, address: 40, set data: D_{04}, and press the PAUSE button of the Adjustment remote commander.
10) Select page: C, address: 42, set data: D_{05}, and press the PAUSE button.
11) Select page: C, address: 41, set data: D_{06}, and press the PAUSE button.
12) Select page: C, address: 43, set data: D_{07}, and press the PAUSE button.
13) Select page: C, address: 4B, set data: 00, and press the PAUSE button.
14) Select page: C, address: 5A, set data: 8C, and press the PAUSE button.
15) Select page: 0, address: 01, and set data: 00.

6. PLL Capture Range Adjustment (VC-206 Board)

Mode	Camera recording /playback (LP mode)
Subject	Arbitrary
Signal	Playback signal of recorded tape
Measurement Point	CH1: CL9912 (Pin ㉓ of IC1701) (C1ERP) CH2: Pin ⑥ of CN9903 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	46

Adjusting method:
1) Record for two minutes on any tape.
2) Select page: 0, address: 01, and set data: 01.
3) Write the following data in page: C, address: 4B and 5A.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)
   　Page: C, address: 4B, data: 80
   　Page: C, address: 5A, data: 00
4) Playback the recorded portion.
5) Select page: C, address: 46, set data: 80, and press the PAUSE button of the Adjustment remote commander.
6) Set the data of page: C, address: 46 to "60", and check that the pulse is not set at the audio area head of the C1ERP waveform's ODDch of the oscilloscope (CH1).
7) Set the data of page: C, address: 46 to "A0", and check that the pulse is not set at the audio area head of the C1ERP waveform's ODDch of the oscilloscope (CH1). After confirming steps 6) and 7), set the data of page: C, address: 46 to "80", and proceed to step 12).
8) If the pulse is set in steps 6) and 7), increase the data of page: C, address: 46 from "80", and read the data D_1 when the pulse is set at the audio area head of CH1.
9) Decrease the data of page: C, address: 46 from "80", and read the data D_2 when the pulse is set at the audio area head of CH1.
10) Obtain the average value of D_1 and D_2, and take it as D_3.
11) Select page: C, address: 46, set data: D_3, and press the PAUSE button of the Adjustment remote commander.
12) Select page: C, address: 4B, set data: 00, and press the PAUSE button.
13) Select page: C, address: 5A, set data: 8C, and press the PAUSE button.
14) Select page: 0, address: 01, and set data: 00.

Pulse is not set at the audio area head.

CH1

CH2

When the pulse is set at the audio area head.

CH1

CH2　　　　ODD ch

|← 3.33msec →|
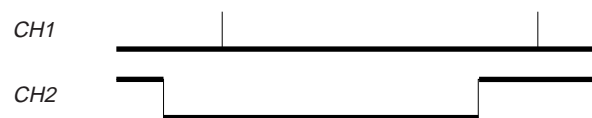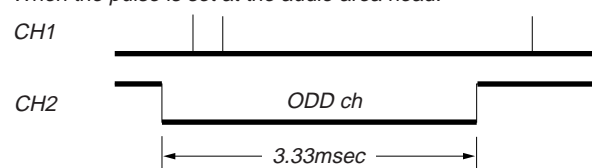
Fig. 5-3-8

3-5-2. Clock Adjustments
1. IC1900 27MHz XTAL f_0 Adjustment (VC-206 Board)
Set the sub-carrier frequency of the video output signal in the VTR mode.

Mode	VTR stop
Signal	No signal
Measurement Point	R1901 (Pin ② of IC1900)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	98
Specified Value	f = 13500000 ± 68 Hz (NTSC) f = 13500000 ± 68 Hz (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 98, change the data and set the clock frequency (f) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

2. IC1900 VCO Operation Check (VC-206 Board)

Mode	VTR stop
Signal	No signal
Measurement Point	Display data of page: 2, address: 0E
Measuring Instrument	Adjustment remote commander
Specified Value	"C0" to "FF"

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 05, set data: 02, and press the PAUSE button of the adjustment remote commander.
3) Select page: D, address: B0, set data: 03, and press the PAUSE button.
4) Select page: 2, address: 0E, and check that the data is "C0" to "FF".
5) Select page: D, address: B0, set data: 05, and press the PAUSE button.
6) Select page: 2, address: 0E, and check that the data is "C0" to "FF".
7) Select page: D, address: B0, set data: 00, and press the PAUSE button.
8) Select page: 2, address: 05, set data: 00, and press the PAUSE button.
9) Select page: 0, address: 01, and set data: 00.

3. IC6101 41.85MHz VCO Operation Check (VC-206 Board)

Mode	VTR playback
Signal	Arbitrary
Measurement Point	Display data of page: 3, address: 39
Measuring Instrument	Adjustment remote commander
Specified Value	"37" to "C9"

Checking method:
1) Select page: 3, address: 39, and check that the data is "37" to "C9".

3-5-3. Base Band Block Adjustments

1. Composite Output Y Level Adjustment (VC-206 Board)

Set the Y signal level of the composite video output signal.

Mode	VTR stop
Signal	No signal
Measurement Point	Video signal terminal of AUDIO/ VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	96
Specified Value	A = 286 ± 6 mV (NTSC) A = 300 ± 6 mV (PAL)

Note: Insert a plug in the AUDIO/VIDEO jack.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 15, after memorizing the data, set the bit value of bit2 to "0". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
3) Select page: D, address: 96, change the data and set the Y signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: D, address: 15, and set the data memorized at step 2).
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.
8) Perform "Composite Output Chroma Level Adjustment".
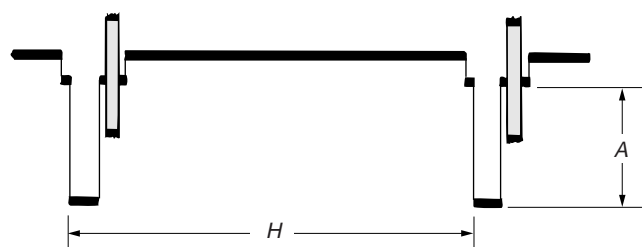
Fig. 5-3-9

2. Composite Output Chroma Level Adjustment (VC-206 Board)

Set the chroma signal level of the composite video output signal.

Mode	VTR stop
Signal	No signal
Measurement Point	Video signal terminal of AUDIO/ VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	97
Specified Value	A = 286 ± 6 mV (NTSC) A = 300 ± 6 mV (PAL)

Note 1: Insert a plug in the AUDIO/VIDEO jack.
Note 2: Perform "Composite Output Chroma Level Adjustment" before this adjustment.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 15, after memorizing the data, set the bit value of bit2 to "0". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
3) Select page: D, address: 97, change the data and set the burst signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: D, address: 15, and set the data memorized at step 2).
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.
8) Perform "S-C Output Level Adjustment".
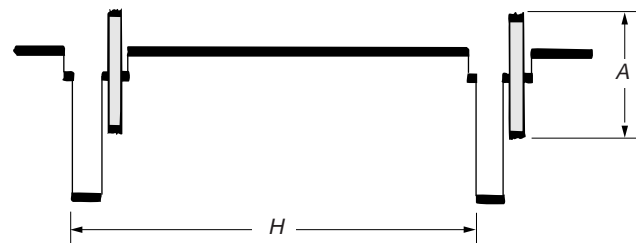
Fig. 5-3-10

3. S-C Output Level Adjustment (VC-206 Board)

Set the chroma signal level of the S video output signal.

Mode	VTR stop
Signal	No signal
Measurement Point	Chroma signal terminal of S VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	94
Specified Value	A = 286 ± 6 mV (NTSC) A = 300 ± 6 mV (PAL)

Note 1: Insert a plug in the S VIDEO jack.
Note 2: Perform "Composite Output Y Level Adjustment" and "Composite Output Chroma Level Adjustment" before this adjustment.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 15, after memorizing the data, set the bit value of bit2 to "0". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode")
3) Select page: D, address: 94, change the data and set the burst signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: D, address: 15, and set the data memorized at step 2).
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.
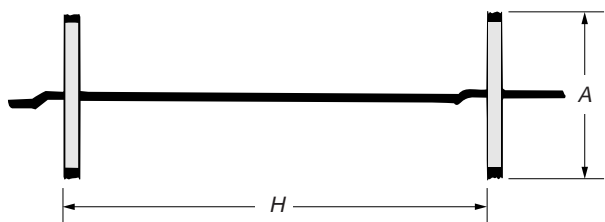
Fig. 5-3-11

4. S-Y Output Level Adjustment (VC-206 Board)

Set the Y signal level of the S video output signal.

Mode	VTR stop
Signal	No signal
Measurement Point	Y signal terminal of S VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	95
Specified Value	A = 286 ± 6 mV (NTSC) A = 300 ± 6 mV (PAL)

Note: Insert a plug in the S VIDEO jack.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 15, after memorizing the data, set the bit value of bit2 to "0". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
3) Select page: D, address: 95, change the data and set the sync signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: D, address: 15, and set the data memorized at step 2).
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.

Fig. 5-3-12

5. IC9004 AGC Adjustment (VI-148 Board) (Except AEP/UK model)

Set the AGC gain.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	Y signal terminal of S VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	9A
Specified Value	A = 1.00 ± 0.02V

Note 1: Insert a plug in the S VIDEO jack.
Note 2: Before perform this adjustment, check that the specified value of "S-Y Output Level Adjustment" is satisfied.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 13, and set data: FE.
3) Select page: D, address: 9A, change the data and set the Y signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 2, address: 13, and set data: 00.
6) Select page: 0, address: 01, and set data: 00.

For NTSC model
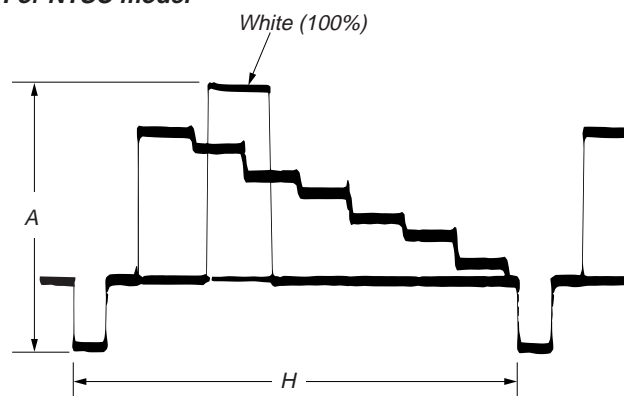
For PAL model
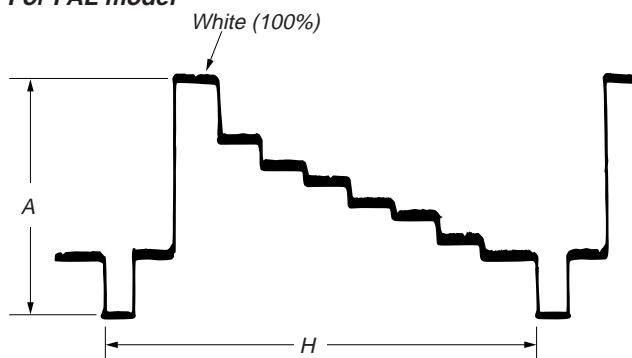
Fig. 5-3-13

6. AFC TC Adjustment (VI-148 Board) (Except AEP/UK model)

Set the picture frame in recording.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	Y signal terminal of S VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	A2
Specified Value	$t_2 - t_1 = 0 \pm 0.05\ \mu$ sec

Note: Insert a plug in the S VIDEO jack.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 13, and set data: FE.
3) Check the delay time (t_1).
4) Select page: 2, address: 13, and set data: FF.
5) Select page: D, address: A2, change the data so that the delay time (t_2) is equal to the delay time (t_1) of step 3).
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 2, address: 13, and set data: 00.
8) Select page: 0, address: 01, and set data: 00.

For NTSC model
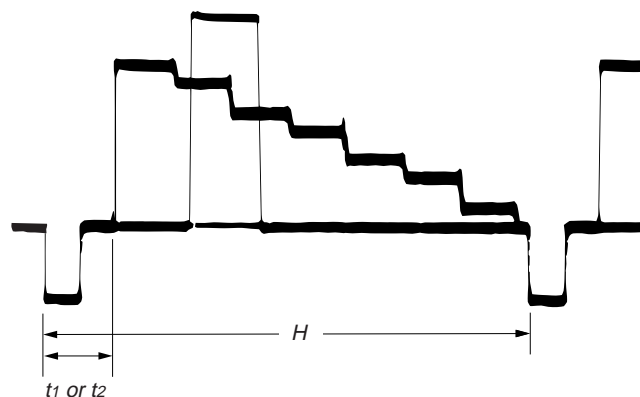
For PAL model
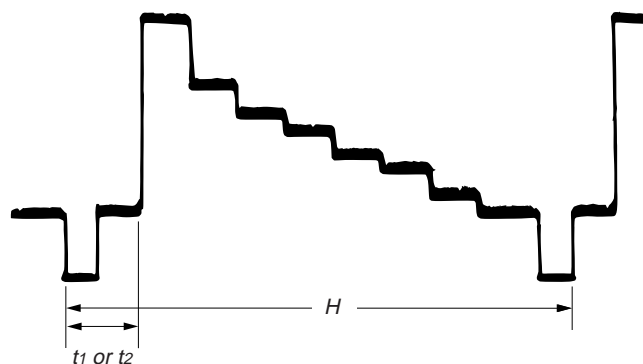
Fig. 5-3-14

7. AFC f₀ Adjustment (VI-148 Board) (Except AEP/UK model)

Set the free-run frequency of the AFC VCO.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	Pin ⑤ of CN9903 (AFC ERR) on VC-206 board
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	A1
Specified Value	A = 1.9 ± 0.1Vdc

Note: Don't insert any plug in the S VIDEO jack.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: A1, change the data and set the AFC error voltage (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

8. Decoder APC Adjustment (VI-148 Board) (Except AEP/UK model)

Set the free-run frequency of the decoder VXO.

Mode	VTR stop
Signal	No signal (Video signal terminal of AUDIO/VIDEO jack) (Note 1)
Measurement Point	Pin ③ of CN9903 (IR FSC) on VC-206 board
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	9F
Specified Value	f = 3579545 ± 50 Hz (NTSC) f = 4433619 ± 50 Hz (PAL)

Note: Insert a plug in the AUDIO/VIDEO jack.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 9F, change the data and set the IR FSC frequency (f) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

9. Decoder ACC Adjustment (VI-148 Board) (Except AEP/UK model)

Set the decoder ACC gain.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	Pin ⑲ of CN9903 (DEC B-Y) on VC-206 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	9E
Specified Value	A = 325 ± 20mV (NTSC) A = 325 ± 20mV (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 9E, change the data and set the DEC B-Y signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.
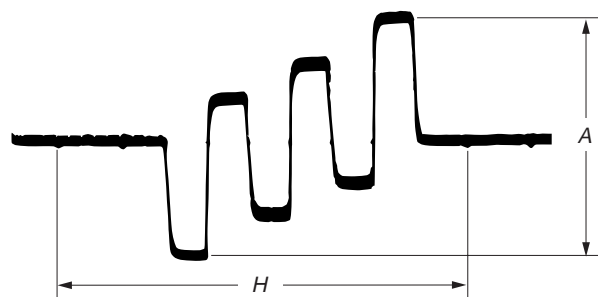
Fig. 5-3-15

10. Decoder HUE Adjustment (VI-148 Board) (Except AEP/UK model)

Set the decoder hue.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	Pin ⑲ of CN9903 (DEC B-Y) on VC-206 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	A0
Specified Value	A-B = 0 ± 10mV (NTSC) A = Minimum amplitude (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) NTSC model
   Select page: D, address: A0, change the data so that the voltage (A) between the yellow and cyan is equal to the voltage (B) between the green and magenta.
   PAL model
   Select page: D, address: A0, change the data so that the waveform dose not appear double.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

For NTSC model
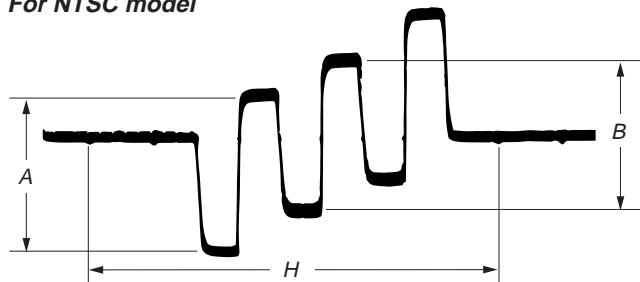
For PAL model
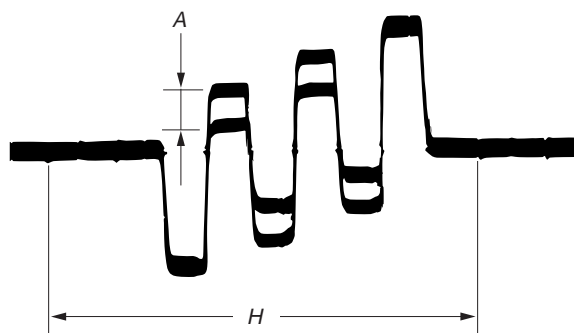
Fig. 5-3-16

11. IC9004 Y clamp Adjustment (VI-148 Board) (Except AEP/UK model)

Set the clamp level of the Y AD OUT.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note)
Adjustment Page	D
Adjustment Address	B6
Specified Value	0F to 11

Note: The two digits of the display data of the LCD and TV monitor is the object data.

HI XX XXXX
       └────── Object data

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, set data: 24, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 96, and set data: 40.
4) Select page: 2, address: 97, and set data: 18.
5) Select page: D, address: B6, change the data and adjust the DDS display data (Note) to the specified value. (The data of address: B6 should be "00" to "99".)
6) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 96, and set data: 00.
4) Select page: 2, address: 97, and set data: 00.

**12. IC9004 CR clamp Adjustment (VI-148 Board)
    (Except AEP/UK model)**

Set the clamp level of the CR AD OUT.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note)
Adjustment Page	D
Adjustment Address	B4
Specified Value	FF or 00 or 01

Note: The two digits of the display data of the LCD and TV monitor is the object data.

HI XX XXXX
└── Object data

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, set data: 24, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 96, and set data: 40.
4) Select page: 2, address: 97, and set data: 18.
5) Select page: D, address: B4, set data: 4C, and press the PAUSE button of the adjustment remote commander.
6) Select page: D, address: B5, set data: 4C, and press the PAUSE button.
7) Select page: D, address: B4, change the data and adjust the DDS display data (Note) to the specified value. (The data of address: B4 should be "00" to "99".)
8) Press the PAUSE button of the adjustment remote commander.
9) Perform "IC9004 CB clamp Adjustment".

Processing after Completing Adjustments:
1) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 96, and set data: 00.
4) Select page: 2, address: 97, and set data: 00.

**13. IC9004 CB clamp Adjustment (VI-148 Board)
    (Except AEP/UK model)**

Set the clamp level of the CB AD OUT.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note 1)
Adjustment Page	D
Adjustment Address	B5
Specified Value	FF or 00 or 01

Note 1: The two digits of the display data of the LCD and TV monitor is the object data.

HI XX XXXX
└── Object data

Note 2: Perform "IC9004 CR clamp Adjustment" before this adjustment.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, set data: 24, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 96, and set data: 40.
4) Select page: 2, address: 97, and set data: 18.
5) Select page: D, address: B5, change the data and adjust the DDS display data (Note 1) to the specified value. (The data of address: B5 should be "00" to "99".)
6) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 96, and set data: 00.
4) Select page: 2, address: 97, and set data: 00.

14. IC9004 EVR Y Adjustment (VI-148 Board) (Except AEP/UK model)

Set the Y AD OUT level.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note 1)
Adjustment Page	D
Adjustment Address	9B
Specified Value	EA to EC (NTSC) EA to EC (PAL)

Note 1: The two digits of the display data of the LCD and TV monitor is the object data.

HI <u>XX</u> XXXX
— Object data

Note 2: Use the 75% color bar signal shown in Fig. 5-3-17.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, set data: 24, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 96, and set data: 70 (NTSC) or 40 (PAL).
4) Select page: 2, address: 97, and set data: 50 (NTSC) or 30 (PAL).
5) Select page: D, address: 9B, change the data and adjust the DDS display data (Note 1) to the specified value.
6) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 96, and set data: 00.
4) Select page: 2, address: 97, and set data: 00.
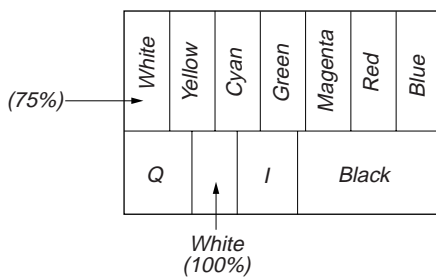
15. IC9004 EVR CR Adjustment (VI-148 Board) (Except AEP/UK model)

Set the CR AD OUT level.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note 1)
Adjustment Page	D
Adjustment Address	9C
Specified Value	4D to 4F (NTSC) 53 to 55 (PAL)

Note 1: The two digits of the display data of the LCD and TV monitor is the object data.

HI XX XX<u>XX</u>
— Object data

Note 2: Use the 75% color bar signal shown in Fig. 5-3-17.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, set data: 24, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 96, and set data: 40.
4) Select page: 2, address: 97, and set data: B0 (NTSC) or 9C (PAL).
5) Select page: D, address: 9C, change the data and adjust the DDS display data (Note 1) to the specified value.
6) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 96, and set data: 00.
4) Select page: 2, address: 97, and set data: 00.

For NTSC model

For PAL model

Fig. 5-3-17

16. IC9004 EVR CB Adjustment (VI-148 Board)
  (Except AEP/UK model)
Set the CB AD OUT level.

Mode	VTR stop
Signal	75% color bar (Video signal terminal of AUDIO/VIDEO jack)
Measurement Point	DDS display of LCD or TV monitor
Measuring Instrument	(Note 1)
Adjustment Page	D
Adjustment Address	9D
Specified Value	4D to 4F (NTSC) 53 to 55 (PAL)

Note 1: The two digits of the display data of the LCD and TV monitor is the object data.

HI XX XXXX
    └───── Object data

Note 2: Use the 75% color bar signal shown in Fig. 5-3-17.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, set data: 24, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 96, and set data: 40.
4) Select page: 2, address: 97, and set data: C0 (NTSC) or B0 (PAL).
5) Select page: D, address: 9D, change the data and adjust the DDS display data (Note 1) to the specified value.
6) Press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:
1) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 96, and set data: 00.
4) Select page: 2, address: 97, and set data: 00.

3-5-4. BIST Check

1. Playback System Check

1) Set the POWER switch to VTR (or PLAYER) position.
2) Connect the adjustment remote commander and set the HOLD switch to HOLD (SERVICE) position.
3) Playback the BIST check tape. (XH5-6 (NTSC), XH5-6P (PAL))

IC1701 (D1) Playback System Check

4) Select page: 4, address: 11, and set data: 04, then press the PAUSE button.
5) Select page: 4, address: 11, and set data: 00, then press the PAUSE button.
6) Select page: 4, address: 13, and set data: 03, then press the PAUSE button.
(The data will be automatically return to "00".)
7) When the IC1701 (D1) → IC1601 (U1) playback system is normal, following data will be displayed in page: 4, address: 14 and 15.

Page	Address	Data
4	15	E5 (NTSC), 27 (PAL)
4	14	11 (NTSC), CA (PAL)

8) When the IC1701 (D1) → IC3501 (INDI) playback system is normal, following data will be displayed in page: 4, address: 16 and 17.

Page	Address	Data
4	17	C0 or BA (NTSC), DC (PAL)
4	16	6E or 04 (NTSC), 44 (PAL)

9) When the IC1701 (D1) → IC1901 (A1) playback system is normal, following data will be displayed in page: 4, address: 18 and 19.

Page	Address	Data
4	19	33 or B2 (NTSC), A2 (PAL)
4	18	59 or 19 (NTSC), 03 (PAL)

IC1901 (A1) Playback System Check

10) Select page: 4, address: 11, and set data: 10, then press the PAUSE button.
11) Select page: 4, address: 11, and set data: 00, then press the PAUSE button.
12) Select page: 4, address: 13, and set data: 04, then press the PAUSE button.
(The data will be automatically return to "00".)
13) When the IC1901 (A1) playback system is normal, following data will be displayed in page: 4, address: 14 and 15.

Page	Address	Data
4	15	7B (NTSC), CC (PAL)
4	14	B5 (NTSC), C0 (PAL)

14) Select page: 4, address: 11, and set data: 08, then press the PAUSE button.
15) Select page: 4, address: 13, and set data: 07, then press the PAUSE button.
(The data will be automatically return to "00".)
16) Select page: 4, address: 11, and set data: 00, then press the PAUSE button.
17) Perform "Recording System Check".

2. Recording System Check

Note: Perform "Playback System Check" before this check.

1) Playback the BIST check tape.
2) Input the following data in order.
   Note: Press the PAUSE button each time set the data.

Page	Address	Data
4	41	01
4	0F	02
4	0E	01
4	40	01
4	0F	0A
4	40	00
4	40	01
4	0F	0E
4	40	00
4	40	01
4	0F	8E
4	40	00

3) While keep the HOLD switch of the adjustment remote commander at ON (SERVICE) position, eject the BIST check tape and insert a tape for recording in place of the tape.
4) Select page: 0, address: 01, and set data: 01.
5) Only for AEP and UK model, select page: D, address: 14, after memorizing the data, set the bit value of bit 0 to "1", and then press the PAUSE button. (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
6) Select page: D, address: 15, after memorizing the data, set data: 07 and then press the PAUSE button.
7) While keep the HOLD switch of the adjustment remote commander at ON (SERVICE) position, set to the VTR recording mode. (Use the wireless remote commander of 8mm VCR, only for AEP and UK model.)
8) Select page: 4, address: 11, and set data: 02, then press the PAUSE button.
9) Select page: 4, address: 13, and set data: 02, then press the PAUSE button.
10) Select page: 4, address: 11, and set data: 00, then press the PAUSE button.

IC1701 (D1) Recording System Check

11) Select page: 3, address: 01, and set data: 0D, then press the PAUSE button.
12) Select page: 4, address: 1C, and set data: FF, then press the PAUSE button.
13) Select page: 4, address: 11, and set data: 04, then press the PAUSE button.
14) Select page: 4, address: 11, and set data: 00, then press the PAUSE button.
15) Select page: 4, address: 13, and set data: 03, then press the PAUSE button.
    (The data will be automatically return to "00".)
16) When the IC1601 (U1) → IC1701 (D1) recording system is normal, following data will be displayed in page: 4, address: 14 and 15.

Page	Address	Data
4	15	C6 (NTSC), F8 (PAL)
4	14	90 (NTSC), 3E (PAL)

17) When the IC1701 (D1) → IC3501 (INDI) recording system is normal, following data will be displayed in page: 4, address: 16 and 17.

Page	Address	Data
4	17	19 (NTSC), 2A (PAL)
4	16	AA (NTSC), AE (PAL)

18) When the IC1901 (A1) → IC1701 (D1) recording system is normal, following data will be displayed in page: 4, address: 18 and 19.

Page	Address	Data
4	19	76 (NTSC), CE (PAL)
4	18	B9 (NTSC), E7 (PAL)

19) When the IC1701 (D1) → IC6101 (DX) recording system is normal, following data will be displayed in page: 4, address: 1A and 1B.

Page	Address	Data
4	1B	98 (NTSC), DC (PAL)
4	1A	E6 (NTSC), 85 (PAL)

20) Only for AEP and UK model, select page: D, address: 14, and set the data memorized at step 5).
21) Select page: D, address: 15, and set the data memorized at step 6).
22) Press the PAUSE button of the adjustment remote commander.
23) Select page: 0, address: 01, and set data: 00.

3-5. IR TRANSMITTER ADJUSTMENTS (Except DCR-TRV9E AEP/UK model)

Adjust using a IR receiver jig (J-6082-383-A).

Switch setting:
LASER LINK .... ON (Red LED is lit)

1. IR Video Carrier Frequency Adjustment (MA-322 board)

Mode	Camera standby
Subject	Arbitrary
Measurement Point	Pin ⑤ of CN003 of IR receiver jig (RF) (Or Pin ⑯ of IC8401)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	90
Specified Value	$f = 11.85 \pm 0.05$ MHz

Connection of Equipment
Connect the measuring device as shown in the following figure, and adjust.
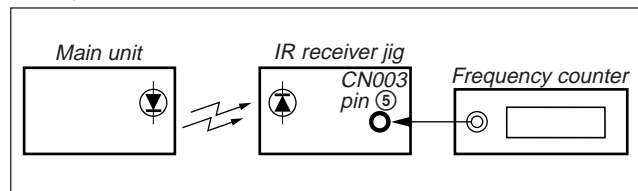
Fig. 5-3-18

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 12, set data: 10, and press the PAUSE button of the adjusting remote commander.
3) Select page: D, address: 90, change the data, and set the video carrier frequency (f) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 12, set data: 00, and press the PAUSE button of the adjusting remote commander.
6) Select page: 0, address: 01, and set data: 00.

2. IR Video Deviation Adjustment (MA-322 board)

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	VIDEO OUT terminal of IR receiver jig (Terminated at 75 Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	91
Specified Value	$A = 1.00 \pm 0.05$ V

Connection of Equipment:
Connect the measuring device as shown in the following figure, and adjust.
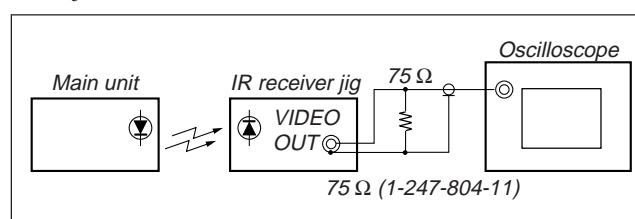
Fig. 5-3-19

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 91, and change the data, set the video signal amplitude (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.

For NTSC model
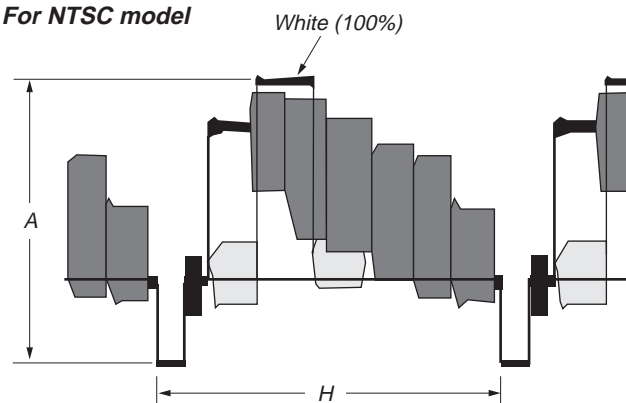
For PAL model
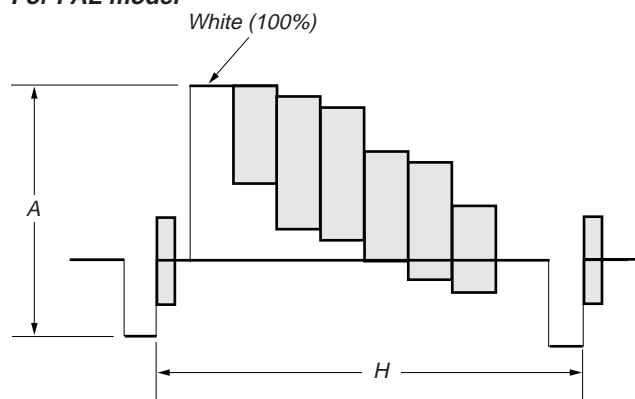
Fig. 5-3-20

3. IR Audio Deviation Adjustment (MA-322 board)

Mode	Camera standby
Signal	400Hz, –66dBs : L and R of MIC jack
Measurement Point	AUDIO L terminal and AUDIO R terminal of IR receiver jig (Terminated at 47kΩ)
Measuring Instrument	Audio level meter
Adjustment Page	D
Adjustment Address	92
Specified Value	Signal level: –7.5 ± 1.0 dBs Level difference of L and R: Below 2dB

Connection of Equipment:
Connect the measuring device as shown in the following figure, and adjust.
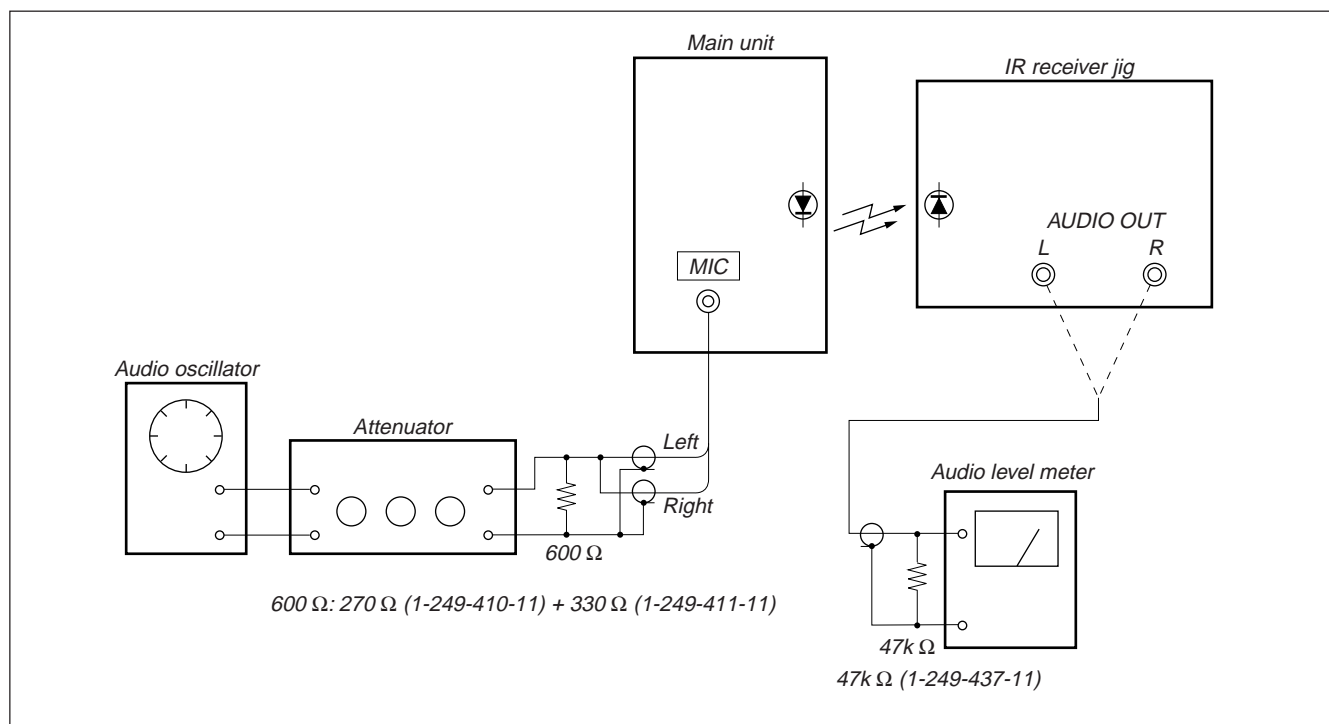
Fig. 5-3-21

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Connect the audio level meter to the AUDIO L terminal of the IR receiver jig.
3) Select page: D, address: 92, change the data and set the 400Hz audio signal level to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Connect the audio level meter to the AUDIO R terminal of the IR receiver jig.
6) Check that the 400Hz audio signal level is within the specified value. If outside, repeat from step 2).
7) Select page: 0, address: 01, and set data: 00.

3-6. AUDIO SYSTEM ADJUSTMENTS

[Connection of Audio System Measuring Devices]
Connect the audio system measuring devices as shown in Fig. 5-3-22.
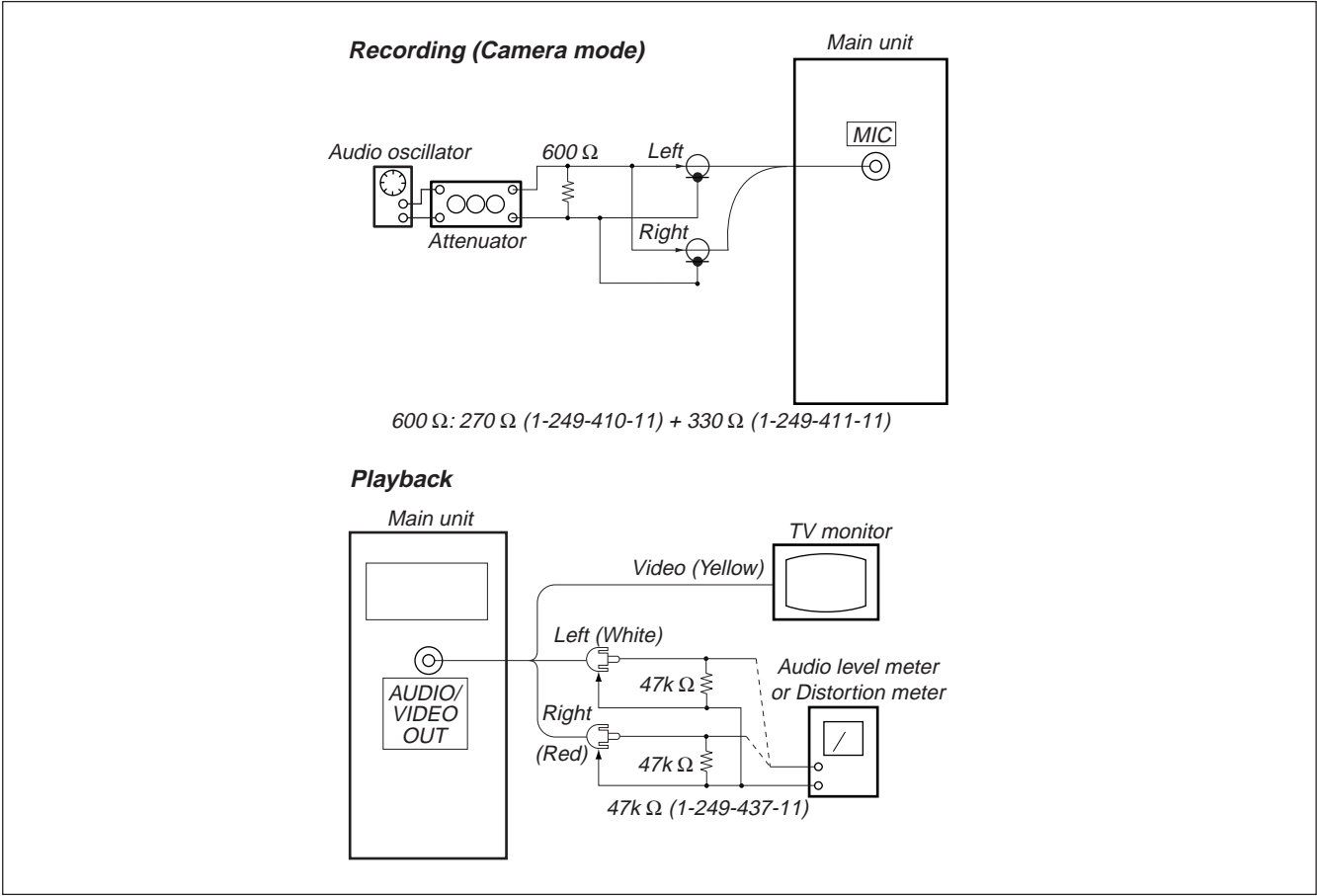
Fig. 5-3-22

1. Playback Level Check

Mode	VTR playback

Signal	Alignment tape:
	   For audio operation check
	   (XH5-3 (NTSC))
	   (XH5-3P (PAL))

Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, +3.0 ± 2.0dBs 48 kHz mode: 1 kHz, +3.0 ± 2.0dBs 44.1 kHz mode: The 7.35kHz signal level during EMP OFF is +2.0 ± 2.0dBs. The 7.35kHz signal level during EMP ON is –6 ± 2 dB from the signal level during EMP OFF.

Checking Method:
1) Check that the playback signal level is the specified value.

2. Overall Level Characteristics Check

Mode	Camera recording and playback
Signal	400Hz, –66 dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 3.0dBs

Checking Method:
1) Input the 400Hz, –66dBs signal in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the 400Hz signal level is the specified value.

3. Overall Distortion Check

Mode	Camera recording and playback
Signal	400Hz, –66dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200Hz to 6kHz BPF ON)

Checking Method:
1) Input the 400Hz, –66dBs signal in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the distortion is the specified value.

4. Overall Noise Level Check

Mode	Camera recording and playback
Signal	No signal: Insert a shorting plug in the MIC jack
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	Below –45dBs (IHF-A filter ON, 20kHz LPF ON)

Checking Method:
1) Insert a shorting plug in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the noise level is the specified value.

5. Overall Separation Check

Mode	Camera recording and playback
Signal	400Hz, –66dBs signal: MIC jack <right> [left] (Connect the MIC jack <left> [right] to GND)
Measurement Point	Audio <left> [right] terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	Below –40dBs

< > : Left channel check
[ ] : Right channel check

Checking Method:
1) Input the 400Hz, –66dBs signal in the <right> [left] terminal of the MIC jack only.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the signal level of the audio <left> [right] terminal is the specified value.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS
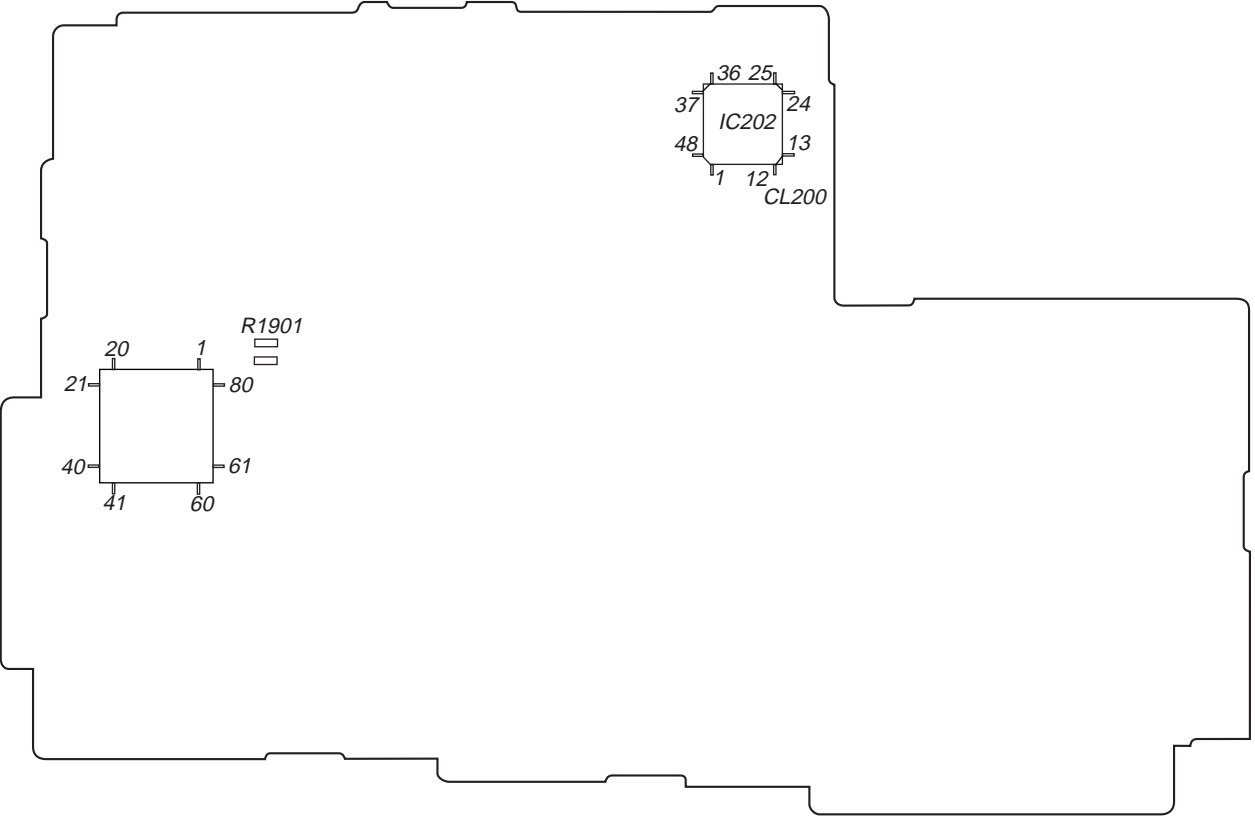
VC-206 board (SIDE A)

MA-322 board (SIDE A)

VC-206 board (SIDE B)
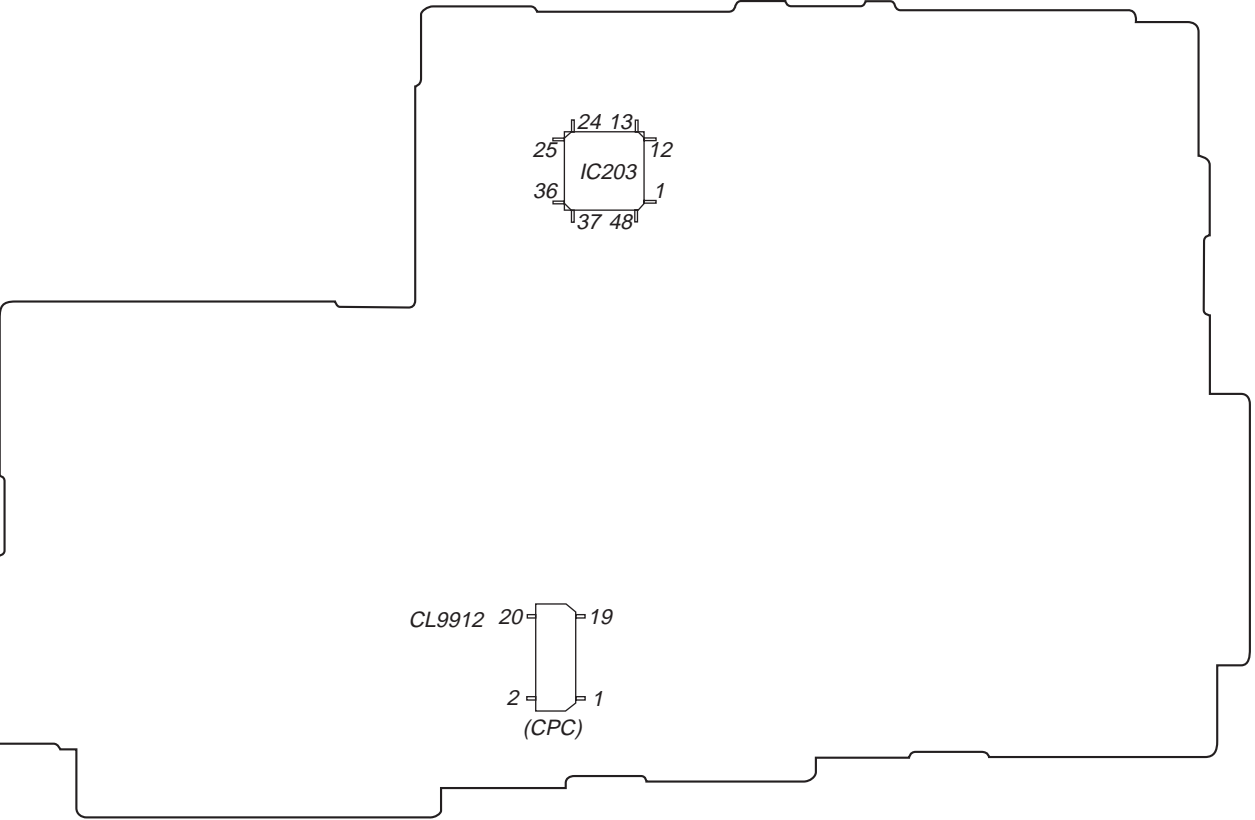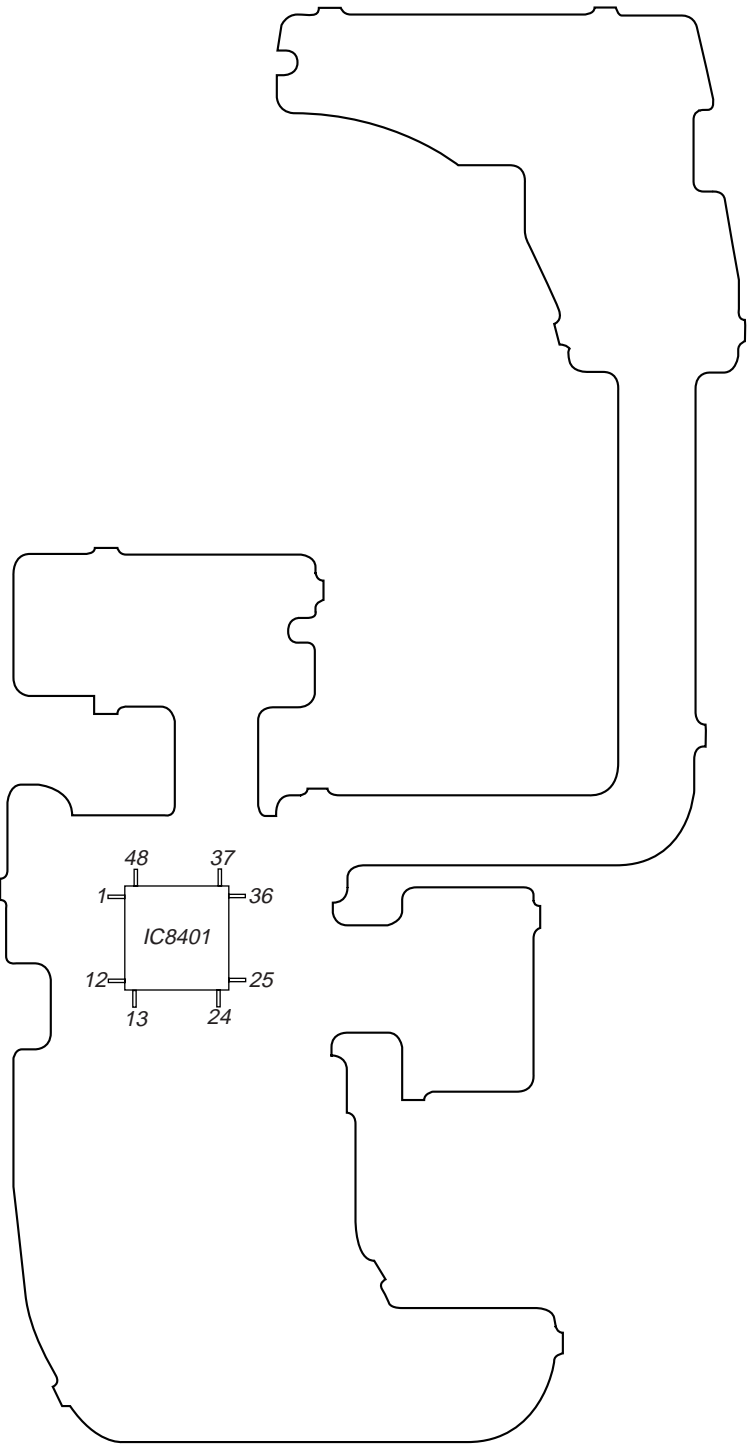
5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the adjustment remote commander

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.
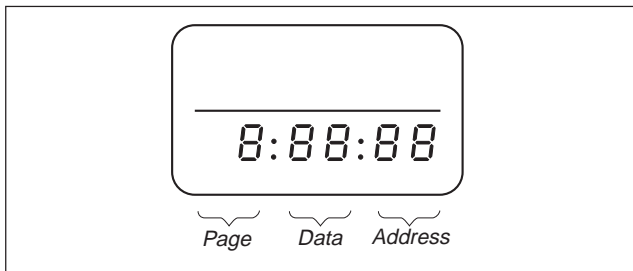
Fig. 5-4-1

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

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

   • Changing the address
   The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   • Changing the data (Data setting)
   The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   • Writing the adjustment data
   The PAUSE button must be pressed to write the adjustment data (C, D, F page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
4) After completing all adjustments, turn off the main power supply (8.4V) once.

2. Precautions upon using the adjustment remote commander

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

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander 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. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table ②

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

① (marks the "Upper digit of hexadecimal" column)

Note: The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);

Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

4-3. SERVICE MODE

1. Setting the Test Mode

Page D	Address 10

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON
03	Forced camera + VTR power ON

• Before setting the data , select page: 0, address: 01, and set data: 01.

• For page D, the data set is recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (8.4Vdc).

• After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander.
Select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

Page C	Address 30 to 3B

Address	Contents
30	EMG code when first error occurs
32	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
33	Lower: MSW code to be moved when first error occurs
34	EMG code when second error occurs
36	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
37	Lower: MSW code to be moved when second error occurs
38	EMG code when last error occurs
3A	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
3B	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (30 to 3B). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (30 to 33). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (34 to 37). Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (38 to 3B).

Note: After completing adjustments, be sure to initialize the data of addresses 30 to 3B to "00".

Initializing method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: FD, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

2-1. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in addresses 30, 34 and 38. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

2-2. MSW Code

MSW when errors occur:
Information on MSW (mode SW) when errors occur

MSW when movement starts:
Information on MSW when movements starts when the mechanism position is moved (When the L motor is moved)

MSW of target of movement:
Information on target MSW of movement when the mechanism position is moved

Mechanical Position

← UNLOAD   LOAD →

	EJECT	BL	ULE	BL	SR	BL	HL	BL	LE	BL	STOP	BL	RP	BL	REW	BL	
	→	→	→	→	→	→	→	→	0	→	0	→	→	→	→	→	← A (LSB)
	→	→	0	→	0	→	0	→	→	→	0	→	→	→	→	→	← B
	→	→	→	→	→	→	0	→	→	→	→	→	0	→	0	→	← C
	0	→	0	→	→	→	→	→	→	→	→	→	→	→	0	→	← D (MSB)
	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	7	F	5	F	D	F	9	F	E	F	C	F	B	F	3	F	

LS Chassis movement section (SR – HL – LE range)

Pinch roller pressing (RP – REW range)

Lock released / Cassette compartment (EJECT – BL range)

Tension regulator (REW range)
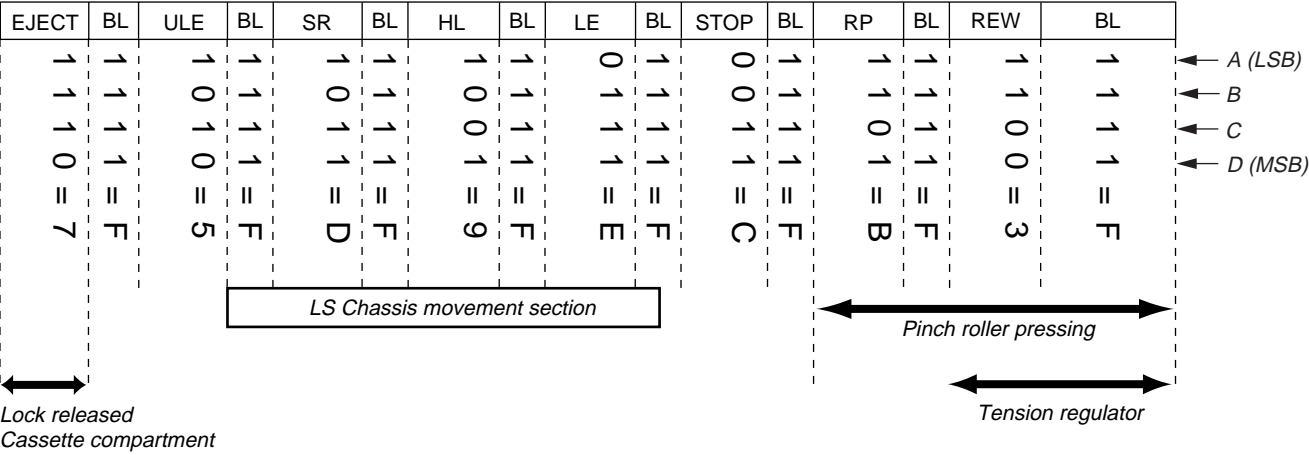
Position	Code	Contents
EJECT	7	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	F	BLANK code, at the boundary between codes.
USE	5	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position. Cassette IN standby. The guide will start protruding out as the mechanism moves towards the LOAD position.
SR	D	Code during loading.
HL	9	Guide loading are performed here.
LE	E	Current limiter turned off.
STOP	C	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
RP	B	PB, REC, CUE, PAUSE positions. When pinch roller is pressed, and the tension regulator is ON, the mechanism is operating at this position in modes in which normal images are shown.
REW	3	REW position. The tension regulator is half on. This position is not used except for the REW mode.

3. Bit value discrimination

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

Display on the adjustment remote commander

Page

Address

bit3 to bit0 discrimination

bit7 to bit4 discrimination
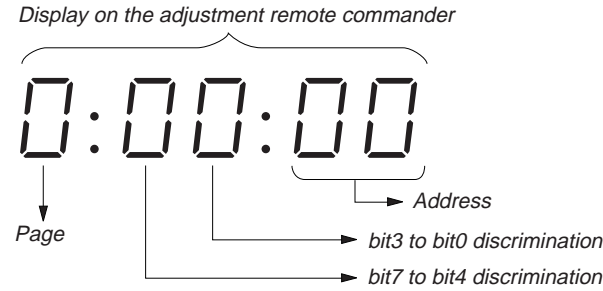
Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
Ⓐ 8	1	0	0	0
9	1	0	0	1
A (*A*)	1	0	1	0
B (*b*)	1	0	1	1
C (*c*)	1	1	0	0
D (*d*)	1	1	0	1
Ⓑ E (*E*)	1	1	1	0
F (*F*)	1	1	1	1

Example: If "8E" is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the Ⓐ column, and the bit values for bit3 to bit0 are shown in the Ⓑ column.

4. Switch check (1)

Page 2	Address 43

Bit	Function	When bit value=1	When bit value=0
0	VTR MODE SW	OFF	ON
1	CAM MODE SW	OFF	ON
2	START/STOP SW	OFF	ON
3	EJECT SW	OFF	ON
4	CC DOWN SW	OFF	ON
5	PHOTO FREEZE SW	OFF	ON
6			
7	PHOTO REC SW	OFF	ON

Using method:
1) Select page: 2, address: 43.
2) By discriminating the bit value of display data, the state of the switches can be discriminated.

5. Switch check (2)

Page 2	Address 5C to 62

Using method:

1) Select page: 2, address: 5C to 62.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data					
	00 to 1A	1B to 4A	4B to 7A	7B to AD	AE to DF	E0 to FF
5C K AD IN 0 IC2302 �89	STOP (FK-4850 block)	REW (FK-4850 block)	PLAY (FK-4850 block)		REC (FK-4850 block)	No key input
5D K AD IN 1 IC2302 �90	PAUSE (FK-4850 block)	FF (FK-4850 block)	LASER LINK (FK-4850 block)	EDIT SEARCH + (FK-4850 block)	EDIT SEARCH – (FK-4850 block)	No key input
5E K AD IN 2 IC2302 �91	FADER (FP-657 board S2)	BACK LIGHT (FP-657 board S1)	PICTURE EFFECT (KY-39 board S7829)			No key input
5F K AD IN 3 IC2302 �92	PROGRAM AE (CF-4850 block)	EXPOSURE (CF-4850 block)	EXECUTE (CF-4850 block)	FOCUS INFINITY (CF-4850 block)	FOCUS AUTO (CF-4850 block)	FOCUS MANUAL (CF-4850 block)
60 K AD IN 4 IC2302 �93	DISPLAY (KY-39 board S7831)	END SEARCH (KY-39 board S7827)	TITLE (KY-39 board S7825)	MENU (KY-39 board S7822)	PANEL OPEN (FP-649 board S1)	PANEL CLOSE (FP-649 board S1)
61 K AD IN 5 IC2302 �94	16 : 9 WIDE (KY-39 board S7832)	DATA CODE (KY-39 board S7828)		5SEC REC (KY-39 board S7823)	PUSH REC (KY-39 board S7823)	NORMAL REC (KY-39 board S7823)
62 K AD IN 6 IC2302 �95	LCD BRIGHT + (BV-4850 block)	LCD BRIGHT – (BV-4850 block)	VOLUME + (BV-4850 block)	VOLUME – (BV-4850 block)	PANEL NORMAL (FP-649 board S2)	PANEL NORMAL (FP-649 board S2)

6. Record of Use check

Page 2	Address 35 to 3D

Address	Function		Remarks
35	Drum rotation counted time (BCD code)	Minutes	
36		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
37		Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
38	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next.
39		Month	
3A		Day	
3B	Final condensation occurrence date (BCD code)	Year	
3C		Month	
3D		Day	

Using method:

1) The record of use data is displayed at page: 2, addresses: 35 to 3D. Note: This data will be erased when the coin lithium battery (LI-64 board) is removed (reset).

SECTION 6
REPAIR PARTS LIST

6-1. EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list is given in the last of this parts list.

The components identified by mark ⚠ 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.

6-1-1. FRONT PANEL SECTION
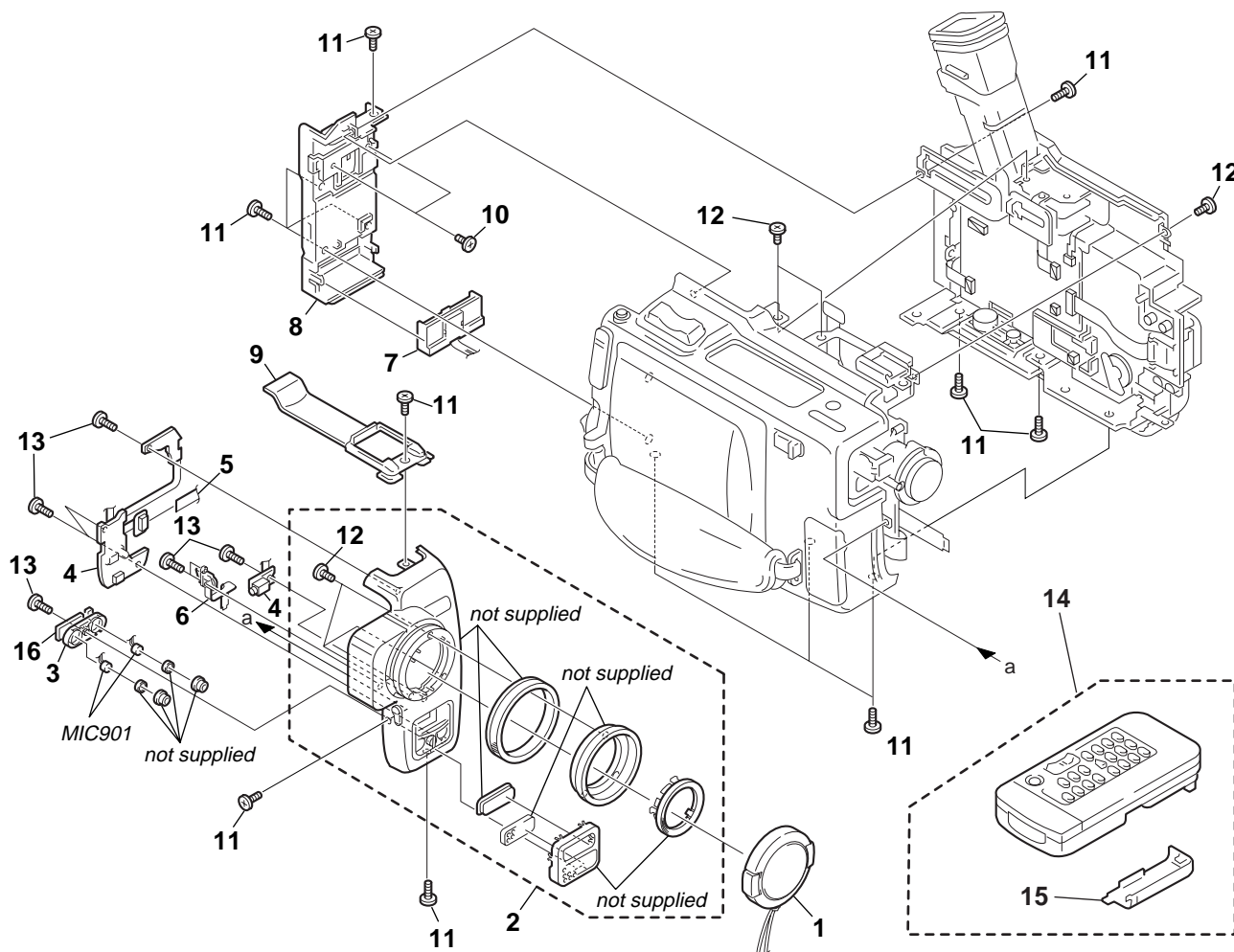
Ref. No.	Part No.	Description	Remarks
1	X-3948-452-1	CAP ASSY, LENS	
2	X-3948-459-1	PANEL ASSY, FRONT (TRV9E:AEP,UK)	
2	X-3948-637-1	PANEL ASSY, FRONT (TRV9/TRV9E:EXCEPT AEP,UK)	
3	X-3948-601-1	HOLDER ASSY, MICROPHONE	
4	A-7073-518-A	MA-322 BOARD, COMPLETE (TRV9)	
4	A-7073-598-A	MA-322 BOARD, COMPLETE (TRV9E:AEP,UK)	
4	A-7073-619-A	MA-322 BOARD, COMPLETE (TRV9E:EXCEPT AEP,UK)	
5	1-669-511-11	FP-654 FLEXIBLE BOARD	
6	1-475-707-11	SWITCH BLOCK, CONTROL (MF4580)	
7	1-694-411-11	TERMINAL BOARD, BATTERY	
8	X-3948-460-1	HOLDER ASSY, BATTERY	

Ref. No.	Part No.	Description	Remarks
9	3-988-463-01	CABINET (UPPER)	
10	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
11	3-968-729-01	SCREW (M2), LOCK ACE, P2	
12	3-968-729-81	SCREW (M2), LOCK ACE, P2	
13	3-948-339-61	TAPPING	
14	1-475-141-21	REMOTE COMMANDER RMT-808 (TRV9/TRV9E:EXCEPT AEP,UK)	
14	1-475-141-31	REMOTE COMMANDER RMT-809 (TRV9E:AEP,UK)	
15	3-742-854-21	LID, BATTERY CASE	
* 16	3-050-355-01	CUSHION (A), MN	
MIC901	1-542-350-11	MICROPHONE UNIT	

6-1-2. CABINET (R) SECTION
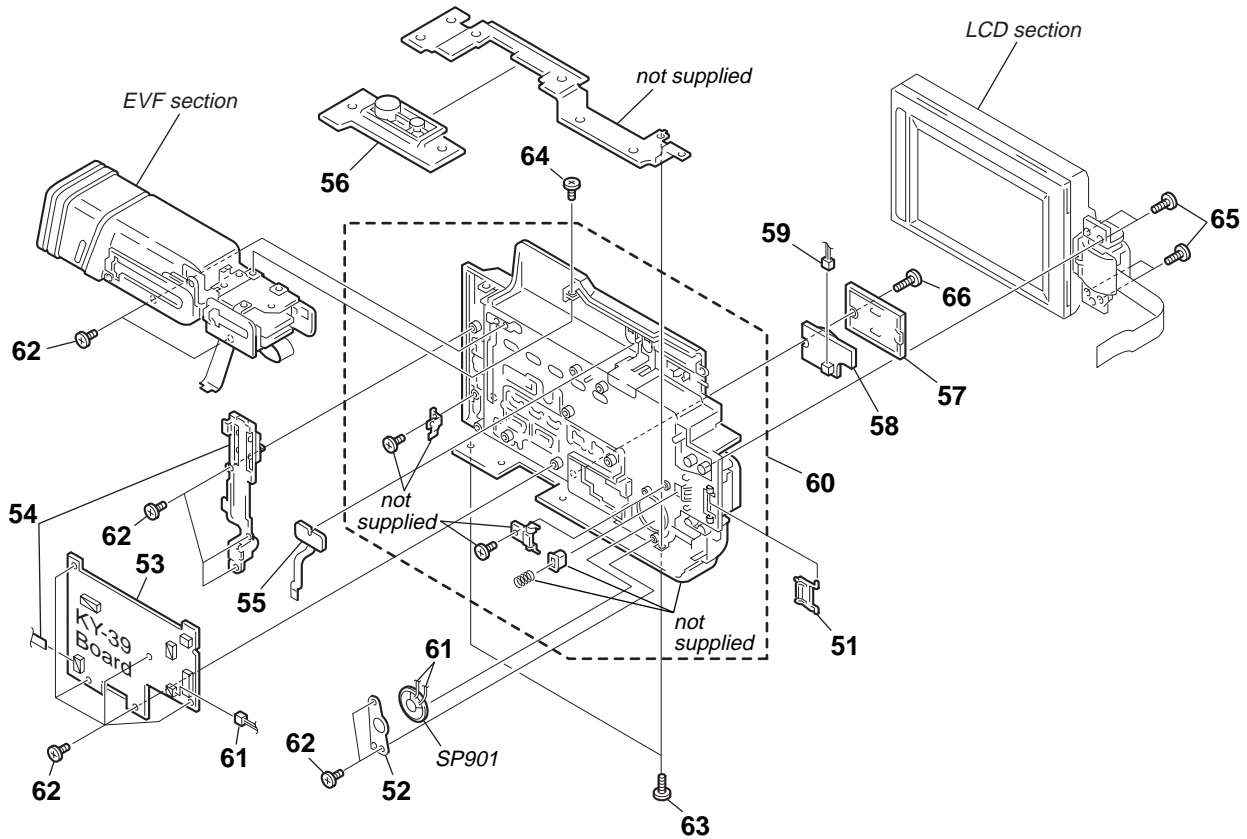
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 51	X-3948-827-1	RETAINER ASSY, PANEL FLEXIBLE		60	X-3948-635-1	CABINET (R) ASSY	
* 52	X-3948-600-1	RETAINER ASSY, SP		61	1-958-571-11	HARNESS (SP-151)	
53	A-7073-517-A	KY-39 BOARD, COMPLETE		62	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
54	1-475-705-11	SWITCH BLOCK, CONTROL (CF4580)		63	3-968-729-01	SCREW (M2), LOCK ACE, P2	
55	1-669-514-21	FP-657 FLEXIBLE BOARD		64	3-968-729-81	SCREW (M2), LOCK ACE, P2	
56	3-988-449-01	SCREW, TRIPOD		65	3-948-339-61	TAPPING	
57	X-3948-606-1	LID ASSY, LI		66	3-948-339-01	SCREW, TAPPING	
58	A-7073-521-A	LI-64 BOARD, COMPLETE		SP901	1-505-619-11	SPEAKER (2.0 CM)	
59	1-958-570-11	HARNESS (BT-55)					

6-1-3. EVF SECTION
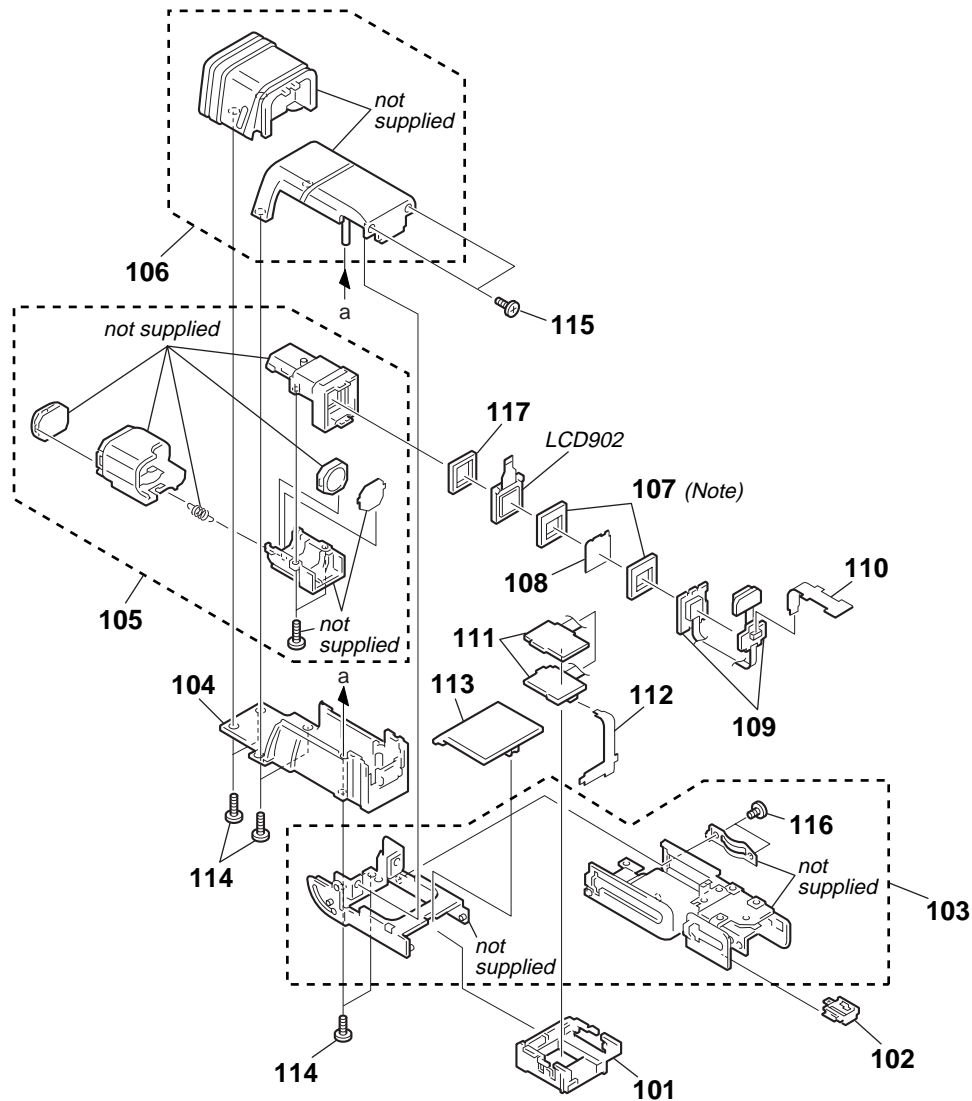
Note: When attaching No. 107 LCD cushions, set its glossy surface contacts No. 108 BL illuminator.

Ref. No.	Part No.	Description	Remarks
* 101	3-988-545-01	HOLDER, VF PC BOARD	
* 102	3-988-572-01	CLAMP, VF FLEXIBLE	
103	X-3948-474-2	BASE ASSY, VF	
104	X-3948-480-1	CABINET (LOWER) ASSY, EVF	
105	X-3948-473-1	LENS ASSY (458), VF	
106	X-3948-605-1	CABINET (UPPER) ASSY, EVF	
107	3-989-416-01	CUSHION (458), LCD	
* 108	3-988-563-01	ILLUMINATOR (458), BL	
109	A-7073-515-A	LB-55 BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remarks
110	1-669-512-21	FP-655 FLEXIBLE BOARD	
111	A-7073-514-A	VF-121 BOARD, COMPLETE	
112	1-669-513-11	FP-656 FLEXIBLE BOARD	
113	3-988-552-01	PLATE, VF ORNAMENTAL	
114	3-713-791-31	SCREW (M1.7X6), TAPPING, P2	
115	3-968-729-01	SCREW (M2), LOCK ACE, P2	
116	3-374-657-01	SCREW (M2X2)	
* 117	3-960-302-11	CUSHION (1), LCD	
LCD902	8-753-023-37	LCX024AK-4	

6-1-4. LCD SECTION
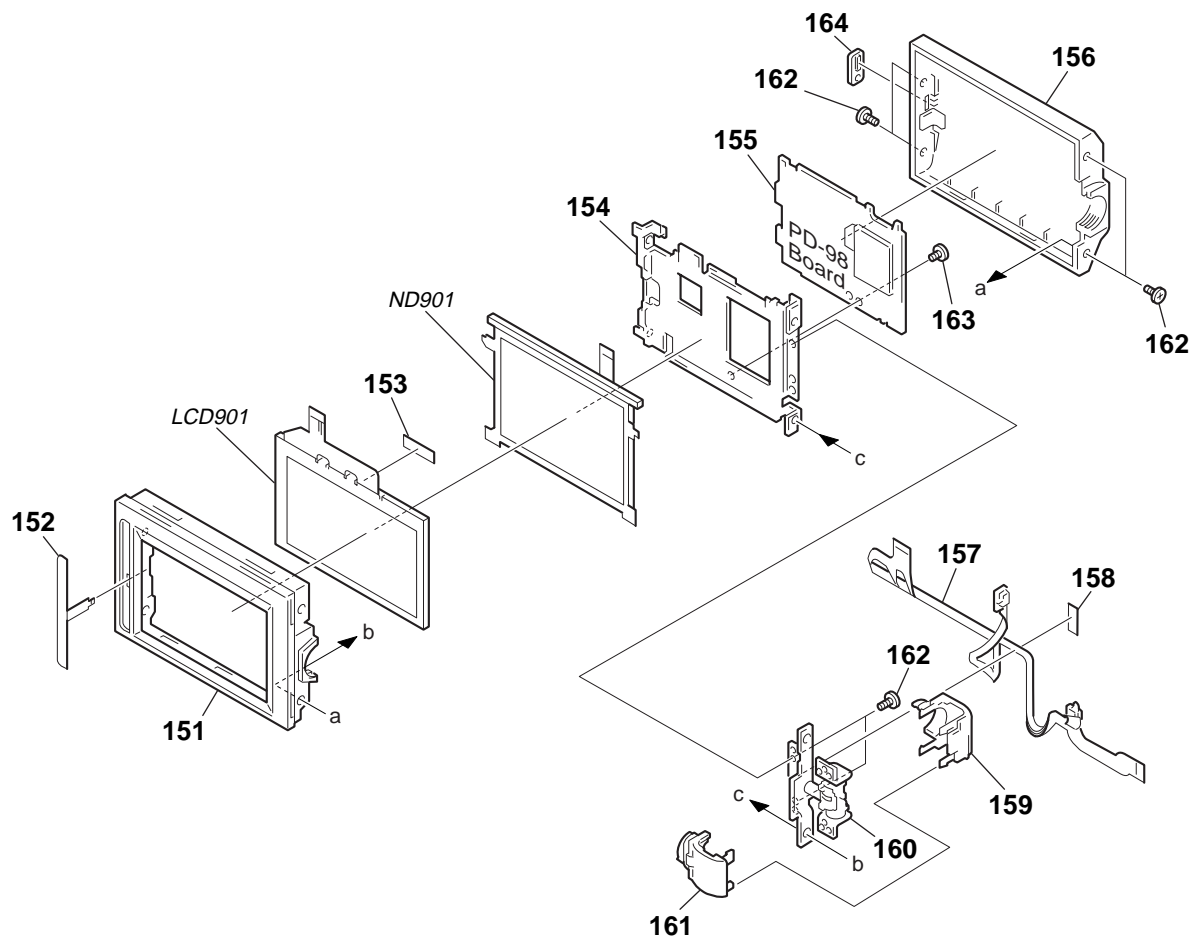
Ref. No.	Part No.	Description	Remarks
151	X-3948-677-1	CABINET (M) ASSY, P	
152	1-475-708-21	SWITCH BLOCK, CONTROL (BV4580)	
* 153	3-050-359-01	SHEET, LCD INSULATING	
* 154	X-3948-676-1	FRAME ASSY, PANEL	
155	A-7067-142-A	PD-98 BOARD, COMPLETE	
156	X-3948-634-1	CABINET (C) ASSY, P (TRV9)	
156	X-3948-680-1	CABINET (C) ASSY, P (TRV9E)	
157	1-669-508-21	FP-649 FLEXIBLE BOARD	
158	3-831-441-11	SHEET, HINGE FLEXIBLE	

Ref. No.	Part No.	Description	Remarks
159	3-988-533-01	COVER (FRONT), HINGE	
160	X-3948-454-1	HINGE ASSY	
161	3-988-534-01	COVER (REAR), HINGE	
162	3-968-729-01	SCREW (M2), LOCK ACE, P2	
163	3-973-497-11	SCREW (M1.7), 0-NO. +P 2	
164	3-988-482-01	COVER, CPC	
LCD901	1-803-033-21	INDICATOR MODULE, LIQUID CRYSTAL	
⚠ ND901	1-517-754-11	TUBE, FLUORESCENT,COLD CATHODE	

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

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

6-1-5. CHASSIS SECTION
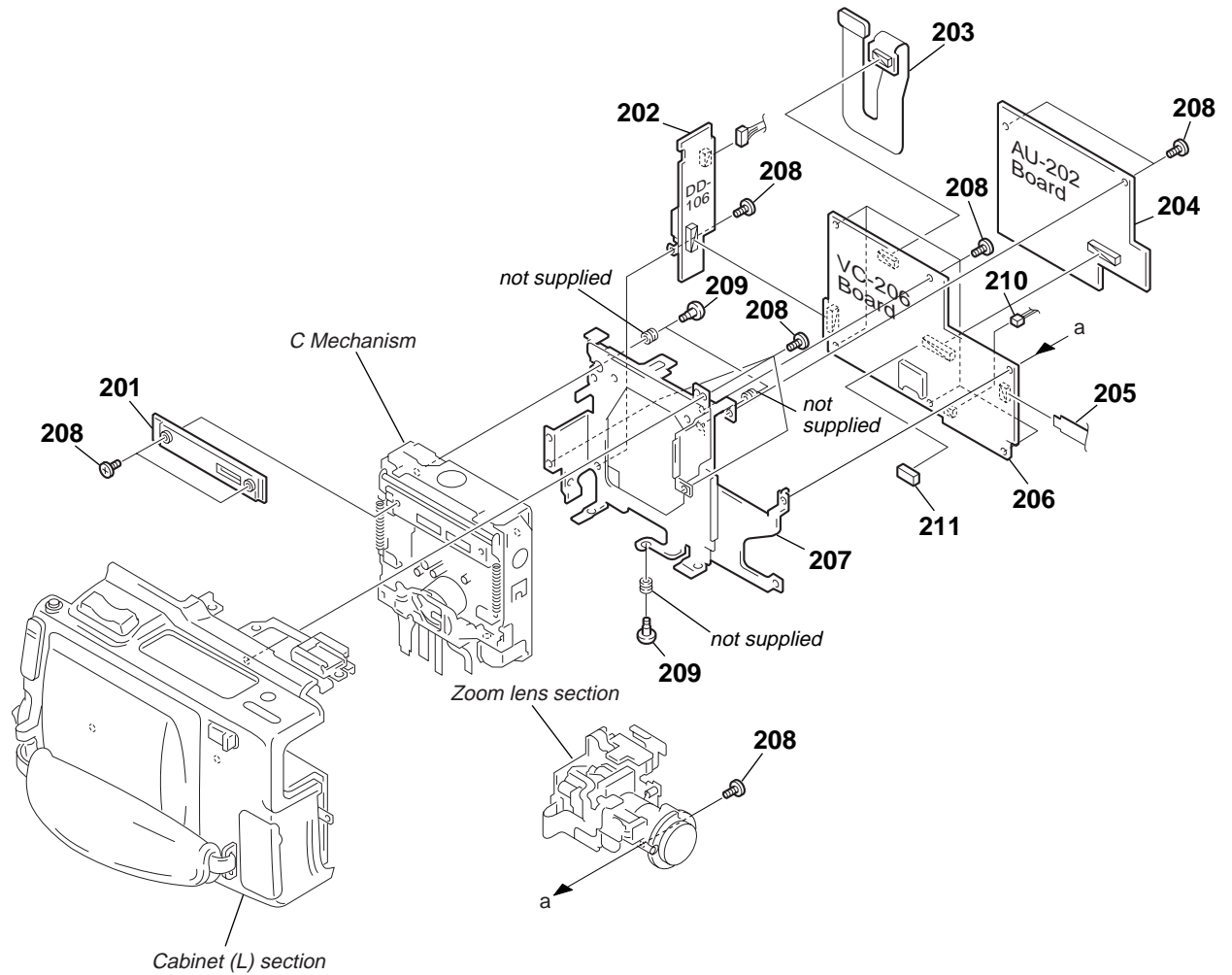
Ref. No.	Part No.	Description	Remarks
201	3-988-481-01	LID, CASSETTE COMPARTMENT	
202	A-7067-144-A	DD-106 BOARD, COMPLETE	
203	1-669-509-21	FP-650 FLEXIBLE BOARD	
204	A-7073-520-A	AU-202 BOARD, COMPLETE	
			(TRV9/TRV9E:EXCEPT AEP,UK)
204	A-7073-599-A	AU-202 BOARD, COMPLETE (TRV9E:AEP,UK)	
205	1-669-511-11	FP-654 FLEXIBLE BOARD	
206	A-7067-143-A	VC-206 BOARD, COMPLETE (TRV9)	

Ref. No.	Part No.	Description	Remarks
206	A-7067-155-A	VC-206 BOARD, COMPLETE (TRV9E:AEP,UK)	
206	A-7067-160-A	VC-206 BOARD, COMPLETE	
			(TRV9E:EXCEPT AEP,UK)
* 207	X-3948-451-1	FRAME ASSY, MD	
208	3-968-729-81	SCREW (M2), LOCK ACE, P2	
209	3-988-464-01	SCREW (M2), STEP	
210	1-958-570-11	HARNESS (BT-55)	
211	9-911-840-99	CUSHION, VC	

6-1-6. CABINET (L) SECTION
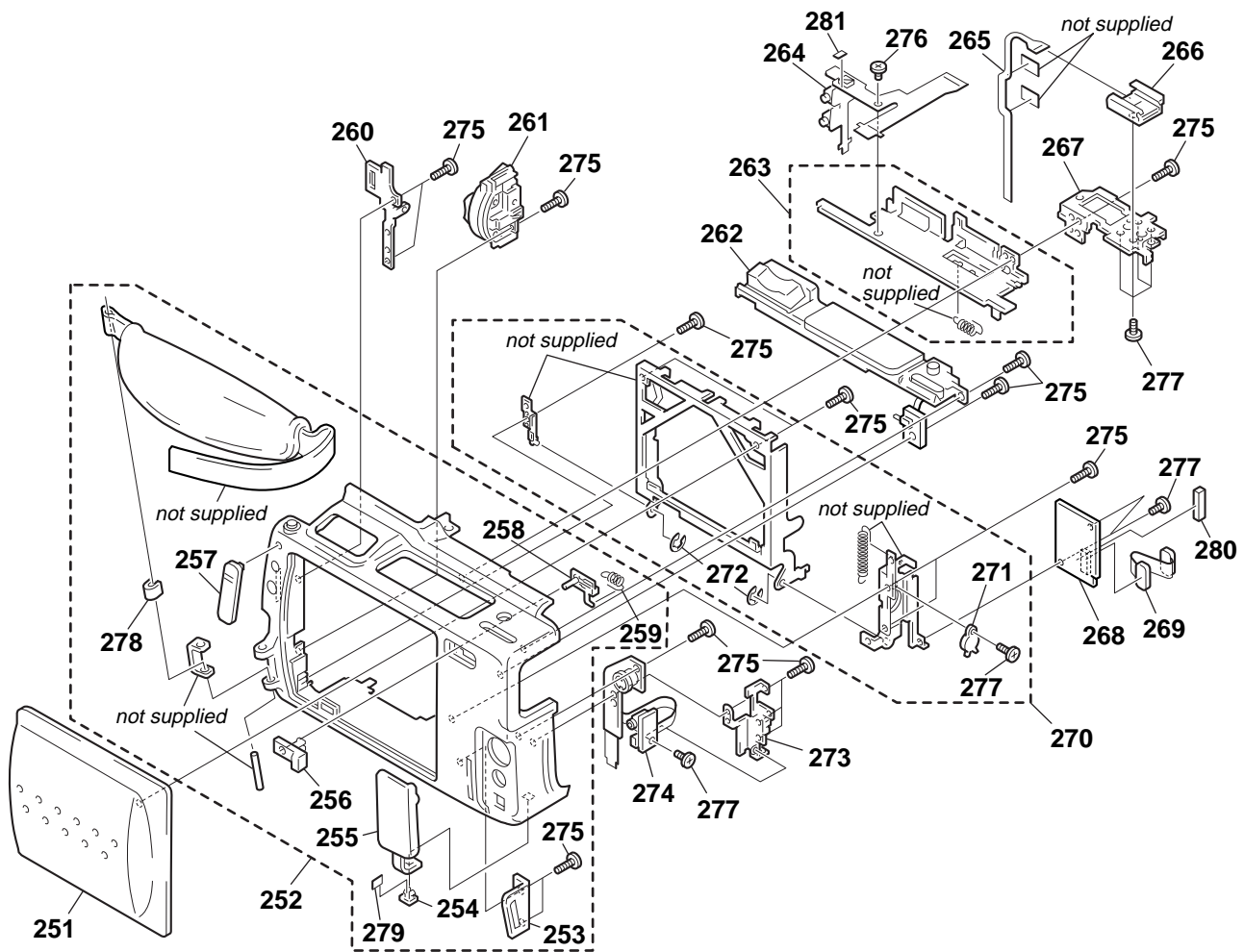
Ref. No.	Part No.	Description	Remarks
251	3-988-444-01	LID, CASSETTE	
252	X-3948-681-1	CABINET (L) ASSY (TRV9E:AEP,UK)	
252	X-3948-636-1	CABINET (L) ASSY	
			(TRV9/TRV9E:EXCEPT AEP,UK)
* 253	3-988-540-01	BRACKET, BELT	
254	3-988-447-01	PIN, JC	
255	3-988-427-01	COVER (AV), JACK	
256	3-988-428-01	BUTTON, EJECT	
257	3-988-541-01	COVER (L), JACK	
258	3-988-429-01	LEVER, EJECT	
259	3-988-430-01	SPRING, EXTENSION	
* 260	3-988-443-01	SHEET METAL, STRAP	
261	1-475-706-21	SWITCH BLOCK, CONTROL (PS4580)	
			(TRV9/TRV9E:EXCEPT AEP,UK)
261	1-475-706-31	SWITCH BLOCK, CONTROL (PS4580)	
			(TRV9E:AEP,UK)
262	1-475-704-21	SWITCH BLOCK, CONTROL (FK4580)	
			(TRV9/TRV9E:EXCEPT AEP,UK)
262	1-475-704-31	SWITCH BLOCK, CONTROL (FK4580)	
			(TRV9E:AEP,UK)
* 263	X-3948-483-1	SLIDER ASSY	

Ref. No.	Part No.	Description	Remarks
264	1-669-515-21	FP-676 FLEXIBLE BOARD	
265	1-669-510-11	FP-653 FLEXIBLE BOARD	
266	1-774-867-21	CONNECTOR,EXTERNAL(HOT SHOE)8P	
* 267	3-988-538-01	FRAME, SHOE	
268	A-7073-519-A	VI-148 BOARD, COMPLETE (TRV9)	
268	A-7073-620-A	VI-148 BOARD, COMPLETE	
			(TRV9E:EXCEPT AEP,UK)
269	1-669-507-21	FP-648 FLEXIBLE BOARD	
			(TRV9/TRV9E:EXCEPT AEP,UK)
* 270	X-3948-482-1	CS ASSY	
271	4-634-290-11	DAMPER	
272	7-624-104-04	STOP RING 2.0, TYPE -E	
* 273	3-988-537-01	FRAME, JACK	
274	1-669-506-21	FP-647 FLEXIBLE BOARD	
275	3-948-339-61	TAPPING	
276	3-374-657-01	SCREW (M2X2)	
277	3-968-729-81	SCREW (M2), LOCK ACE, P2	
278	3-989-953-01	STOPPER, BELT	
* 279	3-050-908-01	SPACER (AV)	
* 280	3-050-356-01	CUSHION, VI	
* 281	3-051-022-01	SHEET (F), ELECTROSTATIC	

6-1-7. ZOOM LENS SECTION
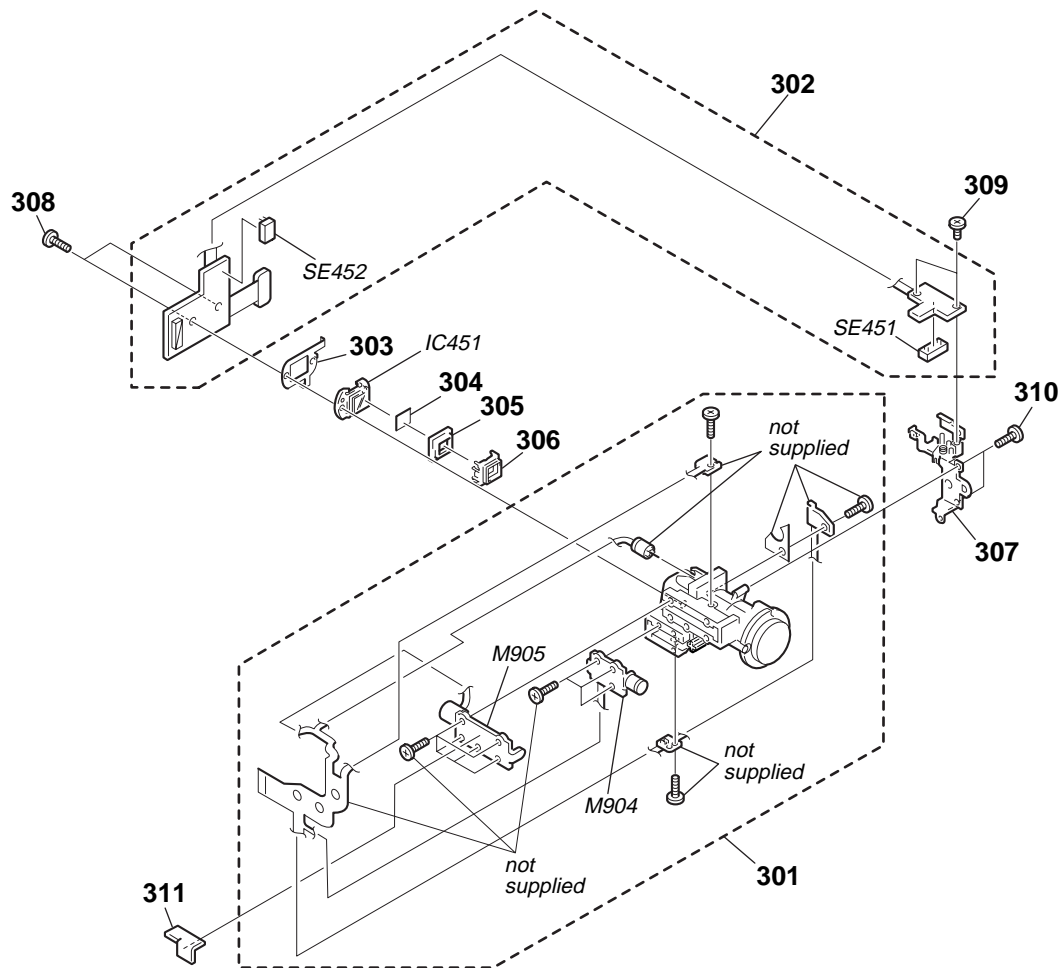
Be sure to read "Note on the CCD imager replacement" on page 4-5 when changing the CCD Imager.

Ref. No.	Part No.	Description	Remarks
301	1-758-154-11	LENS, ZOOM (VCL-5115VA)	
302	A-7073-516-A	CD-185 BOARD, COMPLETE	
* 303	3-988-448-01	PLATE, CD GROUND	
304	1-758-155-21	FILTER BLOCK, OPTICAL	
305	3-968-054-11	RUBBER (FM), SHIELD	
306	3-978-981-11	ADAPTOR (FK), CCD FITTING	
* 307	X-3948-453-1	FRAME ASSY, LENS	
308	3-318-203-11	SCREW (B1.7X6), TAPPING	
309	3-713-786-21	SCREW (M2X3)	
310	3-948-339-61	TAPPING	

Ref. No.	Part No.	Description	Remarks
* 311	3-050-210-01	CUSHION (L)	
IC451	A-7030-881-A	CCD BLOCK ASSY (220 SERVICE)	
			(CCD IMAGER)(TRV9)
IC451	A-7030-885-A	CCD BLOCK ASSY (221 SERVICE)	
			(CCD IMAGER)(TRV9E)
M904	3-709-400-01	MOTOR, FOCUS	
M905	3-709-399-01	MOTOR, ZOOM	
SE451	1-803-042-31	SENSOR, ANGULAR VELOCITY (PITCH)	
SE452	1-801-731-31	SENSOR, ANGULAR VELOCITY (YAW)	

6-1-8. CASSETTE COMPARTMENT, DRUM AND REEL TABLE ASSEMBLY
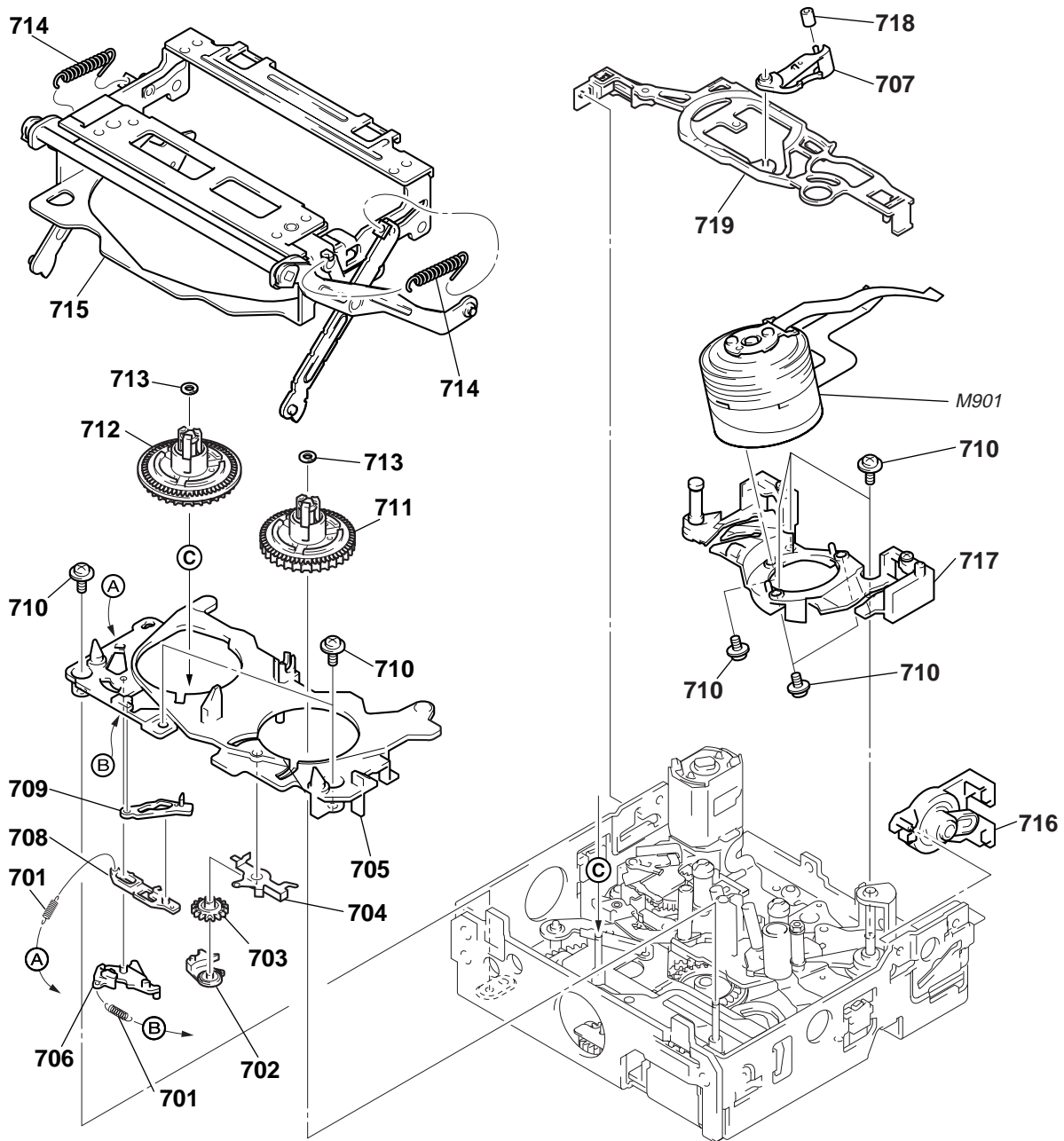
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
701	3-988-312-01	SPRING, EXTENSION		711	X-3948-445-1	TABLE (T) ASSY, REEL	
702	3-988-220-01	BRAKE (T)		712	X-3948-444-1	TABLE (S) ASSY, REEL	
703	3-988-221-01	GEAR (T), BRAKE		713	3-989-465-01	WASHER, STOPPER	
704	3-988-222-01	SPRING (T), BRAKE		714	3-988-298-01	SPRING EXTENSION	
705	3-988-215-02	BASE, CASSETTE		715	X-3948-441-2	CASSETTE COMPARTMENT ASSY	
706	3-988-217-01	ARM (S), RESET		716	X-3948-443-2	DAMPER ASSY	
707	3-988-281-02	ARM, HC		717	A-7093-612-A	DRUM BASE BLOCK ASSY	
708	3-988-219-01	RACK (S), BRAKE		718	3-988-282-01	ROLLER, HC	
709	3-988-218-01	BRAKE (S)		719	3-988-283-01	STOPPER, TAPE FALL	
710	3-947-503-01	SCREW (M1.4X2.5)		M901	A-7044-024-A	DRUM ASSY (DEH-07D-R)	

6-1-9. TAPE GUIDE, PINCH SLIDER ASSEMBLY AND BRAKE SLIDER ASSEMBLY

Included in Ref No. 813 on page 10.
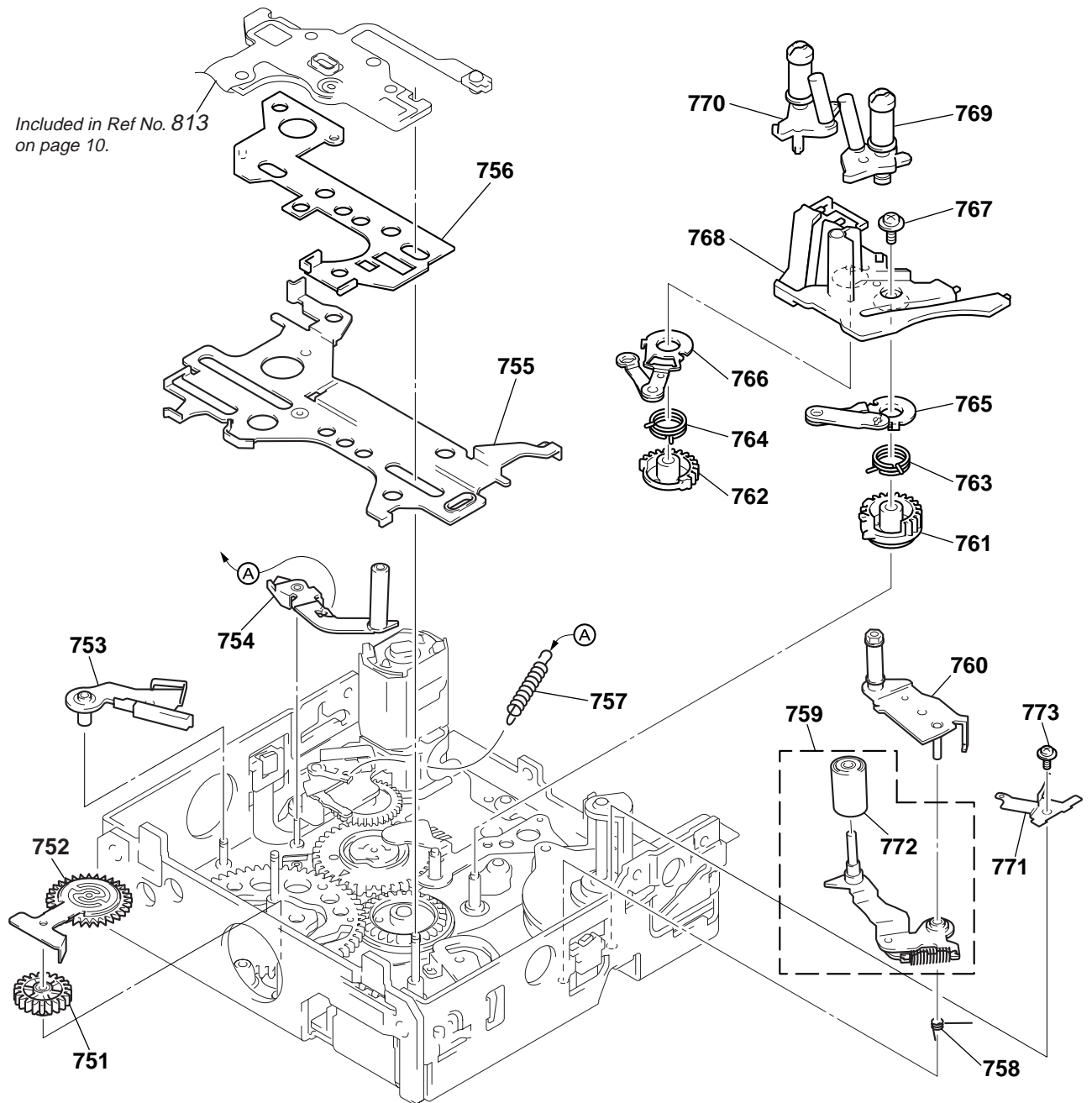
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
751	3-988-263-01	GEAR, RELAY		763	3-988-258-01	SPRING (GLT), TORSION	
752	X-3948-442-2	GEAR ASSY, GOOSENECK		764	3-988-253-01	SPRING (GLS), TORSION	
753	X-3948-435-2	PLATE ASSY, TG1 ADJUSTMENT		765	X-3948-440-1	ARM (T) ASSY, GL	
754	X-3948-434-1	ARM ASSY, TG1		766	X-3948-439-3	ARM (S) ASSY, GL	
755	X-3948-428-4	SLIDER ASSY, PINCH		767	3-947-503-01	SCREW (M1.4X2.5)	
756	X-3948-766-1	SLIDER ASSY, BRAKE		768	3-988-242-01	RAIL, GUIDE	
757	3-988-270-01	SPRING (TG1), TENSION COIL		769	X-3948-438-3	COASTER (T) ASSY	
758	3-988-233-01	SPRING (TG7LD), TORSION		770	X-3948-437-1	COASTER (S) ASSY	
759	X-3948-433-2	ARM ASSY, PINCH		771	3-988-690-02	SPRING, TG7 RETAINER	
760	A-7093-501-A	ARM BLOCK ASSY, TG7		772	X-3748-630-2	ROLLER ASSY (DIA. 5.6), PI	
761	3-988-257-02	GEAR (T), GL		773	3-050-334-01	SCREW (M1.4X5)	
762	3-988-252-03	GEAR (S), GL					

6-1-10. EACH GEARS AND LOADING / CAPSTAN MOTOR ASSEMBLY
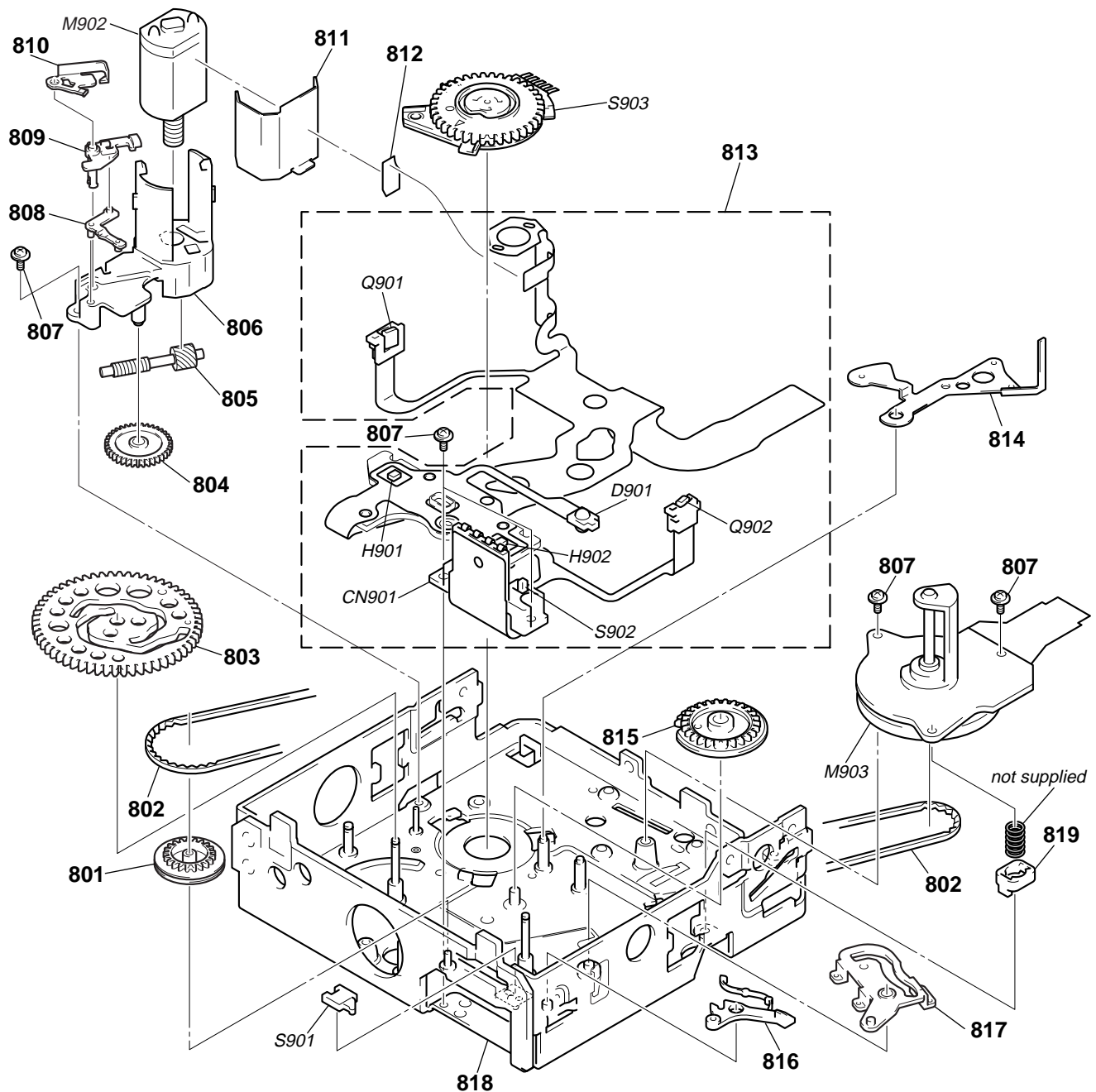
Ref. No.	Part No.	Description	Remarks
801	3-988-274-01	PULLEY, CONVERSION	
802	3-988-276-02	BELT, TIMING	
803	3-988-216-01	GEAR, CAM	
804	3-988-211-01	GEAR, DECELERATION	
805	3-988-210-01	SHAFT, WORM	
806	3-988-207-01	HOLDER, MOTOR	
807	3-947-503-01	SCREW (M1.4X2.5)	
808	3-988-303-01	ARM, SPRING HOOK DRIVING	
809	3-988-271-01	BASE, SPRING HOOK FULCRUM	
810	3-988-302-01	HOOK, TG1 SPRING	
811	3-988-208-01	SHIELD, MOTOR	
812	1-657-785-11	FP-248 FLEXIBLE BOARD (DEW SENSOR)	
813	A-7073-418-A	FP-594 BOARD, COMPLETE	
814	3-988-280-03	ARM, HC DRIVING	
815	3-988-239-01	GEAR, GL DRIVING	

Ref. No.	Part No.	Description	Remarks
816	3-988-223-01	ARM, EJECT	
817	3-988-224-01	ARM, PINCH PRESS	
818	X-3948-431-2	CHASSIS ASSY	
819	3-050-170-01	HOLDER	
CN901	1-784-723-11	PIN, CONNECTOR 4P	
D901	8-719-067-13	DIODE GL453K	
H901	8-719-061-28	DIODE HW-105C-FT-V (S REEL)	
H902	8-719-061-28	DIODE HW-105C-FT-V (T REEL)	
M902	X-3948-346-1	MOTOR ASSY, L (LOADING)	
M903	8-835-606-01	MOTOR, DC SCD15A/C-NP (CAPSTAN)	
Q901	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)	
Q902	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)	
S901	1-771-039-51	SWITCH, PUSH (CASSETTE IN)	
S902	1-572-719-32	SWITCH, PUSH (1 KEY) (REC PROOF)	
S903	1-771-325-11	ENCODER, ROTARY (SWITCH) (MODE)	

6-2. ELECTRICAL PARTS LIST
NOTE:

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

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.

- 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.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF

- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description			Remarks
	A-7073-520-A	AU-202 BOARD, COMPLETE			
		**********************			
					(TRV9/TRV9E:EXCEPT AEP,UK)
	A-7073-599-A	AU-202 BOARD, COMPLETE (TRV9E:AEP,UK)			
		**********************			
					(Ref.No.: 30,000 Series)
		< CAPACITOR >			
C7502	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C7503	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C7504	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C7505	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C7506	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C7507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7508	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C7509	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C7510	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C7511	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7513	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C7514	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7515	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7516	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C7517	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7518	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7519	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7521	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7522	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7523	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7524	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C7525	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7526	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7527	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7528	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7529	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C7532	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7533	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7536	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C7540	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C7542	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C7543	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C7544	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7545	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C7546	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C7547	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7559	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C7560	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7563	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C7564	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V

Ref. No.	Part No.	Description			Remarks
C7565	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C7566	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C7567	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C7572	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C7573	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C7576	1-113-642-11	TANTAL. CHIP	47uF	20%	10V
C7578	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
					(TRV9/TRV9E:EXCEPT AEP,UK)
C7802	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7803	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7804	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C7805	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C7806	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C7807	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C7808	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C7809	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C7810	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C7811	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7812	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7813	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7814	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C7815	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C7817	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C7818	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7819	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7820	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		< CONNECTOR >			
CN7501	1-784-680-11	CONNECTOR, BOARD TO BOARD 100P			
		< DIODE >			
D7502	8-719-056-23	DIODE	MA2S111-(K8).SO		
D7503	8-719-017-76	DIODE	MA8030-TX		
D7504	8-719-056-23	DIODE	MA2S111-(K8).SO		
D7506	8-719-421-67	DIODE	MA132WK-TX		
D7507	8-719-056-23	DIODE	MA2S111-(K8).SO		
D7508	8-719-056-23	DIODE	MA2S111-(K8).SO		
D7510	8-719-056-23	DIODE	MA2S111-(K8).SO		
D7511	8-719-056-23	DIODE	MA2S111-(K8).SO		
D7512	8-719-421-67	DIODE	MA132WK-TX		
D7513	8-719-421-67	DIODE	MA132WK-TX		
D7514	8-719-056-23	DIODE	MA2S111-(K8).SO		
					(TRV9/TRV9E:EXCEPT AEP,UK)
D7801	8-719-056-23	DIODE	1SS387-TPL3		

Ref. No.	Part No.	Description			Remarks
		< FERRITE BEAD >			
FB7501	1-414-226-21	INDUCTOR CHIP 0UH			
		< IC >			
IC7501	8-759-512-62	IC CXA1497AN-E2			
IC7504	8-759-524-60	IC AK4512-VF-E2			
IC7505	8-752-390-28	IC CXD2708R-1-T6			
IC7508	8-759-536-71	IC TLV23621PWR			
IC7801	8-759-299-00	IC BA7785FS-E2			
		< COIL >			
L7501	1-414-754-11	INDUCTOR 10uH			
L7505	1-414-406-11	INDUCTOR 220uH			
		< TRANSISTOR >			
Q7501	8-729-037-72	TRANSISTOR UN9211J-(K8).SO			
Q7502	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q7505	8-729-427-72	TRANSISTOR XP4501-TXE			
Q7506	8-729-037-63	TRANSISTOR UN9115J-(K8).SO			
Q7507	8-729-037-61	TRANSISTOR UN9113J-(K8).SO			
Q7509	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q7510	8-729-429-50	TRANSISTOR XP4312-TXE			
Q7511	8-729-427-46	TRANSISTOR XP4213-TXE			
Q7512	8-729-427-51	TRANSISTOR XP4215-TXE			
Q7513	8-729-427-72	TRANSISTOR XP4501-TXE			
Q7514	8-729-037-63	TRANSISTOR UN9115J-(K8).SO			
Q7515	8-729-040-77	TRANSISTOR 2SC5376-B(TE85L)			
		(TRV9/TRV9E:EXCEPT AEP,UK)			
Q7801	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q7802	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
		< RESISTOR >			
R7501	1-218-973-11	RES,CHIP	47K	5%	1/16W
R7502	1-218-956-11	RES,CHIP	1.8K	5%	1/16W
R7503	1-218-987-11	RES,CHIP	680K	5%	1/16W
R7504	1-220-398-11	RES,CHIP	1.5M	5%	1/16W
R7505	1-218-973-11	RES,CHIP	47K	5%	1/16W
R7506	1-218-990-11	SHORT	0		
R7507	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
R7508	1-218-933-11	RES,CHIP	22	5%	1/16W
R7509	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7510	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7511	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7512	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7513	1-218-977-11	RES,CHIP	100K	5%	1/16W
R7514	1-218-984-11	RES,CHIP	390K	5%	1/16W
R7515	1-218-949-11	RES,CHIP	470	5%	1/16W
R7516	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R7517	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R7518	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7519	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7520	1-216-864-11	METAL CHIP	0	5%	1/16W
R7522	1-218-949-11	RES,CHIP	470	5%	1/16W
R7523	1-218-949-11	RES,CHIP	470	5%	1/16W
R7524	1-218-949-11	RES,CHIP	470	5%	1/16W
R7525	1-218-977-11	RES,CHIP	100K	5%	1/16W
R7527	1-218-977-11	RES,CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R7528	1-218-977-11	RES,CHIP	100K	5%	1/16W
R7529	1-218-990-11	SHORT	0		
R7530	1-218-990-11	SHORT	0		
R7533	1-218-929-11	RES,CHIP	10	5%	1/16W
R7536	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7538	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7541	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7542	1-220-202-11	RES,CHIP	43K	5%	1/16W
R7543	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7544	1-220-202-11	RES,CHIP	43K	5%	1/16W
R7545	1-218-976-11	RES,CHIP	82K	5%	1/16W
R7546	1-218-976-11	RES,CHIP	82K	5%	1/16W
R7547	1-218-976-11	RES,CHIP	82K	5%	1/16W
R7548	1-218-976-11	RES,CHIP	82K	5%	1/16W
R7549	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7550	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7562	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7563	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7567	1-218-945-11	RES,CHIP	220	5%	1/16W
R7568	1-218-945-11	RES,CHIP	220	5%	1/16W
R7569	1-208-719-11	RES,CHIP	33K	0.50%	1/16W
		(TRV9/TRV9E:EXCEPT AEP,UK)			
R7570	1-208-715-11	RES,CHIP	22K	0.50%	1/16W
R7571	1-218-970-11	RES,CHIP	27K	5%	1/16W
R7572	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
R7573	1-208-719-11	RES,CHIP	33K	0.50%	1/16W
		(TRV9/TRV9E:EXCEPT AEP,UK)			
R7574	1-208-715-11	RES,CHIP	22K	0.50%	1/16W
R7575	1-218-966-11	RES,CHIP	12K	5%	1/16W
R7576	1-218-966-11	RES,CHIP	12K	5%	1/16W
R7577	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7578	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7579	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7587	1-218-949-11	RES,CHIP	470	5%	1/16W
R7588	1-218-949-11	RES,CHIP	470	5%	1/16W
R7589	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7590	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7591	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7593	1-218-965-11	RES,CHIP	10K	5%	1/16W
		(TRV9/TRV9E:EXCEPT AEP,UK)			
R7594	1-218-965-11	RES,CHIP	10K	5%	1/16W
		(TRV9/TRV9E:EXCEPT AEP,UK)			
R7595	1-218-965-11	RES,CHIP	10K	5%	1/16W
		(TRV9/TRV9E:EXCEPT AEP,UK)			
R7801	1-218-990-11	SHORT	0		
R7802	1-218-990-11	SHORT	0		
R7803	1-218-942-11	RES,CHIP	120	5%	1/16W
R7804	1-218-942-11	RES,CHIP	120	5%	1/16W
R7805	1-218-951-11	RES,CHIP	680	5%	1/16W
R7806	1-218-951-11	RES,CHIP	680	5%	1/16W
R7809	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7812	1-218-958-11	RES,CHIP	2.7K	5%	1/16W
R7814	1-218-977-11	RES,CHIP	100K	5%	1/16W
R7815	1-218-966-11	RES,CHIP	12K	5%	1/16W
R7816	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7820	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7834	1-218-977-11	RES,CHIP	100K	5%	1/16W
R7835	1-218-958-11	RES,CHIP	2.7K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
	A-7073-516-A	CD-185 BOARD, COMPLETE			
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		(Ref.No.: 1,000 Series)			
		(IC451 is not included in this complete board)			
		< CAPACITOR >			
C302	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C303	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C304	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C305	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C306	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C307	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C308	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C309	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C310	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C311	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C312	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C313	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C314	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C315	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C316	1-115-156-11	CERAMIC CHIP	1uF		10V
C317	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C318	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C319	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C320	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C321	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C323	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C451	1-113-990-11	TANTAL. CHIP	15uF	20%	16V
C452	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C453	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C455	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C456	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C458	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C650	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C651	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C652	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C653	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C654	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C655	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C660	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C661	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C666	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C667	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C668	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C669	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C670	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C671	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C672	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C677	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C678	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
		< CONNECTOR >			
CN451	1-784-994-21	CONNECTOR, BOARD TO BOARD 50P			
CN452	1-766-354-21	CONNECTOR, FFC/FPC 24P			
		< DIODE >			
D301	8-719-404-49	DIODE MA111-TX			

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC301	8-759-444-87	IC NJM324V(TE2)			
IC302	8-759-351-46	IC MPC17A34RVMEL			
IC451	A-7030-881-A	CCD BLOCK ASSY (220 SERVICE)			
		(CCD IMAGER)(TRV9)			
IC451	A-7030-885-A	CCD BLOCK ASSY (221 SERVICE)			
		(CCD IMAGER)(TRV9E)			
IC651	8-759-489-19	IC uPC6756GR-8JG-E2			
		< COIL >			
L302	1-414-754-11	INDUCTOR 10uH			
L303	1-414-754-11	INDUCTOR 10uH			
L305	1-414-754-11	INDUCTOR 10uH			
L451	1-414-757-11	INDUCTOR 100uH			
L602	1-414-754-11	INDUCTOR 10uH			
		< TRANSISTOR >			
Q301	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q302	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q303	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q304	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q451	8-729-117-73	TRANSISTOR 2SC4178-F13F14-T1			
		< RESISTOR >			
R301	1-218-989-11	RES,CHIP	1M	5%	1/16W
R303	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R304	1-218-975-11	RES,CHIP	68K	5%	1/16W
R305	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R307	1-218-975-11	RES,CHIP	68K	5%	1/16W
R308	1-216-295-91	SHORT	0		
R310	1-218-953-11	RES,CHIP	1K	5%	1/16W
R311	1-218-985-11	RES,CHIP	470K	5%	1/16W
R312	1-218-981-11	RES,CHIP	220K	5%	1/16W
R313	1-218-985-11	RES,CHIP	470K	5%	1/16W
R314	1-218-985-11	RES,CHIP	470K	5%	1/16W
R315	1-218-965-11	RES,CHIP	10K	5%	1/16W
R316	1-218-967-11	RES,CHIP	15K	5%	1/16W
R317	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R318	1-218-989-11	RES,CHIP	1M	5%	1/16W
R319	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R320	1-218-973-11	RES,CHIP	47K	5%	1/16W
R321	1-218-969-11	RES,CHIP	22K	5%	1/16W
R322	1-218-969-11	RES,CHIP	22K	5%	1/16W
R323	1-218-947-11	RES,CHIP	330	5%	1/16W
R324	1-218-953-11	RES,CHIP	1K	5%	1/16W
R325	1-218-953-11	RES,CHIP	1K	5%	1/16W
R326	1-218-953-11	RES,CHIP	1K	5%	1/16W
R327	1-218-965-11	RES,CHIP	10K	5%	1/16W
R328	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R329	1-218-973-11	RES,CHIP	47K	5%	1/16W
R330	1-216-158-00	RES,CHIP	22	5%	1/8W
R452	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R454	1-218-990-11	SHORT	0		
R650	1-218-969-11	RES,CHIP	22K	5%	1/16W
R651	1-218-969-11	RES,CHIP	22K	5%	1/16W
R652	1-218-969-11	RES,CHIP	22K	5%	1/16W
R653	1-218-969-11	RES,CHIP	22K	5%	1/16W
R654	1-216-295-91	SHORT	0		
R655	1-216-295-91	SHORT	0		

Be sure to read "Note on the CCD imager replacement" on page 4-5 when changing the CCD Imager.

Ref. No.	Part No.	Description			Remarks
R656	1-218-990-11	SHORT	0		
R664	1-218-965-11	RES,CHIP	10K	5%	1/16W
R665	1-218-989-11	RES,CHIP	1M	5%	1/16W
R666	1-218-989-11	RES,CHIP	1M	5%	1/16W
R667	1-218-965-11	RES,CHIP	10K	5%	1/16W
R669	1-218-967-11	RES,CHIP	15K	5%	1/16W
R670	1-218-977-11	RES,CHIP	100K	5%	1/16W
R671	1-218-953-11	RES,CHIP	1K	5%	1/16W
R672	1-218-990-11	SHORT	0		
R673	1-218-933-11	RES,CHIP	22	5%	1/16W

< SENSOR >

SE451	1-803-042-31	SENSOR, ANGULAR VELOCITY (PITCH)	
SE452	1-801-731-31	SENSOR, ANGULAR VELOCITY (YAW)	

	A-7067-144-A	DD-106 BOARD, COMPLETE

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(Ref.No.: 30,000 Series)

< CAPACITOR >

|					
C801	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C802	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C803	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C804	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C805	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C806	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C807	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C808	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C809	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C810	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C811	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C812	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C813	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C814	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C815	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C816	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C817	1-113-990-11	TANTAL. CHIP	15uF	20%	16V
C819	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C820	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C821	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C822	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C823	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C824	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C825	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C826	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C828	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C829	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C830	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C831	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C832	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C833	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C834	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C835	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C836	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C837	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C838	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C839	1-113-990-11	TANTAL. CHIP	15uF	20%	16V
C840	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C841	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C842	1-216-049-91	RES,CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
C843	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C844	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C845	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
C846	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C847	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C848	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C849	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C850	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C851	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C852	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C853	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C854	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C855	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C856	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C857	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C859	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C860	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C861	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C862	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C863	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C864	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C865	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C866	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C867	1-164-346-11	CERAMIC CHIP	1uF		16V
C868	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C869	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C870	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C871	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C872	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C3900	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C3901	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C3961	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C3965	1-115-156-11	CERAMIC CHIP	1uF		10V
C3966	1-115-156-11	CERAMIC CHIP	1uF		10V
C3967	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C3968	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C3969	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V

< CONNECTOR >

CN3901	1-580-057-11	PIN, CONNECTOR 4P
CN3902	1-778-080-11	CONNECTOR, BOARD TO BOARD 70P

< DIODE >

D801	8-719-067-36	DIODE	MA3ZD1200LS0
D802	8-719-067-36	DIODE	MA3ZD1200LS0
D803	8-719-067-36	DIODE	MA3ZD1200LS0
D804	8-719-067-36	DIODE	MA3ZD1200LS0
D805	8-719-067-36	DIODE	MA3ZD1200LS0
D806	8-719-056-48	DIODE	1SS388(TPL3)
D807	8-719-067-36	DIODE	MA3ZD1200LS0
D808	8-719-404-49	DIODE	MA111-TX
D809	8-719-027-77	DIODE	MA796-TX
D810	8-719-056-48	DIODE	1SS388(TPL3)
D812	8-719-056-48	DIODE	1SS388(TPL3)
D3903	8-719-062-16	DIODE	01ZA8.2(TPL3)

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC801	8-759-384-78	IC SN104241PM-TEB			
IC802	8-759-521-35	IC TL5001CDR			
IC3902	8-759-447-75	IC S-81322HG-KW-T1			
		< COIL >			
L801	1-416-668-11	COIL CHOKE 10uH			
L802	1-416-668-11	COIL CHOKE 10uH			
L803	1-416-668-11	COIL CHOKE 10uH			
L804	1-412-056-11	INDUCTOR CHIP 4.7uH			
L805	1-416-669-11	COIL CHOKE 22uH			
L806	1-416-669-11	COIL CHOKE 22uH			
L807	1-416-669-11	COIL CHOKE 22uH			
L808	1-416-670-11	COIL CHOKE 33uH			
L809	1-416-669-11	COIL CHOKE 22uH			
L810	1-414-396-21	INDUCTOR 4.7uH			
L811	1-414-396-21	INDUCTOR 4.7uH			
L812	1-414-404-11	INDUCTOR 100uH			
L813	1-414-430-11	INDUCTOR 4.7uH			
L814	1-414-396-21	INDUCTOR 4.7uH			
L815	1-414-396-21	INDUCTOR 4.7uH			
L816	1-216-296-91	SHORT 0			
L817	1-414-396-21	INDUCTOR 4.7uH			
L818	1-414-400-11	INDUCTOR 22uH			
L819	1-414-396-21	INDUCTOR 4.7uH			
L820	1-416-669-11	COIL CHOKE 22uH			
L3920	1-414-396-21	INDUCTOR 4.7uH			
		< IC LINK >			
⚠ PS801	1-533-760-21	FUSE (SMD) 1.4A			
⚠ PS802	1-533-760-21	FUSE (SMD) 1.4A			
⚠ PS803	1-533-760-21	FUSE (SMD) 1.4A			
⚠ PS804	1-533-760-21	FUSE (SMD) 1.4A			
⚠ PS805	1-533-760-21	FUSE (SMD) 1.4A			
		< TRANSISTOR >			
Q806	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q807	8-729-804-41	TRANSISTOR 2SB1122-ST-TD			
Q808	8-729-043-94	TRANSISTOR CPH3106-PM-TL			
Q809	8-729-043-94	TRANSISTOR CPH3106-PM-TL			
Q810	8-729-043-94	TRANSISTOR CPH3106-PM-TL			
Q811	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q812	8-729-041-24	TRANSISTOR NDS355AN			
Q813	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q814	8-729-043-94	TRANSISTOR CPH3106-PM-TL			
Q815	8-729-043-94	TRANSISTOR CPH3106-PM-TL			
Q816	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q817	8-729-041-24	TRANSISTOR NDS355AN			
Q818	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q819	8-729-043-94	TRANSISTOR CPH3106-PM-TL			
Q820	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q821	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q822	8-729-042-59	TRANSISTOR UN9112J-(K8).SO			
Q823	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q824	8-729-042-56	TRANSISTOR MGSF3455VT1			
Q826	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			

Ref. No.	Part No.	Description			Remarks
Q827	8-729-037-61	TRANSISTOR UN9113J-(K8).SO			
Q828	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q829	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q830	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q831	8-729-041-23	TRANSISTOR NDS356AP			
Q832	8-729-041-23	TRANSISTOR NDS356AP			
Q833	8-729-041-23	TRANSISTOR NDS356AP			
Q834	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q835	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q836	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q837	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q838	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q839	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q840	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q841	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q842	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q843	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q844	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q845	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q846	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q847	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q848	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q849	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q850	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q852	8-729-017-61	TRANSISTOR 2SB1581-T1			
Q853	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q854	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q855	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q856	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO			
Q3922	8-729-106-60	TRANSISTOR 2SB1132-T100-R			
		< RESISTOR >			
R801	1-218-973-11	RES,CHIP	47K	5%	1/16W
R802	1-208-713-11	RES,CHIP	18K	0.50%	1/16W
R803	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R804	1-218-969-11	RES,CHIP	22K	5%	1/16W
R805	1-218-967-11	RES,CHIP	15K	5%	1/16W
R806	1-208-711-11	RES,CHIP	15K	0.50%	1/16W
R807	1-218-971-11	RES,CHIP	33K	5%	1/16W
R808	1-208-711-11	RES,CHIP	15K	0.50%	1/16W
R809	1-218-849-11	RES,CHIP	3.3K	0.50%	1/16W
R810	1-218-969-11	RES,CHIP	22K	5%	1/16W
R811	1-208-935-11	RES,CHIP	100K	0.50%	1/16W
R812	1-218-970-11	RES,CHIP	27K	0.50%	1/16W
R813	1-218-973-11	RES,CHIP	47K	5%	1/16W
R814	1-218-981-11	RES,CHIP	220K	5%	1/16W
R818	1-208-699-11	RES,CHIP	4.7K	0.50%	1/16W
R819	1-208-927-11	RES,CHIP	47K	0.50%	1/16W
R820	1-218-945-11	RES,CHIP	220	5%	1/16W
R821	1-208-715-11	RES,CHIP	22K	0.50%	1/16W
R822	1-218-981-11	RES,CHIP	220K	5%	1/16W
R823	1-218-965-11	RES,CHIP	10K	5%	1/16W
R824	1-218-969-11	RES,CHIP	22K	5%	1/16W
R829	1-218-965-11	RES,CHIP	10K	5%	1/16W
R830	1-208-719-11	RES,CHIP	33K	0.50%	1/16W
R831	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R833	1-218-971-11	RES,CHIP	33K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R834	1-208-719-11	RES,CHIP	33K	0.50%	1/16W
R835	1-218-973-11	RES,CHIP	47K	5%	1/16W
R836	1-218-965-11	RES,CHIP	10K	5%	1/16W
R837	1-208-699-11	RES,CHIP	4.7K	0.50%	1/16W
R838	1-218-969-11	RES,CHIP	22K	5%	1/16W
R839	1-218-969-11	RES,CHIP	22K	5%	1/16W
R840	1-218-971-11	RES,CHIP	33K	5%	1/16W
R841	1-218-966-11	RES,CHIP	12K	5%	1/16W
R842	1-208-703-11	RES,CHIP	6.8K	0.50%	1/16W
R843	1-208-689-11	RES,CHIP	1.8K	0.50%	1/16W
R844	1-218-849-11	RES,CHIP	3.3K	0.50%	1/16W
R845	1-218-955-11	RES,CHIP	1.5K	5%	1/16W
R846	1-218-949-11	RES,CHIP	470	5%	1/16W
R847	1-218-965-11	RES,CHIP	10K	5%	1/16W
R848	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R849	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R850	1-218-978-11	RES,CHIP	120K	5%	1/16W
R851	1-218-955-11	RES,CHIP	1.5K	5%	1/16W
R852	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R853	1-208-703-11	RES,CHIP	6.8K	0.50%	1/16W
R854	1-218-970-11	RES,CHIP	27K	0.50%	1/16W
R855	1-218-990-11	SHORT	0		
R859	1-218-977-11	RES,CHIP	100K	5%	1/16W
R864	1-218-989-11	RES,CHIP	1M	5%	1/16W
R865	1-218-973-11	RES,CHIP	47K	5%	1/16W
R866	1-218-969-11	RES,CHIP	22K	5%	1/16W
R868	1-218-981-11	RES,CHIP	220K	5%	1/16W
R869	1-218-946-11	RES,CHIP	270	5%	1/16W
R870	1-218-989-11	RES,CHIP	1M	5%	1/16W
R871	1-218-989-11	RES,CHIP	1M	5%	1/16W
R872	1-218-977-11	RES,CHIP	100K	5%	1/16W
R873	1-218-973-11	RES,CHIP	47K	5%	1/16W
R874	1-218-989-11	RES,CHIP	1M	5%	1/16W
R875	1-218-981-11	RES,CHIP	220K	5%	1/16W
R876	1-218-977-11	RES,CHIP	100K	5%	1/16W
R878	1-218-989-11	RES,CHIP	1M	5%	1/16W
R879	1-218-969-11	RES,CHIP	22K	5%	1/16W
R880	1-218-978-11	RES,CHIP	120K	0.50%	1/16W
R881	1-218-990-11	SHORT	0		
R882	1-208-943-11	RES,CHIP	220K	0.50%	1/16W
R883	1-218-973-11	RES,CHIP	47K	5%	1/16W
R884	1-218-977-11	RES,CHIP	100K	5%	1/16W
R885	1-218-977-11	RES,CHIP	100K	5%	1/16W
R887	1-218-981-11	RES,CHIP	220K	5%	1/16W
R888	1-218-977-11	RES,CHIP	100K	5%	1/16W
R890	1-218-977-11	RES,CHIP	100K	5%	1/16W
R891	1-208-935-11	RES,CHIP	100K	0.50%	1/16W
R892	1-208-943-11	RES,CHIP	220K	0.50%	1/16W
R893	1-208-711-11	RES,CHIP	15K	0.50%	1/16W
R894	1-208-941-11	RES,CHIP	180K	0.50%	1/16W
R895	1-218-969-11	RES,CHIP	22K	5%	1/16W
R896	1-208-943-11	RES,CHIP	220K	0.50%	1/16W
R897	1-208-931-11	RES,CHIP	68K	0.50%	1/16W
R898	1-208-942-11	RES,CHIP	200K	0.50%	1/16W
R899	1-208-719-11	RES,CHIP	33K	0.50%	1/16W
R900	1-208-931-11	RES,CHIP	68K	0.50%	1/16W
R901	1-218-886-11	RES,CHIP	43K	0.50%	1/16W
R902	1-208-699-11	RES,CHIP	4.7K	0.50%	1/16W
R903	1-218-977-11	RES,CHIP	100K	5%	1/16W
R904	1-218-981-11	RES,CHIP	220K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R905	1-208-941-11	RES,CHIP	180K	0.50%	1/16W
R906	1-208-699-11	RES,CHIP	4.7K	0.50%	1/16W
R907	1-208-943-11	RES,CHIP	220K	0.50%	1/16W
R908	1-218-973-11	RES,CHIP	47K	5%	1/16W
R910	1-218-965-11	RES,CHIP	10K	5%	1/16W
R911	1-208-711-11	RES,CHIP	15K	0.50%	1/16W
R912	1-208-715-11	RES,CHIP	22K	0.50%	1/16W
R914	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3969	1-216-803-11	METAL CHIP	33	5%	1/16W
R3970	1-216-803-11	METAL CHIP	33	5%	1/16W
R3972	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3973	1-218-971-11	RES,CHIP	33K	5%	1/16W
R3974	1-218-974-11	RES,CHIP	56K	5%	1/16W
		< TRANSFORMER >			
T801	1-429-565-21	TRANSFORMER, CONVERTER			

	A-7073-418-A	FP-594 BOARD, COMPLETE
		*********************
		(Ref.No.: 2,000 Series)
		< CONNECTOR >
CN901	1-784-723-11	PIN, CONNECTOR 4P
		< DIODE >
D901	8-719-067-13	DIODE GL453K
		< HOLE ELEMENT >
H901	8-719-061-28	DIODE HW-105C-FT-V (S REEL)
H902	8-719-061-28	DIODE HW-105C-FT-V (T REEL)
		< TRANSISTOR >
Q901	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)
Q902	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)
		< SWITCH >
S901	1-771-039-51	SWITCH, PUSH (C IN SW)
S902	1-572-719-32	SWITCH, PUSH (1 KEY) (REC PROOF)
S903	1-771-325-11	ENCODER, ROTARY (SWITCH)(MODE)

	1-669-506-21	FP-647 FLEXIBLE BOARD
		*********************
		(Ref.No.: 3,000 Series)
		< CONNECTOR >
CN1	1-779-369-11	JACK, DV (DV IN/OUT)
		< JACK >
J1	1-778-040-11	JACK, AV (VIDEO/AUDIO)
J2	1-778-518-11	JACK, S (S VIDEO)
		< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R1	1-216-295-11	RES,CHIP	0	5%	1/10W
R2	1-216-295-11	RES,CHIP	0	5%	1/10W

Ref. No.	Part No.	Description	Remarks
	1-669-508-21	FP-649 FLEXIBLE BOARD	
		*********************	
			(Ref.No.: 4,000 Series)
		< SWITCH >	
S1	1-572-288-11	SWITCH, ROTARY (OPEN/CLOSE)	
S2	1-572-467-71	SWITCH, PUSH (REVERSE)	

	1-669-514-21	FP-657 FLEXIBLE BOARD	
		*********************	
			(Ref.No.: 5,000 Series)
		< SWITCH >	
SW1	1-762-851-21	SWITCH, PUSH (FADER)	
SW2	1-762-851-21	SWITCH, PUSH (BACKLIGHT)	

	1-669-515-21	FP-676 FLEXIBLE BOARD	
		*********************	
			(Ref.No.: 6,000 Series)
		< JACK >	
J1	1-565-276-21	JACK, LANC (LANC)	
J2	1-695-514-21	JACK, HP (HEADPHONES)	

		< RESISTOR >			
R1	1-216-864-11	RES,CHIP	0	5%	1/16W
R2	1-216-864-11	RES,CHIP	0	5%	1/16W
R3	1-216-864-11	RES,CHIP	0	5%	1/16W
R4	1-216-864-11	RES,CHIP	0	5%	1/16W
R5	1-216-864-11	RES,CHIP	0	5%	1/16W
R6	1-216-864-11	RES,CHIP	0	5%	1/16W
R7	1-216-864-11	RES,CHIP	0	5%	1/16W
R8	1-216-864-11	RES,CHIP	0	5%	1/16W

		< SWITCH >	
S1	1-692-247-11	SWITCH, PUSH (PHOTO FREEZE/PHOTO REC)	

	A-7073-517-A	KY-39 BOARD, COMPLETE	
		*********************	
			(Ref.No.: 40,000 Series)

		< CONNECTOR >	
CN7801	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P	
CN7802	1-573-365-21	CONNECTOR, FFC/FPC 25P	
CN7803	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P	
CN7804	1-573-346-21	CONNECTOR, FFC/FPC 6P	
CN7805	1-778-598-21	CONNECTOR, BOARD TO BOARD 60P	
CN7806	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P	

		< DIODE >	
D7802	8-719-420-14	DIODE MA8082-TX	

		< COIL >	
L7801	1-412-056-11	INDUCTOR CHIP 4.7uH	
L7802	1-216-295-91	SHORT 0	
L7803	1-216-295-91	SHORT 0	
L7804	1-216-295-91	SHORT 0	
L7805	1-216-295-91	SHORT 0	

Ref. No.	Part No.	Description			Remarks
L7806	1-414-754-11	INDUCTOR 10uH			
L7807	1-216-295-91	SHORT 0			
L7808	1-216-295-91	SHORT 0			
L7809	1-414-754-11	INDUCTOR 10uH			
L7810	1-216-295-91	SHORT 0			
L7811	1-216-295-91	SHORT 0			
L7812	1-216-295-91	SHORT 0			

		< RESISTOR >			
R7822	1-216-838-11	METAL CHIP	27K	5%	1/16W
R7824	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R7825	1-216-838-11	METAL CHIP	27K	5%	1/16W
R7826	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R7827	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R7829	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R7830	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R7832	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R7833	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R7834	1-216-826-11	METAL CHIP	2.7K	5%	1/16W

		< SWITCH >	
S7822	1-762-851-21	SWITCH, KEY BOARD (MENU)	
S7823	1-692-605-11	SWITCH, SLIDE (START/STOP MODE)	
S7825	1-762-851-21	SWITCH, KEY BOARD (TITLE)	
S7827	1-762-851-21	SWITCH, KEY BOARD (END SEARCH)	
S7828	1-762-851-21	SWITCH, KEY BOARD (DATA CODE)	
S7829	1-762-851-21	SWITCH, KEY BOARD (PICTURE EFFECT)	
S7831	1-762-851-21	SWITCH, KEY BOARD (ON SCREEN DISPLAY)	
S7832	1-762-851-21	SWITCH, KEY BOARD (WIDE)	
S7833	1-762-851-41	SWITCH, KEY BOARD (RESET)	

	A-7073-515-A	LB-55 BOARD, COMPLETE	
		*********************	
			(Ref.No.: 60,000 Series)

		< CAPACITOR >			
C5201	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5202	1-113-642-11	TANTAL. CHIP	47uF	20%	10V
C5203	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C5204	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C5206	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C5207	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C5208	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V

		< CONNECTOR >	
CN5201	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P	
CN5202	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P	

		< DIODE >	
D5201	8-719-056-49	DIODE 1SS370(TE85L)	

		< COIL >	
L5201	1-412-031-11	INDUCTOR CHIP 47uH	
L5202	1-412-029-11	INDUCTOR CHIP 10uH	

		< FLUORESCENT INDICATOR >	
ND5201	1-517-758-11	TUBE, FLUORESCENT (0.55 INCH)	

Ref. No.	Part No.	Description			Remarks
		< TRANSISTOR >			
Q5201	8-729-039-24	TRANSISTOR FX216-TL1			
		< RESISTOR >			
R5201	1-216-839-11	METAL CHIP	33K	5%	1/16W
R5202	1-216-809-11	METAL CHIP	100	5%	1/16W
		< TRANSFORMER >			
T5201	1-426-848-51	TRANSFORMER, INVERTER			

	A-7073-521-A	LI-64 BOARD, COMPLETE
		*********************
		(Ref.No.: 40,000 Series)

		< BATTERY >	
BT9831	1-528-724-21	BATTERY, V/L RECHARGEABL	
		< CONNECTOR >	
CN9831	1-580-055-21	PIN, CONNECTOR 2P	

	A-7073-518-A	MA-322 BOARD, COMPLETE (TRV9)
		*********************
	A-7073-598-A	MA-322 BOARD, COMPLETE (TRV9E:AEP,UK)
		*********************
	A-7073-619-A	MA-322 BOARD, COMPLETE
		*********************
		(TRV9E:EXCEPT AEP,UK)
		(Ref.No.: 20,000 Series)

Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C7003	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7004	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7005	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C7006	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C7007	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7008	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7009	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7010	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7011	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C7012	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7013	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7014	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C7015	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C7016	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C7017	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7018	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7019	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C7020	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C7021	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7022	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7023	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7024	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7025	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7026	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7027	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C7028	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C7029	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C7030	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7035	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C7036	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C7037	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C7038	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C7041	1-115-156-11	CERAMIC CHIP	1uF		10V
C7042	1-115-156-11	CERAMIC CHIP	1uF		10V
C7043	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C7048	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8401	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8402	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C8403	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8404	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C8405	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C8406	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8408	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8409	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C8410	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C8411	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C8412	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C8413	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C8414	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8415	1-164-668-11	CERAMIC CHIP	510PF	5%	50V
C8417	1-164-844-11	CERAMIC CHIP	4PF	0.25PF	16V
C8419	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8420	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8421	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8422	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8424	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C8428	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C8429	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8430	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8431	1-164-864-11	CERAMIC CHIP	39PF	5%	16V
C8432	1-164-862-11	CERAMIC CHIP	33PF	5%	16V
C8433	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		(TRV9/TRV9E:EXCEPT AEP,UK)			
C8435	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C8436	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C8437	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C8438	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C8601	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C8603	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8605	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C8651	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
		< CONNECTOR >			
CN7001	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P			
CN7002	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P			
CN7003	1-778-507-21	PIN, CONNECTOR (PC BOARD) 4P			
		< DIODE >			
D7002	8-719-420-14	DIODE MA8082-TX			
D7003	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D7004	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D7005	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D8602	8-719-061-86	DIODE DCR2810			

Ref. No.	Part No.	Description			Remarks
D8603	8-749-060-65	DIODE DCC3810			
D8651	8-719-061-82	DIODE TLSU1002(TPX1,SONY)			
		< FERRITE BEAD >			
FB7001	1-500-113-11	FERRITE 0UH			
FB7002	1-500-113-11	FERRITE 0UH			
		< IC >			
IC7001	8-759-248-31	IC BA7780KV-E2			
IC8401	8-759-498-52	IC LA9511W-TBM			
IC8651	8-749-012-83	IC RS-180-T			
		< JACK >			
J7001	1-691-737-11	JACK (SMALL TYPE) (EXT MIC)			
		< COIL >			
L8402	1-412-948-11	INDUCTOR 5.6uH			
L8403	1-412-957-11	INDUCTOR 33uH			
L8404	1-412-957-11	INDUCTOR 33uH			
L8405	1-414-406-11	INDUCTOR 220uH			
		< TRANSISTOR >			
Q8401	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q8601	8-729-037-72	TRANSISTOR UN9211J-(K8).SO			
Q8603	8-729-122-63	TRANSISTOR 2SA1226-T1E3E4			
Q8604	8-729-140-75	TRANSISTOR 2SD999-T1-CLCK			
Q8605	8-729-141-48	TRANSISTOR 2SB624-T1BV4			
Q8606	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO			
Q8651	8-729-037-72	TRANSISTOR UN9211J-(K8).SO			
		< RESISTOR >			
R7006	1-218-967-11	RES,CHIP	15K	5%	1/16W
R7007	1-218-967-11	RES,CHIP	15K	5%	1/16W
R7008	1-218-971-11	RES,CHIP	33K	5%	1/16W
R7009	1-218-968-11	RES,CHIP	18K	5%	1/16W
R7010	1-218-990-11	SHORT	0		
R7011	1-218-990-11	SHORT	0		
R7012	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R7013	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R7014	1-218-963-11	RES,CHIP	6.8K	5%	1/16W
R7015	1-218-963-11	RES,CHIP	6.8K	5%	1/16W
R7016	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7017	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7018	1-218-962-11	RES,CHIP	5.6K	5%	1/16W
R7019	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R7020	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7021	1-218-962-11	RES,CHIP	5.6K	5%	1/16W
R7022	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7023	1-218-990-11	SHORT	0		
R7024	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R7025	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7026	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7027	1-218-990-11	SHORT	0		
R7028	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7029	1-218-969-11	RES,CHIP	22K	5%	1/16W
R7036	1-218-962-11	RES,CHIP	5.6K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R7038	1-218-950-11	RES,CHIP	560	5%	1/16W
R7039	1-218-964-11	RES,CHIP	8.2K	5%	1/16W
R7040	1-218-971-11	RES,CHIP	33K	5%	1/16W
R7041	1-218-966-11	RES,CHIP	12K	5%	1/16W
R7043	1-218-971-11	RES,CHIP	33K	5%	1/16W
R7046	1-218-953-11	RES,CHIP	1K	5%	1/16W
R7047	1-218-953-11	RES,CHIP	1K	5%	1/16W
R8401	1-218-973-11	RES,CHIP	47K	5%	1/16W
R8403	1-218-973-11	RES,CHIP	47K	5%	1/16W
R8405	1-218-965-11	RES,CHIP	10K	5%	1/16W
R8406	1-218-965-11	RES,CHIP	10K	5%	1/16W
R8407	1-218-989-11	RES,CHIP	1M	5%	1/16W
R8409	1-208-715-11	RES,CHIP	22K	0.50%	1/16W
R8410	1-218-947-11	RES,CHIP	330	5%	1/16W
R8411	1-218-953-11	RES,CHIP	1K	5%	1/16W
R8412	1-218-990-11	SHORT	0 (TRV9E)		
R8413	1-218-949-11	RES,CHIP	470	5%	1/16W
R8415	1-218-950-11	RES,CHIP	560	5%	1/16W
R8416	1-218-963-11	RES,CHIP	6.8K	5%	1/16W
R8417	1-218-949-11	RES,CHIP	470	5%	1/16W
R8418	1-218-949-11	RES,CHIP	470	5%	1/16W
R8423	1-218-979-11	RES,CHIP	150K	5%	1/16W
R8424	1-218-979-11	RES,CHIP	150K	5%	1/16W
R8429	1-218-966-11	RES,CHIP	12K	5%	1/16W
R8430	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R8431	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R8432	1-218-964-11	RES,CHIP	8.2K	5%	1/16W
R8435	1-218-955-11	RES,CHIP	1.5K	5%	1/16W
R8443	1-218-990-11	SHORT	0 (TRV9E:AEP,UK)		
R8444	1-218-972-11	RES,CHIP	39K	5%	1/16W
		(TRV9/TRV9E:EXCEPT AEP,UK)			
R8601	1-216-311-00	METAL CHIP	6.8	5%	1/10W
R8602	1-218-953-11	RES,CHIP	1K	5%	1/16W
R8603	1-218-973-11	RES,CHIP	47K	5%	1/16W
R8607	1-218-949-11	RES,CHIP	470	5%	1/16W
R8608	1-216-001-00	METAL CHIP	10	5%	1/10W
R8609	1-216-609-11	METAL CHIP	18	0.5%	1/10W
R8651	1-218-955-11	RES,CHIP	1.5K	5%	1/16W
R8652	1-218-937-11	RES,CHIP	47	5%	1/16W
		< VIBRATOR >			
X8400	1-579-661-21	OSCILLATOR, CRYSTAL (4.43MHz)			
		(TRV9E:AEP,UK)			

A-7067-142-A PD-98 BOARD, COMPLETE
****
(Ref.No.: 50,000 Series)

Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C5501	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5502	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5504	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5506	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5507	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C5508	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5509	1-135-221-11	TANTAL. CHIP	3.3uF	20%	4V
C5510	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V

Ref. No.	Part No.	Description				Remarks
C5512	1-104-851-11	TANTAL. CHIP	10uF	20%		10V
C5513	1-107-826-11	CERAMIC CHIP	0.1uF	10%		16V
C5514	1-110-501-11	CERAMIC CHIP	0.33uF	10%		16V
C5515	1-110-501-11	CERAMIC CHIP	0.33uF	10%		16V
C5516	1-110-501-11	CERAMIC CHIP	0.33uF	10%		16V
C5517	1-107-826-11	CERAMIC CHIP	0.1uF	10%		16V
C5520	1-162-970-11	CERAMIC CHIP	0.01uF	10%		25V
C5601	1-135-259-11	TANTAL. CHIP	10uF	20%		6.3V
C5602	1-113-985-11	TANTAL. CHIP	10uF	20%		20V
C5603	1-110-501-11	CERAMIC CHIP	0.33uF	10%		16V
C5604	1-107-826-11	CERAMIC CHIP	0.1uF	10%		16V
C5605	1-107-826-11	CERAMIC CHIP	0.1uF	10%		16V
C5607	1-164-004-11	CERAMIC CHIP	0.1uF	10%		25V
C5608	1-164-357-11	CERAMIC CHIP	1000PF	5%		50V
C5609	1-162-918-11	CERAMIC CHIP	18PF	5%		50V
C5610	1-162-926-11	CERAMIC CHIP	82PF	5%		50V
C5611	1-164-004-11	CERAMIC CHIP	0.1uF	10%		25V
C5612	1-162-926-11	CERAMIC CHIP	82PF	5%		50V
C5613	1-164-739-11	CERAMIC CHIP	560PF	5%		50V
C5616	1-109-982-11	CERAMIC CHIP	1uF	10%		10V
C5620	1-107-826-11	CERAMIC CHIP	0.1uF	10%		16V
C5621	1-113-985-11	TANTAL. CHIP	10uF	20%		20V
C5622	1-107-682-11	CERAMIC CHIP	1uF	10%		16V
C5623	1-107-826-11	CERAMIC CHIP	0.1uF	10%		16V
C5624	1-164-004-11	CERAMIC CHIP	0.1uF	10%		25V
C5701	1-104-911-11	TANTAL. CHIP	33uF	20%		10V
C5702	1-109-982-11	CERAMIC CHIP	1uF	10%		10V
C5703	1-164-664-11	CERAMIC CHIP	0.033uF	10%		50V
C5704	1-164-004-11	CERAMIC CHIP	0.1uF	10%		25V
C5705	1-113-521-11	CERAMIC CHIP	12PF	10%		3KV
C5706	1-162-970-11	CERAMIC CHIP	0.01uF	10%		25V

< CONNECTOR >

Ref. No.	Part No.	Description
CN5501	1-764-708-21	CONNECTOR, FFC/FPC (LIF) 9P
CN5601	1-573-364-11	CONNECTOR, FFC/FPC 24P
CN5701	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P
CN5802	1-573-365-21	CONNECTOR, FFC/FPC 25P
CN5805	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P

< DIODE >

Ref. No.	Part No.	Description
D5602	8-713-102-80	DIODE 1T369-01-T8A
D5604	8-719-976-96	DIODE MA8047-H-TX
D5704	8-719-404-49	DIODE MA111-TX
D5801	8-719-420-14	DIODE MA8082-TX

< IC >

Ref. No.	Part No.	Description
IC5501	8-759-364-05	IC M62376GP-65AD
IC5502	8-759-486-77	IC IR3Y37M4
IC5601	8-759-524-61	IC CM7018L3-T4
IC5602	8-759-327-01	IC NJM062V(TE2)
IC5701	8-759-075-70	IC TA75S393F-TE85R

< COIL >

Ref. No.	Part No.	Description
L5501	1-414-757-11	INDUCTOR 100uH
L5502	1-414-754-11	INDUCTOR 10uH
L5503	1-414-754-11	INDUCTOR 10uH
L5601	1-414-754-11	INDUCTOR 10uH
L5603	1-414-754-11	INDUCTOR 10uH

Ref. No.	Part No.	Description
L5604	1-414-754-11	INDUCTOR 10uH
L5605	1-412-945-11	INDUCTOR 3.3uH
L5701	1-409-536-41	INDUCTOR 0uH

< TRANSISTOR >

Ref. No.	Part No.	Description
Q5605	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO
Q5606	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO
Q5607	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO
Q5608	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO
Q5609	8-729-037-74	TRANSISTOR UN9213J-(K8).SO
Q5701	8-729-039-43	TRANSISTOR FP216-TL
Q5702	8-729-042-59	TRANSISTOR UN9112J-(K8).SO

< RESISTOR >

Ref. No.	Part No.	Description				Remarks
R5501	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R5505	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R5508	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R5509	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R5510	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R5511	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R5512	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R5513	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R5516	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R5517	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R5518	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R5520	1-216-852-11	METAL CHIP	390K	5%	1/16W	
R5521	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R5522	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R5528	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R5532	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R5537	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R5539	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R5602	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5603	1-216-797-11	METAL CHIP	10	5%	1/16W	
R5605	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5608	1-216-797-11	METAL CHIP	10	5%	1/16W	
R5610	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R5614	1-218-915-11	RES,CHIP	680K	0.50%	1/16W	
R5615	1-218-901-11	RES,CHIP	180K	0.50%	1/16W	
R5620	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R5622	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R5623	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R5624	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R5625	1-218-893-11	RES,CHIP	82K	0.50%	1/16W	
R5627	1-218-893-11	RES,CHIP	82K	0.50%	1/16W	
R5629	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R5630	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R5633	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R5634	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R5640	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R5641	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R5643	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R5644	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R5647	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5648	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5650	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5652	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5655	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5656	1-216-864-11	METAL CHIP	0	5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R5663	1-216-864-11	METAL CHIP	0	5%	1/16W
R5664	1-216-864-11	METAL CHIP	0	5%	1/16W
R5665	1-216-864-11	METAL CHIP	0	5%	1/16W
R5666	1-216-864-11	METAL CHIP	0	5%	1/16W
R5667	1-216-864-11	METAL CHIP	0	5%	1/16W
R5668	1-216-864-11	METAL CHIP	0	5%	1/16W
R5672	1-216-844-11	METAL CHIP	82K	5%	1/16W
R5673	1-216-864-11	METAL CHIP	0	5%	1/16W
R5682	1-216-805-11	METAL CHIP	47	5%	1/16W
R5683	1-216-805-11	METAL CHIP	47	5%	1/16W
R5684	1-216-805-11	METAL CHIP	47	5%	1/16W
R5685	1-216-842-11	METAL CHIP	56K	5%	1/16W
R5686	1-216-842-11	METAL CHIP	56K	5%	1/16W
R5688	1-414-445-11	FERRITE	0UH		
R5696	1-216-864-11	METAL CHIP	0	5%	1/16W
R5702	1-216-864-11	METAL CHIP	0	5%	1/16W
R5703	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5704	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5705	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5706	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R5707	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5708	1-216-810-11	METAL CHIP	120	5%	1/16W
R5709	1-216-817-11	METAL CHIP	470	5%	1/16W
R5801	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R5802	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R5803	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R5804	1-216-838-11	METAL CHIP	27K	5%	1/16W
R5805	1-216-864-11	METAL CHIP	0	5%	1/16W

< TRANSFORMER >

Ref. No.	Part No.	Description
T5701	1-429-507-31	TRANSFORMER, INVERTER

A-7067-143-A VC-206 BOARD, COMPLETE (TRV9)
****
A-7067-155-A VC-206 BOARD, COMPLETE (TRV9E:AEP,UK)
****
A-7067-160-A VC-206 BOARD, COMPLETE
****
(TRV9E:EXCEPT AEP,UK)
(Ref.No.: 10,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C202	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C203	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C205	1-113-990-11	TANTAL. CHIP	15uF	20%	16V
C207	1-115-156-11	CERAMIC CHIP	1uF		10V
C208	1-115-156-11	CERAMIC CHIP	1uF		10V
C209	1-115-156-11	CERAMIC CHIP	1uF		10V
C210	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C211	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C212	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C214	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C215	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C216	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C217	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C218	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C219	1-164-848-11	CERAMIC CHIP	8PF	0.5PF	16V (TRV9E)

Ref. No.	Part No.	Description			Remarks
C219	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	16V (TRV9)
C220	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C221	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C222	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C223	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C224	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C225	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C226	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C227	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C228	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C229	1-113-988-11	TANTAL. CHIP	68uF	20%	4V
C231	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C232	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C233	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C234	1-115-156-11	CERAMIC CHIP	1uF		10V
C235	1-115-156-11	CERAMIC CHIP	1uF		10V
C236	1-115-156-11	CERAMIC CHIP	1uF		10V
C237	1-164-346-11	CERAMIC CHIP	1uF		16V
C238	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C239	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C240	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C241	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C242	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C243	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C244	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C245	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C246	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C247	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C248	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C249	1-104-847-11	TANTAL. CHIP	22uF	20%	4V (TRV9E)
C255	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C256	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C257	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C258	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C262	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C263	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1001	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C1002	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1003	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1004	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1005	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1006	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1007	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1008	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1009	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1010	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C1101	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1102	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1103	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1104	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1105	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1107	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1108	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1109	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1113	1-164-505-11	CERAMIC CHIP	2.2uF		16V

Ref. No.	Part No.	Description			Remarks
C1114	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1115	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C1116	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1117	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1119	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1120	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C1121	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C1123	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1124	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1125	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C1126	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1127	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1130	1-125-899-11	TANTAL. CHIP	220uF	20%	4V
C1131	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C1132	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1134	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C1135	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1136	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1137	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C1138	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1139	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1141	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1142	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1143	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1145	1-125-899-11	TANTAL. CHIP	220uF	20%	4V
C1146	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		(TRV9/TRV9E:EXCEPT AEP,UK)			
C1147	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		(TRV9/TRV9E:EXCEPT AEP,UK)			
C1148	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1600	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1601	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1602	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C1603	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C1604	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1605	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1700	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1703	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1704	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1900	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C1901	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1902	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1903	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1904	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1905	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1906	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C1907	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1908	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1909	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C1910	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1911	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1912	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1913	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1914	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C1915	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1916	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C1917	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C2111	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C2112	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C2300	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2305	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2307	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2308	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2317	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C2318	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C2319	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2320	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2321	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2324	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2325	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C2326	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C2327	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2328	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C2329	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2330	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2331	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2332	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2335	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2454	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C2455	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2700	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2701	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2702	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2703	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C2704	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2708	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C2709	1-164-848-11	CERAMIC CHIP	8PF	0.5PF	16V
C2712	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2713	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2714	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C2715	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C2718	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2720	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2721	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C2724	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C2725	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2726	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C2727	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C2728	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C2731	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C2732	1-164-866-11	CERAMIC CHIP	47PF	5%	16V
C2733	1-164-848-11	CERAMIC CHIP	8PF	0.5PF	16V
C2735	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2736	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C2737	1-164-866-11	CERAMIC CHIP	47PF	5%	16V
C2738	1-164-866-11	CERAMIC CHIP	47PF	5%	16V
C2744	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2745	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2747	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2749	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C2750	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2751	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2752	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C2753	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2754	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2755	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2757	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
C2758	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3146	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2759	1-164-878-11	CERAMIC CHIP	150PF	5%	16V	C3147	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2763	1-164-878-11	CERAMIC CHIP	150PF	5%	16V	C3148	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2769	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C3149	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2770	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C3150	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2771	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C3152	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2772	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3153	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C2773	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3154	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C2774	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3155	1-109-935-11	TANTAL. CHIP	4.7uF	20%	6.3V
C2799	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3157	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2800	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3158	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C3100	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V	C3159	1-164-866-11	CERAMIC CHIP	47PF	5%	16V
C3101	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3160	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C3102	1-107-820-11	CERAMIC CHIP	0.1uF		16V	C3161	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C3103	1-109-935-11	TANTAL. CHIP	4.7uF	20%	6.3V	C3162	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C3104	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	C3500	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3105	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3501	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3106	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C3504	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3107	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3506	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3108	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V	C3512	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C3109	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C3514	1-164-882-11	CERAMIC CHIP	220PF	5%	16V
C3110	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C3520	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3111	1-164-862-11	CERAMIC CHIP	33PF	5%	16V	C3521	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3112	1-164-862-11	CERAMIC CHIP	33PF	5%	16V	C3527	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C3113	1-164-862-11	CERAMIC CHIP	33PF	5%	16V	C3528	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C3114	1-164-739-11	CERAMIC CHIP	560PF	5%	50V	C3529	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3115	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C3530	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3116	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	C3531	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C3117	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C6100	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C3118	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C6101	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3119	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C6102	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3120	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C6103	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3121	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C6104	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3122	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V	C6105	1-107-820-11	CERAMIC CHIP	0.1uF		16V
		(TRV9E:EXCEPT AEP,UK)				C6106	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3123	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V						
						C6107	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C3125	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C6108	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3126	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	C7902	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3127	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V	C7905	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C3128	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C7906	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3129	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V						
						C7907	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3130	1-164-934-11	CERAMIC CHIP	330PF	10%	16V	C7908	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3131	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C7909	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C3132	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C7910	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C3133	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C7911	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3134	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V						
						C7912	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C3136	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C7917	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C3137	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C7918	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C3138	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V	C8001	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3139	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C8002	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3140	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V						
						C9902	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3141	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C9904	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3142	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V	C9930	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3143	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C9931	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C3144	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C9934	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3145	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V						
						C9935	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

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Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN201	1-784-995-21	CONNECTOR, BOARD TO BOARD 50P	
CN2701	1-573-350-11	CONNECTOR, FFC/FPC 10P	
CN3100	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P	
CN3103	1-573-351-11	CONNECTOR, FFC/FPC (ZIF) 11P	
CN3106	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P	
CN9901	1-784-939-11	CONNECTOR, BOARD TO BOARD 60P	
		(TRV9/TRV9E:EXCEPT AEP,UK)	
CN9902	1-784-681-11	CONNECTOR, BOARD TO BOARD 100P	
CN9903	1-750-321-41	CONNECTOR, BOARD TO BOARD 20P	
CN9905	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P	
CN9907	1-573-936-11	CONNECTOR, FFC/FPC (ZIF) 27P	
CN9908	1-764-518-21	CONNECTOR, FFC/FPC (ZIF) 9P	
CN9909	1-784-939-11	CONNECTOR, BOARD TO BOARD 60P	
CN9910	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P	
CN9911	1-778-075-11	CONNECTOR, BOARD TO BOARD 70P	
* CN9912	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
		< DIODE >	
D1900	8-719-055-86	DIODE KV1470TL1-3	
D1901	8-719-027-95	DIODE HSM88WK-TL	
D1902	8-719-055-86	DIODE KV1470TL1-3	
D1903	8-719-027-95	DIODE HSM88WK-TL	
D1904	8-719-055-86	DIODE KV1470TL1-3	
D2300	8-719-421-27	DIODE MA728-TX	
D2301	8-719-056-23	DIODE MA2S111-(K8).SO	
D2302	8-719-420-51	DIODE MA729-TX	
D2303	8-719-420-51	DIODE MA729-TX	
D2304	8-719-056-23	DIODE MA2S111-(K8).SO	
D2305	8-719-056-23	DIODE MA2S111-(K8).SO	
D2702	8-719-052-27	DIODE 1SS351-TB	
D2703	8-719-052-27	DIODE 1SS351-TB	
D3102	8-719-056-61	DIODE 015AZ8.2-TPL3	
D3103	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D6100	8-719-027-95	DIODE HSM88WK-TL	
D6101	8-719-055-86	DIODE KV1470TL1-3	
D7901	8-719-055-86	DIODE KV1470TL1-3	
D9901	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D9902	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D9903	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D9904	8-719-056-61	DIODE 015AZ8.2-TPL3	
D9905	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D9906	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D9930	8-719-062-16	DIODE 01ZA8.2(TPL3)	
		< FERRITE BEAD >	
FB201	1-414-228-11	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB201	1-414-445-11	FERRITE 0UH	
FB202	1-414-228-11	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB202	1-414-445-11	FERRITE 0UH	
FB203	1-414-228-11	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB203	1-414-445-11	FERRITE 0UH	
FB204	1-414-228-11	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB204	1-414-445-11	FERRITE 0UH	
FB205	1-414-226-21	FERRITE 0UH	
FB205	1-543-955-11	FERRITE 0UH (TRV9/TRV9E:AEP,UK)	

Ref. No.	Part No.	Description	Remarks
FB206	1-414-226-21	FERRITE 0UH	
FB206	1-543-955-11	FERRITE 0UH (TRV9/TRV9E:AEP,UK)	
FB207	1-414-444-11	FERRITE 0UH	
FB207	1-500-284-21	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB208	1-414-228-11	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB208	1-414-445-11	FERRITE 0UH	
FB209	1-414-444-11	FERRITE 0UH	
FB209	1-500-284-21	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB210	1-414-228-11	INDUCTOR CHIP 0UH (TRV9/TRV9E:AEP,UK)	
FB210	1-414-445-11	FERRITE 0UH	
FB1101	1-414-226-21	INDUCTOR CHIP 0UH	
FB1600	1-414-226-21	INDUCTOR CHIP 0UH	
FB1601	1-414-226-21	INDUCTOR CHIP 0UH	
FB2100	1-414-226-21	INDUCTOR CHIP 0UH	
FB3100	1-414-226-21	INDUCTOR CHIP 0UH	
FB6100	1-414-226-21	INDUCTOR CHIP 0UH	
FB9930	1-414-385-11	FERRITE 0UH	
FB9930	1-500-113-11	FERRITE 0UH (TRV9/TRV9E:AEP,UK)	
FB9931	1-414-385-11	FERRITE 0UH	
FB9931	1-500-113-11	FERRITE 0UH (TRV9/TRV9E:AEP,UK)	
FB9932	1-414-385-11	FERRITE 0UH	
FB9932	1-500-113-11	FERRITE 0UH (TRV9/TRV9E:AEP,UK)	
		< FILTER >	
FL1101	1-233-733-21	FILTER, LOW PASS	
FL1102	1-233-732-21	FILTER, BAND PASS (3.58MHz)(TRV9)	
FL1102	1-233-735-21	FILTER, BAND PASS (4.43MHZ)(TRV9E)	
FL2700	1-411-951-21	DELAY LINE, LC (23NS)	
FL2701	1-233-734-21	FILTER, LOW PASS	
		< IC >	
IC202	8-752-386-72	IC CXD2444R-T4	
IC203	8-759-462-43	IC AD9800JCSTRL	
IC204	8-759-445-93	IC AK6440AM-E2	
IC206	8-752-897-30	IC CXP912032-084R-T6	
IC207	8-759-497-43	IC CXD8691R-TEB	
IC209	8-752-389-54	IC CXD3124R-T6	
IC1001	8-752-384-33	IC CXD3121R-T4	
IC1002	8-759-523-81	IC TC74VHC08FT(EL)	
IC1101	1-801-474-11	IC TGA-D3100HA	
IC1102	8-759-082-58	IC TC7W08FU(TE12R)	
IC1103	8-752-081-19	IC CXA2008R-T4	
IC1104	8-759-522-83	IC uPD6466GS-627-GLG-E2	
IC1105	8-759-327-60	IC TC7W125FU-TE12R	
IC1600	8-759-488-73	IC ZA4024GFZR	
IC1601	1-801-689-11	IC TGA-D3103HA	
IC1602	8-759-488-73	IC ZA4024GFZR	
IC1700	8-759-433-17	IC uPD482445LG4-B10-9MH-E2-HDC	
IC1701	1-801-484-11	IC TGA-uPD82014UB-501-J	
IC1900	8-752-378-75	IC CXD3106R	
IC1901	8-752-379-31	IC CXD3107R-T6	
IC2100	1-803-261-11	IC TGA-P912032-HA-MP2SP	
IC2300	8-759-398-90	IC S-81236PG-P7-T1	
IC2301	8-759-424-79	IC S-8423YFS-T2	
IC2302	8-759-540-86	IC S579C15APZ-TEB	
IC2303	8-759-445-93	IC AK6440AM-E2	

Ref. No.	Part No.	Description	Remarks
IC2304	8-759-536-72	IC TL1596CPWR	
IC2700	8-759-426-25	IC MB88346LPFV-G-BND-ER	
IC2701	8-752-371-18	IC CXD2302Q-T4	
IC2702	8-752-070-12	IC CXA1762Q-T4	
IC2703	8-752-073-50	IC CXA2018Q-T4	
IC2704	8-752-074-59	IC CXA2023R-T4	
IC3100	8-752-897-28	IC CXP912032-081R-T6	
IC3101	8-759-433-16	IC MB4195PFV-G-BND-ER	
IC3102	8-759-431-30	IC CXA8062R-EB	
IC3103	8-759-385-94	IC CXA8053Q-TE-B	
IC3104	8-759-434-46	IC TA8486F(EL)	
IC3500	8-759-465-99	IC HD6433837TB55X	
IC3501	8-759-431-57	IC F643845GGF-TEB	
IC3502	8-759-432-00	IC TSB11LV01PT-TEB	
IC6101	8-752-386-38	IC CXD3105R-T6	
IC6102	8-759-445-93	IC AK6440AM-E2	
IC7903	8-759-327-04	IC CXD2913Q	
IC7904	8-759-710-79	IC NJM2107F-TE2	
IC8001	8-759-427-85	IC MB88146APFV-G-BND-ER	
		< COIL >	
L201	1-414-754-11	INDUCTOR 10uH	
L202	1-414-754-11	INDUCTOR 10uH	
L203	1-414-754-11	INDUCTOR 10uH	
L204	1-414-755-11	INDUCTOR 22uH	
L1001	1-414-754-11	INDUCTOR 10uH	
L1900	1-414-755-11	INDUCTOR 22uH	
L1901	1-412-938-61	INDUCTOR 0.82uH	
L1902	1-412-948-11	INDUCTOR 5.6uH	
L2301	1-414-078-11	INDUCTOR 10uH	
L2700	1-412-963-11	INDUCTOR 100uH	
L2703	1-412-963-11	INDUCTOR 100uH	
L2704	1-414-754-11	INDUCTOR 10uH	
L2705	1-414-754-11	INDUCTOR 10uH	
L2707	1-414-754-11	INDUCTOR 10uH	
L2708	1-414-754-11	INDUCTOR 10uH	
L2709	1-414-754-11	INDUCTOR 10uH	
L2710	1-414-754-11	INDUCTOR 10uH	
L2711	1-414-754-11	INDUCTOR 10uH	
L3100	1-414-754-11	INDUCTOR 10uH	
L3101	1-414-754-11	INDUCTOR 10uH	
L3102	1-414-754-11	INDUCTOR 10uH	
L3103	1-414-754-11	INDUCTOR 10uH	
L3504	1-414-754-11	INDUCTOR 10uH	
L3505	1-412-963-11	INDUCTOR 100uH	
L3506	1-414-753-91	INDUCTOR 4.7uH	
L6100	1-414-755-11	INDUCTOR 22uH	
L6101	1-412-936-11	INDUCTOR 0.56uH	
L7901	1-414-754-11	INDUCTOR 10uH	
L7902	1-414-752-11	INDUCTOR 2.2uH	
L9901	1-414-813-11	FERRITE 0uH	
L9901	1-550-907-21	FERRITE 0uH (TRV9/TRV9E:AEP,UK)	
L9902	1-414-813-11	FERRITE 0uH	
L9902	1-550-907-21	FERRITE 0uH (TRV9/TRV9E:AEP,UK)	

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	
Q201	8-729-037-61	TRANSISTOR UN9113J-(K8).SO	
Q202	8-729-037-61	TRANSISTOR UN9113J-(K8).SO	
Q203	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q204	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q1001	8-729-427-70	TRANSISTOR XP4401-TXE	
Q1002	8-729-427-70	TRANSISTOR XP4401-TXE	
Q1003	8-729-427-70	TRANSISTOR XP4401-TXE	
Q1101	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q1102	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q1103	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q1104	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q1105	8-729-141-48	TRANSISTOR 2SB624-T1BV4	
Q1106	8-729-037-61	TRANSISTOR UN9113J-(K8).SO	
Q1107	8-729-427-42	TRANSISTOR XP4211-TXE	
Q1108	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q1109	8-729-040-77	TRANSISTOR 2SC5376-B(TE85L) (TRV9/TRV9E:EXCEPT AEP,UK)	
Q1110	8-729-040-77	TRANSISTOR 2SC5376-B(TE85L) (TRV9/TRV9E:EXCEPT AEP,UK)	
Q1111	8-729-040-77	TRANSISTOR 2SC5376-B(TE85L) (TRV9/TRV9E:EXCEPT AEP,UK)	
Q1112	8-729-037-61	TRANSISTOR UN9113J-(K8).SO (TRV9/TRV9E:EXCEPT AEP,UK)	
Q1113	8-729-037-61	TRANSISTOR UN9113J-(K8).SO (TRV9/TRV9E:EXCEPT AEP,UK)	
Q2301	8-729-037-61	TRANSISTOR UN9113J-(K8).SO	
Q2302	8-729-427-70	TRANSISTOR XP4401-TXE	
Q2303	8-729-141-48	TRANSISTOR 2SB624-T1BV4	
Q2304	8-729-024-48	TRANSISTOR 2SK1830-TE85L	
Q2305	8-729-032-62	TRANSISTOR 2SJ347-TE85L	
Q2308	8-729-037-72	TRANSISTOR UN9211J-(K8).SO	
Q2309	8-729-037-72	TRANSISTOR UN9211J-(K8).SO	
Q2310	8-729-037-61	TRANSISTOR UN9113J-(K8).SO	
Q2311	8-729-904-72	TRANSISTOR DTD143EK-T-146	
Q2312	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q2701	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q2702	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q2703	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q2704	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q2705	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q2706	8-729-037-72	TRANSISTOR UN9211J-(K8).SO	
Q2707	8-729-141-48	TRANSISTOR 2SB624-T1BV4	
Q2708	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q2709	8-729-037-72	TRANSISTOR UN9211J-(K8).SO	
Q2710	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q2711	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q3100	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q3101	8-729-037-72	TRANSISTOR UN9211J-(K8).SO	
Q3102	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
		< RESISTOR >	
* R202	1-500-282-11	INDUCTOR CHIP 0UH	
* R203	1-500-282-11	INDUCTOR CHIP 0UH	
R206	1-218-977-11	RES,CHIP 100K 5% 1/16W	
R217	1-218-945-11	RES,CHIP 220 5% 1/16W	
R221	1-218-985-11	RES,CHIP 470K 5% 1/16W	

Ref. No.	Part No.	Description			Remarks
R226	1-218-990-11	SHORT	0		
R230	1-218-977-11	RES,CHIP	100K	5%	1/16W
R234	1-218-977-11	RES,CHIP	100K	5%	1/16W
R236	1-218-977-11	RES,CHIP	100K	5%	1/16W
R237	1-218-977-11	RES,CHIP	100K	5%	1/16W
R238	1-218-977-11	RES,CHIP	100K	5%	1/16W
R245	1-218-953-11	RES,CHIP	1K	5%	1/16W
R246	1-218-973-11	RES,CHIP	47K	5%	1/16W
R247	1-218-973-11	RES,CHIP	47K	5%	1/16W
R248	1-218-973-11	RES,CHIP	47K	5%	1/16W
R256	1-218-953-11	RES,CHIP	1K	5%	1/16W
R258	1-218-933-11	RES,CHIP	22	5%	1/16W
R260	1-218-977-11	RES,CHIP	100K	5%	1/16W
R264	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R266	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R284	1-218-965-11	RES,CHIP	10K	5%	1/16W
R285	1-218-945-11	RES,CHIP	220	5%	1/16W
R286	1-218-989-11	RES,CHIP	1M	5%	1/16W
R288	1-218-977-11	RES,CHIP	100K	5%	1/16W
R292	1-218-990-11	SHORT	0		
R1000	1-218-972-11	RES,CHIP	39K	5%	1/16W
R1003	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1004	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1008	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1009	1-218-967-11	RES,CHIP	15K	5%	1/16W
R1010	1-218-973-11	RES,CHIP	47K	5%	1/16W
R1011	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1012	1-218-967-11	RES,CHIP	15K	5%	1/16W
R1013	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1014	1-218-967-11	RES,CHIP	15K	5%	1/16W
R1015	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1016	1-218-971-11	RES,CHIP	33K	5%	1/16W
R1017	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1018	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1019	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1020	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1021	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1022	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1029	1-218-970-11	RES,CHIP	27K	5%	1/16W
R1030	1-218-971-11	RES,CHIP	33K	5%	1/16W
R1031	1-218-971-11	RES,CHIP	33K	5%	1/16W
R1035	1-218-990-11	SHORT	0		
R1036	1-218-966-11	RES,CHIP	12K	5%	1/16W
R1037	1-218-973-11	RES,CHIP	47K	5%	1/16W
R1038	1-218-973-11	RES,CHIP	47K	5%	1/16W
R1101	1-218-990-11	SHORT	0		
R1102	1-218-990-11	SHORT	0		
R1103	1-218-948-11	RES,CHIP	390	5%	1/16W
R1104	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R1105	1-218-990-11	SHORT	0		
R1106	1-218-990-11	SHORT	0		
R1107	1-218-947-11	RES,CHIP	330	5%	1/16W
R1108	1-218-990-11	SHORT	0		
R1109	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R1110	1-218-990-11	SHORT	0		
R1111	1-218-990-11	SHORT	0		
R1112	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1113	1-218-990-11	SHORT	0		
R1114	1-218-990-11	SHORT	0		
R1115	1-218-990-11	SHORT	0		

Ref. No.	Part No.	Description			Remarks
R1116	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1119	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1120	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1121	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1122	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1125	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R1131	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1132	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1133	1-218-985-11	RES,CHIP	470K	5%	1/16W
R1134	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1135	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1136	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1137	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1138	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1139	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1140	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1141	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1142	1-218-935-11	RES,CHIP	33	5%	1/16W
R1143	1-218-935-11	RES,CHIP	33	5%	1/16W
R1144	1-218-935-11	RES,CHIP	33	5%	1/16W
R1145	1-218-973-11	RES,CHIP	47K	5%	1/16W
R1146	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1147	1-218-936-11	RES,CHIP	39	5%	1/16W
R1148	1-218-936-11	RES,CHIP	39	5%	1/16W
R1149	1-218-936-11	RES,CHIP	39	5%	1/16W
R1152	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1153	1-218-960-11	RES,CHIP	3.9K	5%	1/16W
R1157	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1158	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1159	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
					(TRV9/TRV9E:EXCEPT AEP,UK)
R1160	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
					(TRV9/TRV9E:EXCEPT AEP,UK)
R1161	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
					(TRV9/TRV9E:EXCEPT AEP,UK)
R1162	1-218-972-11	RES,CHIP	39K	5%	1/16W
					(TRV9/TRV9E:EXCEPT AEP,UK)
R1163	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1166	1-218-969-11	RES,CHIP	22K	5%	1/16W
R1167	1-218-971-11	RES,CHIP	33K	5%	1/16W
R1168	1-218-985-11	RES,CHIP	470K	5%	1/16W
R1169	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1170	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1171	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1172	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1173	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1174	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1175	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1176	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1177	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1178	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1179	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1180	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1181	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1182	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1183	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1184	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1189	1-218-973-11	RES,CHIP	47K	5%	1/16W
R1601	1-218-953-11	RES,CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R1900	1-218-937-11	RES,CHIP	47	5%	1/16W
R1901	1-218-937-11	RES,CHIP	47	5%	1/16W
R1902	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1903	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1904	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1905	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R1906	1-218-937-11	RES,CHIP	47	5%	1/16W
R1907	1-218-949-11	RES,CHIP	470	5%	1/16W
R1908	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1909	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1911	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1912	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1914	1-218-990-11	SHORT	0		
R1917	1-218-949-11	RES,CHIP	470	5%	1/16W
R1918	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1919	1-218-965-11	RES,CHIP	10K	5%	1/16W
R1920	1-218-947-11	RES,CHIP	330	5%	1/16W
R1921	1-218-937-11	RES,CHIP	47	5%	1/16W
R1922	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R1924	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1925	1-218-953-11	RES,CHIP	1K	5%	1/16W
R1926	1-218-977-11	RES,CHIP	100K	5%	1/16W
R1927	1-218-937-11	RES,CHIP	47	5%	1/16W
R1928	1-218-937-11	RES,CHIP	47	5%	1/16W
R1929	1-218-990-11	SHORT	0		
R2122	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2123	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2124	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2125	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2126	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2127	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2128	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2129	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2130	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2131	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R2172	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2173	1-218-973-11	RES,CHIP	47K	5%	1/16W
R2175	1-218-973-11	RES,CHIP	47K	5%	1/16W (TRV9)
R2175	1-218-971-11	RES,CHIP	35K	5%	1/16W (TRV9E:EXCEPT AEP,UK)
R2176	1-218-970-11	RES,CHIP	27K	5%	1/16W (TRV9E:AEP,UK)
R2176	1-218-973-11	RES,CHIP	47K	5%	1/16W (TRV9E:EXCEPT AEP,UK)
R2302	1-218-934-11	RES,CHIP	27	5%	1/16W
R2303	1-218-973-11	RES,CHIP	47K	5%	1/16W
R2304	1-218-989-11	RES,CHIP	1M	5%	1/16W
R2305	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2306	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2307	1-218-989-11	RES,CHIP	1M	5%	1/16W
R2308	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R2309	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R2310	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R2311	1-218-941-11	RES,CHIP	100	5%	1/16W
R2312	1-218-941-11	RES,CHIP	100	5%	1/16W
R2313	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2314	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2315	1-218-985-11	RES,CHIP	470K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R2316	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2317	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2318	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2319	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2320	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2321	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2322	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2323	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2324	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2325	1-218-955-11	RES,CHIP	1.5K	5%	1/16W
R2326	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R2327	1-216-791-11	METAL CHIP	3.3	5%	1/16W
R2328	1-218-962-11	RES,CHIP	5.6K	5%	1/16W
R2329	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R2330	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2331	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2332	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2333	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2334	1-218-973-11	RES,CHIP	47K	5%	1/16W
R2335	1-218-973-11	RES,CHIP	47K	5%	1/16W
R2336	1-218-973-11	RES,CHIP	47K	5%	1/16W
R2337	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2338	1-218-945-11	RES,CHIP	220	5%	1/16W
R2339	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2340	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2341	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2342	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2344	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2345	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2346	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2347	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2348	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2349	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2350	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2351	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2352	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2353	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2354	1-218-973-11	RES,CHIP	47K	5%	1/16W
R2355	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2356	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2357	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2358	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2359	1-219-570-11	RES,CHIP	10M	5%	1/16W
R2360	1-218-949-11	RES,CHIP	470	5%	1/16W
R2361	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2363	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2364	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2365	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2366	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2367	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2368	1-218-958-11	RES,CHIP	2.7K	5%	1/16W
R2369	1-218-981-11	RES,CHIP	220K	5%	1/16W
R2370	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2371	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2379	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2380	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2381	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2382	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2383	1-218-973-11	RES,CHIP	47K	5%	1/16W
R2384	1-218-953-11	RES,CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
R2385	1-218-953-11	RES,CHIP	1K	5%	1/16W	R2818	1-218-942-11	RES,CHIP	120	5%	1/16W
R2386	1-218-977-11	RES,CHIP	100K	5%	1/16W	R2819	1-218-942-11	RES,CHIP	120	5%	1/16W
R2387	1-218-977-11	RES,CHIP	100K	5%	1/16W	R2820	1-218-939-11	RES,CHIP	68	5%	1/16W
R2388	1-218-961-11	RES,CHIP	4.7K	5%	1/16W	R2821	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2390	1-218-977-11	RES,CHIP	100K	5%	1/16W	R2822	1-218-939-11	RES,CHIP	68	5%	1/16W
R2460	1-218-953-11	RES,CHIP	1K	5%	1/16W	R2823	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2461	1-218-953-11	RES,CHIP	1K	5%	1/16W	R2824	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R2462	1-216-864-11	METAL CHIP	0	5%	1/16W	R3100	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2464	1-218-965-11	RES,CHIP	10K	5%	1/16W	R3101	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2465	1-218-953-11	RES,CHIP	1K	5%	1/16W	R3102	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2466	1-218-985-11	RES,CHIP	470K	5%	1/16W	R3103	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2467	1-218-953-11	RES,CHIP	1K	5%	1/16W	R3104	1-218-935-11	RES,CHIP	33	5%	1/16W
R2468	1-218-973-11	RES,CHIP	47K	5%	1/16W	R3105	1-218-935-11	RES,CHIP	33	5%	1/16W
R2701	1-218-973-11	RES,CHIP	47K	5%	1/16W	R3108	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2703	1-218-971-11	RES,CHIP	33K	5%	1/16W	R3109	1-218-985-11	RES,CHIP	470K	5%	1/16W
R2704	1-218-953-11	RES,CHIP	1K	5%	1/16W	R3110	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2705	1-218-953-11	RES,CHIP	1K	5%	1/16W	R3111	1-218-977-11	RES,CHIP	100K	5%	1/16W
R2706	1-218-990-11	SHORT	0			R3112	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2707	1-218-969-11	RES,CHIP	22K	5%	1/16W	R3113	1-218-989-11	RES,CHIP	1M	5%	1/16W
R2709	1-218-969-11	RES,CHIP	22K	5%	1/16W	R3117	1-208-927-11	RES,CHIP	47K	0.50%	1/16W
R2711	1-218-985-11	RES,CHIP	470K	5%	1/16W	R3118	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2712	1-218-985-11	RES,CHIP	470K	5%	1/16W	R3119	1-208-943-11	RES,CHIP	220K	0.50%	1/16W
R2713	1-218-969-11	RES,CHIP	22K	5%	1/16W	R3120	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R2714	1-218-971-11	RES,CHIP	33K	5%	1/16W	R3122	1-218-971-11	RES,CHIP	33K	5%	1/16W
R2715	1-218-971-11	RES,CHIP	33K	5%	1/16W	R3123	1-218-979-11	RES,CHIP	150K	5%	1/16W
			(TRV9E:EXCEPT AEP,UK)								
						R3124	1-218-963-11	RES,CHIP	6.8K	5%	1/16W
R2717	1-218-953-11	RES,CHIP	1K	5%	1/16W	R3125	1-208-939-11	RES,CHIP	150K	0.50%	1/16W
R2718	1-218-973-11	RES,CHIP	47K	5%	1/16W	R3126	1-208-707-11	RES,CHIP	10K	0.50%	1/16W
R2719	1-218-971-11	RES,CHIP	33K	5%	1/16W	R3127	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2720	1-218-961-11	RES,CHIP	4.7K	5%	1/16W	R3128	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2721	1-218-939-11	RES,CHIP	68	5%	1/16W						
						R3129	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2727	1-218-948-11	RES,CHIP	390	5%	1/16W	R3130	1-218-978-11	RES,CHIP	120K	0.50%	1/16W
R2735	1-218-973-11	RES,CHIP	47K	5%	1/16W	R3131	1-208-953-11	RES,CHIP	560K	0.50%	1/16W
R2737	1-218-950-11	RES,CHIP	560	5%	1/16W	R3132	1-218-953-11	RES,CHIP	1K	5%	1/16W
R2738	1-218-944-11	RES,CHIP	180	5%	1/16W	R3133	1-208-715-11	RES,CHIP	22K	0.50%	1/16W
R2740	1-218-967-11	RES,CHIP	15K	5%	1/16W						
						R3134	1-208-715-11	RES,CHIP	22K	0.50%	1/16W
R2741	1-218-969-11	RES,CHIP	22K	5%	1/16W	R3138	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2743	1-218-965-11	RES,CHIP	10K	5%	1/16W	R3139	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2744	1-218-965-11	RES,CHIP	10K	5%	1/16W	R3140	1-208-707-11	RES,CHIP	10K	0.50%	1/16W
R2747	1-218-949-11	RES,CHIP	470	5%	1/16W	R3141	1-217-671-11	METAL CHIP	1	5%	1/10W
R2748	1-218-942-11	RES,CHIP	120	5%	1/16W						
						R3142	1-217-671-11	METAL CHIP	1	5%	1/10W
R2749	1-218-942-11	RES,CHIP	120	5%	1/16W	R3143	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2750	1-218-956-11	RES,CHIP	1.8K	5%	1/16W	R3144	1-208-935-11	RES,CHIP	100K	0.50%	1/16W
R2751	1-218-973-11	RES,CHIP	47K	5%	1/16W	R3145	1-218-989-11	RES,CHIP	1M	5%	1/16W
R2752	1-218-948-11	RES,CHIP	390	0.50%	1/16W	R3146	1-218-941-11	RES,CHIP	100	5%	1/16W
R2753	1-208-671-11	RES,CHIP	330	0.50%	1/16W						
						R3147	1-218-941-11	RES,CHIP	100	5%	1/16W
R2754	1-208-671-11	RES,CHIP	330	0.50%	1/16W	R3148	1-218-941-11	RES,CHIP	100	5%	1/16W
R2755	1-218-948-11	RES,CHIP	390	0.50%	1/16W	R3149	1-218-971-11	RES,CHIP	33K	5%	1/16W
R2756	1-218-956-11	RES,CHIP	1.8K	5%	1/16W	R3150	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R2757	1-218-963-11	RES,CHIP	6.8K	5%	1/16W	R3151	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2758	1-218-969-11	RES,CHIP	22K	5%	1/16W						
						R3152	1-218-965-11	RES,CHIP	10K	5%	1/16W
R2759	1-218-966-11	RES,CHIP	12K	5%	1/16W	R3153	1-218-969-11	RES,CHIP	22K	5%	1/16W
R2760	1-218-963-11	RES,CHIP	6.8K	5%	1/16W	R3154	1-217-671-11	METAL CHIP	1	5%	1/10W
R2761	1-218-965-11	RES,CHIP	10K	5%	1/16W	R3155	1-217-671-11	METAL CHIP	1	5%	1/10W
R2765	1-218-947-11	RES,CHIP	330	5%	1/16W	R3156	1-217-671-11	METAL CHIP	1	5%	1/10W
R2766	1-218-959-11	RES,CHIP	3.3K	5%	1/16W						
						R3157	1-217-671-11	METAL CHIP	1	5%	1/10W
R2767	1-218-948-11	RES,CHIP	390	5%	1/16W	R3158	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R2768	1-218-957-11	RES,CHIP	2.2K	5%	1/16W	R3159	1-217-671-11	METAL CHIP	1	5%	1/10W
R2769	1-218-959-11	RES,CHIP	3.3K	5%	1/16W	R3160	1-217-671-11	METAL CHIP	1	5%	1/10W
R2770	1-218-947-11	RES,CHIP	330	5%	1/16W	R3161	1-217-671-11	METAL CHIP	1	5%	1/10W
R2817	1-218-957-11	RES,CHIP	2.2K	5%	1/16W						

Ref. No.	Part No.	Description			Remarks
R3162	1-217-671-11	METAL CHIP	1	5%	1/10W
R3163	1-218-940-11	RES,CHIP	82	5%	1/16W
R3164	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R3165	1-218-965-11	RES,CHIP	10K	5%	1/16W
R3166	1-216-031-00	METAL CHIP	180	5%	1/10W
R3167	1-218-953-11	RES,CHIP	1K	5%	1/16W
R3168	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3169	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3173	1-218-959-11	RES,CHIP	3.3K	5%	1/16W
R3174	1-218-960-11	RES,CHIP	3.9K	5%	1/16W
R3175	1-218-960-11	RES,CHIP	3.9K	5%	1/16W
R3176	1-208-721-11	RES,CHIP	39K	0.50%	1/16W
R3177	1-218-970-11	RES,CHIP	27K	5%	1/16W
R3178	1-218-967-11	RES,CHIP	15K	5%	1/16W
R3179	1-218-949-11	RES,CHIP	470	5%	1/16W
R3182	1-218-953-11	RES,CHIP	1K	5%	1/16W
R3183	1-218-973-11	RES,CHIP	47K	5%	1/16W
R3500	1-218-989-11	RES,CHIP	1M	5%	1/16W
R3501	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3502	1-218-953-11	RES,CHIP	1K	5%	1/16W
R3528	1-218-965-11	RES,CHIP	10K	5%	1/16W
R3529	1-218-965-11	RES,CHIP	10K	5%	1/16W
R3530	1-218-953-11	RES,CHIP	1K	5%	1/16W
R3531	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3532	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3533	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3534	1-218-965-11	RES,CHIP	10K	5%	1/16W
R3535	1-218-965-11	RES,CHIP	10K	5%	1/16W
R3538	1-208-709-11	RES,CHIP	12K	0.50%	1/16W
R3539	1-208-709-11	RES,CHIP	12K	0.50%	1/16W
R3540	1-218-990-11	SHORT	0		
R3541	1-208-707-11	RES,CHIP	10K	0.50%	1/16W
R3542	1-208-707-11	RES,CHIP	10K	0.50%	1/16W
R3543	1-218-938-11	RES,CHIP	56	0.50%	1/16W
R3544	1-218-938-11	RES,CHIP	56	0.50%	1/16W
R3545	1-218-938-11	RES,CHIP	56	0.50%	1/16W
R3546	1-218-938-11	RES,CHIP	56	0.50%	1/16W
R3556	1-218-965-11	RES,CHIP	10K	5%	1/16W
R3557	1-218-965-11	RES,CHIP	10K	5%	1/16W
R3560	1-218-990-11	SHORT	0		
R3561	1-218-977-11	RES,CHIP	100K	5%	1/16W
R3562	1-218-977-11	RES,CHIP	100K	5%	1/16W
R6100	1-218-965-11	RES,CHIP	10K	5%	1/16W
R6101	1-218-965-11	RES,CHIP	10K	5%	1/16W
R6102	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R6103	1-218-946-11	RES,CHIP	270	5%	1/16W
R6104	1-218-941-11	RES,CHIP	100	5%	1/16W
R6105	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6107	1-218-977-11	RES,CHIP	100K	5%	1/16W
R6111	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6112	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6113	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6114	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6115	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6116	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6117	1-218-953-11	RES,CHIP	1K	5%	1/16W
R6118	1-218-990-11	SHORT	0		
R7902	1-218-989-11	RES,CHIP	1M	5%	1/16W
R7903	1-218-947-11	RES,CHIP	330	5%	1/16W
R7904	1-218-977-11	RES,CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R7905	1-218-973-11	RES,CHIP	47K	5%	1/16W
R7906	1-218-965-11	RES,CHIP	10K	5%	1/16W
R7907	1-218-973-11	RES,CHIP	47K	5%	1/16W
R7908	1-218-973-11	RES,CHIP	47K	5%	1/16W
R7909	1-218-971-11	RES,CHIP	33K	5%	1/16W
R7910	1-218-973-11	RES,CHIP	47K	5%	1/16W
R7911	1-218-972-11	RES,CHIP	39K	5%	1/16W
R7919	1-218-973-11	RES,CHIP	47K	5%	1/16W
R8001	1-218-990-11	SHORT	0	(TRV9E:AEP,UK)	
R8002	1-218-977-11	RES,CHIP	100K	5%	1/16W
R8003	1-218-977-11	RES,CHIP	100K	5%	1/16W
R8004	1-218-977-11	RES,CHIP	100K	5%	1/16W
R8005	1-218-977-11	RES,CHIP	100K	5%	1/16W
R9922	1-217-671-11	METAL CHIP	1	5%	1/10W
R9923	1-217-671-11	METAL CHIP	1	5%	1/10W
R9927	1-414-813-11	FERRITE	0UH (TRV9/TRV9E:AEP,UK)		
R9927	1-550-907-21	FERRITE	0UH		
R9928	1-216-295-91	SHORT	0		
R9929	1-216-295-91	SHORT	0		
R9930	1-218-990-11	SHORT	0		
R9931	1-414-813-11	FERRITE	0UH (TRV9/TRV9E:AEP,UK)		
R9931	1-550-907-21	FERRITE	0UH		
R9932	1-414-813-11	FERRITE	0UH (TRV9/TRV9E:AEP,UK)		
R9932	1-550-907-21	FERRITE	0UH		
R9933	1-218-953-11	RES,CHIP	1K	5%	1/16W

< VIBRATOR >

Ref. No.	Part No.	Description
X201	1-767-400-11	VIBRATOR, CRYSTAL 36MHz
X202	1-767-450-11	VIBRATOR, CERAMIC 20MHz
X1900	1-767-449-11	VIBRATOR, CRYSTAL 27MHz
X2300	1-767-450-11	VIBRATOR, CERAMIC 20MHz
X2301	1-760-458-21	VIBRATOR, CRYSTAL 32.798kHz
X3100	1-767-205-21	VIBRATOR, CRYSTAL 20MHz
X3500	1-760-497-21	VIBRATOR, LITHIUM NIOBATE 6MHz
X7901	1-767-398-11	VIBRATOR, CRYSTAL 24.5709MHz

A-7073-514-A VF-121 BOARD, COMPLETE
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(Ref.No.: 60,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			
C5001	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5002	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5003	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C5004	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5005	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5006	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5007	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C5008	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C5009	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C5010	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C5011	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5012	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C5013	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C5015	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5016	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C5020	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5101	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C5102	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5103	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C5105	1-104-916-11	TANTAL. CHIP	6.8uF	20%	20V
C5106	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C5108	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C5109	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5110	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5111	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5112	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5113	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C5114	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5115	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C5116	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5117	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C5118	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C5119	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C5120	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C5121	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5122	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C5123	1-165-112-11	CERAMIC CHIP	0.33uF		16V

< CONNECTOR >

Ref. No.	Part No.	Description			Remarks
CN5001	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P			
CN5101	1-778-596-21	CONNECTOR, BOARD TO BOARD 30P			

< DIODE >

Ref. No.	Part No.	Description
D5101	8-719-043-70	DIODE MA6S121-(TX)
D5102	8-713-102-80	DIODE 1T369-01-T8A

< IC >

Ref. No.	Part No.	Description
IC5001	8-759-498-53	IC CXA8115R-T4
IC5002	8-759-364-05	IC M62376GP-65AD
IC5101	8-759-097-75	IC MB3789PFV-G-BND-ER
IC5102	8-752-392-33	IC CXD2458AR-T4

< COIL >

Ref. No.	Part No.	Description
L5001	1-412-951-11	INDUCTOR 10uH
L5002	1-412-951-11	INDUCTOR 10uH
L5101	1-412-033-11	INDUCTOR CHIP 220uH
L5102	1-412-959-11	INDUCTOR 47uH
L5103	1-412-949-21	INDUCTOR 6.8uH

< TRANSISTOR >

Ref. No.	Part No.	Description
Q5101	8-729-013-72	TRANSISTOR RN2105-TE85L
Q5102	8-729-037-61	TRANSISTOR UN9113J-(K8).SO
Q5103	8-729-037-74	TRANSISTOR UN9213J-(K8).SO

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R5001	1-218-990-11	SHORT	0		
R5003	1-218-990-11	SHORT	0		
R5005	1-218-969-11	RES,CHIP	22K	5%	1/16W
R5008	1-218-969-11	RES,CHIP	22K	5%	1/16W
R5009	1-218-975-11	RES,CHIP	68K	5%	1/16W
R5013	1-218-990-11	SHORT	0		
R5016	1-218-990-11	SHORT	0		
R5018	1-218-990-11	SHORT	0		
R5020	1-218-975-11	RES,CHIP	68K	5%	1/16W
R5021	1-218-971-11	RES,CHIP	33K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R5022	1-218-985-11	RES,CHIP	470K	5%	1/16W
R5023	1-218-972-11	RES,CHIP	39K	5%	1/16W
R5024	1-218-972-11	RES,CHIP	39K	5%	1/16W
R5025	1-218-975-11	RES,CHIP	68K	5%	1/16W
R5026	1-218-971-11	RES,CHIP	33K	5%	1/16W
R5029	1-218-990-11	SHORT	0		
R5030	1-218-941-11	RES,CHIP	100	5%	1/16W
R5031	1-218-941-11	RES,CHIP	100	5%	1/16W
R5035	1-218-941-11	RES,CHIP	100	5%	1/16W
R5038	1-218-990-11	SHORT	0		
R5039	1-218-990-11	SHORT	0		
R5040	1-218-905-11	RES,CHIP	270K	0.50%	1/16W
R5041	1-218-875-11	RES,CHIP	15K	0.50%	1/16W
R5042	1-218-990-11	SHORT	0		
R5044	1-218-969-11	RES,CHIP	22K	5%	1/16W
R5045	1-218-990-11	SHORT	0		
R5046	1-218-990-11	SHORT	0		
R5047	1-218-990-11	SHORT	0		
R5101	1-216-864-11	METAL CHIP	0	5%	1/16W
R5102	1-218-901-11	RES,CHIP	180K	0.50%	1/16W
R5103	1-218-975-11	RES,CHIP	68K	5%	1/16W
R5104	1-218-974-11	RES,CHIP	56K	5%	1/16W
R5105	1-218-887-11	RES,CHIP	47K	0.50%	1/16W
R5106	1-218-975-11	RES,CHIP	68K	5%	1/16W
R5107	1-218-970-11	RES,CHIP	27K	5%	1/16W
R5108	1-218-982-11	RES,CHIP	270K	5%	1/16W
R5109	1-218-973-11	RES,CHIP	47K	5%	1/16W
R5110	1-218-974-11	RES,CHIP	56K	5%	1/16W
R5111	1-218-965-11	RES,CHIP	10K	5%	1/16W
R5113	1-218-979-11	RES,CHIP	150K	5%	1/16W
R5114	1-218-954-11	RES,CHIP	1.2K	5%	1/16W
R5115	1-218-980-11	RES,CHIP	180K	5%	1/16W
R5116	1-218-969-11	RES,CHIP	22K	5%	1/16W
R5117	1-218-985-11	RES,CHIP	470K	5%	1/16W
R5118	1-218-983-11	RES,CHIP	330K	5%	1/16W
R5119	1-218-969-11	RES,CHIP	22K	5%	1/16W
R5121	1-218-972-11	RES,CHIP	39K	5%	1/16W
R5123	1-218-965-11	RES,CHIP	10K	5%	1/16W
R5125	1-218-971-11	RES,CHIP	33K	5%	1/16W
R5128	1-218-953-11	RES,CHIP	1K	5%	1/16W
R5133	1-218-990-11	SHORT	0		
R5135	1-218-990-11	SHORT	0		
R5136	1-218-990-11	SHORT	0		

Ref. No.	Part No.	Description
	A-7073-519-A	VI-148 BOARD, COMPLETE (TRV9)
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	A-7073-620-A	VI-148 BOARD, COMPLETE (TRV9E)
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(Ref.No.: 10,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C9002	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9003	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C9005	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C9006	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9007	1-104-847-11	TANTAL. CHIP	22uF	20%	4V

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
C9008	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9082	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9009	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9083	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C9010	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V	C9085	1-164-866-11	CERAMIC CHIP	47PF	5%	16V
C9011	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C9087	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C9012	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9088	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C9013	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	C9089	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9014	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9090	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9015	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V	C9091	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C9016	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C9092	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9017	1-164-874-11	CERAMIC CHIP	100PF	5%	16V	C9093	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9018	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V	C9096	1-115-156-11	CERAMIC CHIP	1uF		10V
C9019	1-164-866-11	CERAMIC CHIP	47PF	5%	16V	C9098	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C9020	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9099	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C9021	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	C9100	1-164-934-11	CERAMIC CHIP	330PF	10%	16V
C9022	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9101	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9023	1-164-949-11	CERAMIC CHIP	0.047uF		16V	C9103	1-164-862-11	CERAMIC CHIP	33PF	5%	16V (TRV9E)
C9024	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9103	1-164-866-11	CERAMIC CHIP	47PF	5%	16V (TRV9)
C9025	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9104	1-164-862-11	CERAMIC CHIP	33PF	5%	16V (TRV9E)
C9026	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9104	1-164-866-11	CERAMIC CHIP	47PF	5%	16V (TRV9)
C9027	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V						
C9028	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9105	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C9030	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9106	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C9032	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9107	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C9035	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9108	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9036	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9109	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C9038	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9401	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9041	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9402	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9043	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9404	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9045	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9405	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9046	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C9406	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9047	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9407	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9048	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	C9408	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9049	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C9409	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9050	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9410	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9051	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9411	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C9052	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9413	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C9053	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9414	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9054	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9415	1-164-866-11	CERAMIC CHIP	47PF	5%	16V
C9055	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C9416	1-164-928-11	CERAMIC CHIP	270PF	5%	16V
C9056	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C9501	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9057	1-164-854-11	CERAMIC CHIP	15PF	5%	16V	C9504	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9058	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9505	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9059	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9507	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C9062	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9508	1-164-860-11	CERAMIC CHIP	27PF	5%	16V (TRV9)
C9063	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9508	1-164-862-11	CERAMIC CHIP	33PF	5%	16V (TRV9E)
C9064	1-164-935-11	CERAMIC CHIP	470PF	10%	16V	C9509	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C9065	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9510	1-164-854-11	CERAMIC CHIP	15PF	5%	16V (TRV9)
C9066	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V						
C9068	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9511	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9069	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9513	1-164-882-11	CERAMIC CHIP	220PF	5%	16V
C9071	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9514	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C9072	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C9601	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9073	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C9602	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C9074	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V						
C9075	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V						
C9077	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V						
C9078	1-109-982-11	CERAMIC CHIP	1uF	10%	10V						
C9079	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V						
C9080	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V						
C9081	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V						

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN9601	1-784-939-11	CONNECTOR, BOARD TO BOARD 60P	
		< DIODE >	
D9001	8-719-055-86	DIODE KV1470TL1-3	
D9002	8-719-017-82	DIODE MA8036-TX	
		< FERRITE BEAD >	
FB9001	1-414-226-21	INDUCTOR CHIP 0UH	
		< FILTER >	
FL9001	1-233-732-21	FILTER, BAND PASS (3.58MHz) (TRV9)	
FL9001	1-233-735-21	FILTER, BAND PASS (4.43MHZ) (TRV9E)	
FL9002	1-233-733-21	FILTER, LOW PASS	
		< IC >	
IC9001	8-759-448-68	IC NJM2283V-TE1	
IC9002	8-752-070-65	IC CXA1950Q-T4	
IC9004	8-752-074-18	IC CXA2007R-T4	
IC9005	8-759-343-09	IC CXD2193AR-ER	
IC9006	8-759-523-03	IC TC74HC4066AFS-EL	
IC9009	8-759-447-78	IC MN65752F-E2	
IC9010	8-759-447-77	IC TC7WH74FU(TE12R)	
IC9011	8-759-271-86	IC TC7SH04FU-TE85R	
IC9401	8-759-457-75	IC MC141628FUEB	
IC9501	8-759-349-01	IC MC68HC68VBIFB	
IC9502	8-759-327-60	IC TC7W125FU-TE12R	
IC9601	8-759-427-85	IC MB88146APFV-G-BND-ER	
		< COIL >	
L9001	1-414-754-11	INDUCTOR 10uH	
L9005	1-414-754-11	INDUCTOR 10uH	
L9006	1-414-754-11	INDUCTOR 10uH	
L9008	1-411-275-21	COIL, VARIABLE	
L9009	1-414-754-11	INDUCTOR 10uH	
L9010	1-414-754-11	INDUCTOR 10uH	
L9402	1-414-754-11	INDUCTOR 10uH	
L9403	1-414-754-11	INDUCTOR 10uH	
L9404	1-414-754-11	INDUCTOR 10uH	
L9502	1-414-754-11	INDUCTOR 10uH	
L9504	1-412-958-21	INDUCTOR 39uH (TRV9E)	
L9504	1-412-959-11	INDUCTOR 47uH (TRV9)	
		< TRANSISTOR >	
Q9001	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q9002	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q9003	8-729-427-74	TRANSISTOR XP4601-TXE	
Q9004	8-729-037-76	TRANSISTOR UN9215J-(K8).SO	
Q9005	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q9006	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9007	8-729-427-72	TRANSISTOR XP4501-TXE	
Q9008	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9009	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9010	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	

Ref. No.	Part No.	Description	Remarks
Q9011	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9012	8-729-427-74	TRANSISTOR XP4601-TXE	
Q9013	8-729-427-72	TRANSISTOR XP4501-TXE	
Q9014	8-729-141-48	TRANSISTOR 2SB624-T1BV4	
Q9015	8-729-037-72	TRANSISTOR UN9211J-(K8).SO	
Q9016	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9017	8-729-037-72	TRANSISTOR UN9211J-(K8).SO	
Q9020	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9021	8-729-141-48	TRANSISTOR 2SB624-T1BV4	
Q9022	8-729-427-42	TRANSISTOR XP4211-TXE	
Q9023	8-729-427-42	TRANSISTOR XP4211-TXE	
Q9024	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9401	8-729-427-74	TRANSISTOR XP4601-TXE	
Q9402	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q9403	8-729-427-74	TRANSISTOR XP4601-TXE	
Q9501	8-729-427-74	TRANSISTOR XP4601-TXE	
Q9502	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
		< RESISTOR >	
R9002	1-218-966-11	RES,CHIP	12K	5%	1/16W
R9003	1-218-971-11	RES,CHIP	33K	5%	1/16W
R9004	1-218-948-11	RES,CHIP	390	5%	1/16W
R9005	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9006	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9007	1-218-964-11	RES,CHIP	8.2K	5%	1/16W
R9008	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9009	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9010	1-218-968-11	RES,CHIP	18K	5%	1/16W
R9011	1-218-980-11	RES,CHIP	180K	5%	1/16W
R9013	1-218-935-11	RES,CHIP	33	5%	1/16W
R9014	1-218-946-11	RES,CHIP	270	5%	1/16W
R9015	1-218-944-11	RES,CHIP	180	5%	1/16W
R9018	1-218-950-11	RES,CHIP	560	5%	1/16W
R9019	1-218-945-11	RES,CHIP	220	5%	1/16W
R9021	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9022	1-218-952-11	RES,CHIP	820	5%	1/16W
R9023	1-218-990-11	SHORT	0		
R9024	1-218-969-11	RES,CHIP	22K	5%	1/16W
R9025	1-218-968-11	RES,CHIP	18K	5%	1/16W
R9026	1-218-949-11	RES,CHIP	470	5%	1/16W
R9027	1-218-969-11	RES,CHIP	22K	5%	1/16W
R9028	1-218-981-11	RES,CHIP	220K	5%	1/16W
R9029	1-218-956-11	RES,CHIP	1.8K	5%	1/16W
R9030	1-218-960-11	RES,CHIP	3.9K	5%	1/16W
R9031	1-218-977-11	RES,CHIP	100K	5%	1/16W
R9032	1-218-956-11	RES,CHIP	1.8K	5%	1/16W
R9033	1-220-215-11	RES,CHIP	510K	5%	1/16W
R9034	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9035	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9036	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9037	1-218-945-11	RES,CHIP	220	5%	1/16W
R9038	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9039	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9041	1-218-967-11	RES,CHIP	15K	5%	1/16W (TRV9E)
R9042	1-218-963-11	RES,CHIP	6.8K	5%	1/16W
R9043	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9044	1-218-963-11	RES,CHIP	6.8K	5%	1/16W
R9045	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9046	1-218-969-11	RES,CHIP	22K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R9047	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9049	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9050	1-218-948-11	RES,CHIP	390	5%	1/16W
R9051	1-218-966-11	RES,CHIP	12K	5%	1/16W (TRV9E)
R9051	1-218-990-11	SHORT	0		(TRV9)
R9052	1-218-990-11	SHORT	0		
R9054	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9055	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9056	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9057	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9058	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9059	1-218-977-11	RES,CHIP	100K	5%	1/16W
R9060	1-218-965-11	RES,CHIP	10K	5%	1/16W (TRV9)
R9063	1-218-949-11	RES,CHIP	470	5%	1/16W
R9064	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9065	1-218-965-11	RES,CHIP	10K	5%	1/16W (TRV9E)
R9068	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9070	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9071	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R9072	1-218-945-11	RES,CHIP	220	5%	1/16W
R9073	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R9076	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R9077	1-218-945-11	RES,CHIP	220	5%	1/16W
R9078	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R9079	1-218-941-11	RES,CHIP	100	5%	1/16W
R9080	1-218-941-11	RES,CHIP	100	5%	1/16W
R9083	1-218-987-11	RES,CHIP	680K	5%	1/16W
R9084	1-218-970-11	RES,CHIP	27K	5%	1/16W
R9087	1-218-971-11	RES,CHIP	33K	5%	1/16W
R9088	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9089	1-218-971-11	RES,CHIP	33K	5%	1/16W
R9090	1-218-971-11	RES,CHIP	33K	5%	1/16W
R9091	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9094	1-218-941-11	RES,CHIP	100	5%	1/16W
R9095	1-218-969-11	RES,CHIP	22K	5%	1/16W
R9097	1-218-973-11	RES,CHIP	47K	5%	1/16W
R9099	1-218-990-11	SHORT	0		
R9100	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R9101	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R9103	1-218-990-11	SHORT	0		
R9104	1-218-976-11	RES,CHIP	82K	5%	1/16W
R9105	1-218-976-11	RES,CHIP	82K	5%	1/16W
R9106	1-218-961-11	RES,CHIP	4.7K	5%	1/16W
R9107	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9108	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9109	1-218-969-11	RES,CHIP	22K	5%	1/16W
R9110	1-218-967-11	RES,CHIP	15K	5%	1/16W
R9111	1-218-947-11	RES,CHIP	330	5%	1/16W
R9112	1-218-973-11	RES,CHIP	47K	5%	1/16W
R9113	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9114	1-218-973-11	RES,CHIP	47K	5%	1/16W
R9121	1-218-967-11	RES,CHIP	15K	5%	1/16W
R9122	1-218-945-11	RES,CHIP	220	5%	1/16W
R9127	1-218-990-11	SHORT	0		
R9128	1-218-990-11	SHORT	0		

Ref. No.	Part No.	Description			Remarks
R9129	1-218-973-11	RES,CHIP	47K	5%	1/16W
R9130	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9131	1-218-973-11	RES,CHIP	47K	5%	1/16W
R9132	1-218-947-11	RES,CHIP	330	5%	1/16W
R9141	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9142	1-218-985-11	RES,CHIP	470K	5%	1/16W
R9143	1-218-985-11	RES,CHIP	470K	5%	1/16W
R9144	1-218-985-11	RES,CHIP	470K	5%	1/16W
R9145	1-218-985-11	RES,CHIP	470K	5%	1/16W
R9148	1-218-966-11	RES,CHIP	12K	5%	1/16W
R9149	1-218-941-11	RES,CHIP	100	5%	1/16W
R9401	1-218-937-11	RES,CHIP	47	5%	1/16W
R9402	1-218-941-11	RES,CHIP	100	5%	1/16W
R9403	1-218-973-11	RES,CHIP	47K	5%	1/16W
R9404	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9405	1-218-981-11	RES,CHIP	220K	5%	1/16W
R9406	1-218-965-11	RES,CHIP	10K	5%	1/16W (TRV9)
R9407	1-218-965-11	RES,CHIP	10K	5%	1/16W (TRV9E)
R9408	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9409	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9410	1-218-951-11	RES,CHIP	680	5%	1/16W
R9411	1-218-947-11	RES,CHIP	330	5%	1/16W
R9412	1-218-942-11	RES,CHIP	120	5%	1/16W
R9413	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9501	1-218-985-11	RES,CHIP	470K	5%	1/16W
R9502	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9503	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9504	1-218-947-11	RES,CHIP	330	5%	1/16W
R9505	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9506	1-218-957-11	RES,CHIP	2.2K	5%	1/16W
R9507	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9508	1-218-977-11	RES,CHIP	100K	5%	1/16W
R9519	1-218-953-11	RES,CHIP	1K	5%	1/16W
R9521	1-218-965-11	RES,CHIP	10K	5%	1/16W
R9601	1-218-977-11	RES,CHIP	100K	5%	1/16W
R9602	1-218-977-11	RES,CHIP	100K	5%	1/16W
R9603	1-218-977-11	RES,CHIP	100K	5%	1/16W
R9604	1-218-937-11	RES,CHIP	47	5%	1/16W
R9605	1-218-937-11	RES,CHIP	47	5%	1/16W
R9606	1-218-937-11	RES,CHIP	47	5%	1/16W
R9607	1-218-937-11	RES,CHIP	47	5%	1/16W
R9608	1-218-937-11	RES,CHIP	47	5%	1/16W
R9609	1-218-937-11	RES,CHIP	47	5%	1/16W
R9610	1-218-937-11	RES,CHIP	47	5%	1/16W
R9611	1-218-937-11	RES,CHIP	47	5%	1/16W
R9612	1-218-937-11	RES,CHIP	47	5%	1/16W
R9613	1-218-937-11	RES,CHIP	47	5%	1/16W
R9614	1-218-937-11	RES,CHIP	47	5%	1/16W
R9615	1-218-937-11	RES,CHIP	47	5%	1/16W
R9616	1-218-937-11	RES,CHIP	47	5%	1/16W
R9617	1-218-937-11	RES,CHIP	47	5%	1/16W
R9618	1-218-937-11	RES,CHIP	47	5%	1/16W
R9619	1-218-937-11	RES,CHIP	47	5%	1/16W
R9620	1-218-937-11	RES,CHIP	47	5%	1/16W
R9621	1-218-937-11	RES,CHIP	47	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R9622	1-218-937-11	RES,CHIP	47	5%	1/16W
R9623	1-218-937-11	RES,CHIP	47	5%	1/16W

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X9001	1-579-466-11	VIBRATOR, CRYSTAL 3.579545MHz (TRV9)	
X9001	1-579-661-21	OSCILLATOR, CRYSTAL 4.43619MHz (TRV9E)	

MISCELLANEOUS
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Ref. No.	Part No.	Description
5	1-669-511-11	FP-654 FLEXIBLE BOARD
6	1-475-707-11	SWITCH BLOCK, CONTROL (MF4580)
7	1-694-411-11	TERMINAL BOARD, BATTERY
54	1-475-705-11	SWITCH BLOCK, CONTROL (CF4580)
59,210	1-958-570-11	HARNESS (BT-55)
61	1-958-571-11	HARNESS (SP-151)
110	1-669-512-21	FP-655 FLEXIBLE BOARD
112	1-669-513-11	FP-656 FLEXIBLE BOARD
152	1-475-708-21	SWITCH BLOCK, CONTROL (BV4580)
203	1-669-509-21	FP-650 FLEXIBLE BOARD
205	1-669-511-11	FP-654 FLEXIBLE BOARD
210	1-958-570-11	HARNESS (BT-55)
261	1-475-706-21	SWITCH BLOCK, CONTROL (PS4580) (TRV9/TRV9E:EXCEPT AEP,UK)
261	1-475-706-31	SWITCH BLOCK, CONTROL (PS4580) (TRV9E:AEP,UK)
262	1-475-704-21	SWITCH BLOCK, CONTROL (FK4580) (TRV9/TRV9E:EXCEPT AEP,UK)
262	1-475-704-31	SWITCH BLOCK, CONTROL (FK4580) (TRV9E:AEP,UK)
265	1-669-510-11	FP-653 FLEXIBLE BOARD
266	1-774-867-21	CONNECTOR,EXTERNAL(HOT SHOE)8P
269	1-669-507-21	FP-648 FLEXIBLE BOARD (TRV9/TRV9E:EXCEPT AEP,UK)
301	1-758-154-11	LENS, ZOOM (VCL-5115VA)
304	1-758-155-21	FILTER BLOCK, OPTICAL
812	1-657-785-11	FP-248 FLEXIBLE BOARD
IC451	A-7030-881-A	CCD BLOCK ASSY (TRV9)
IC451	A-7030-885-A	CCD BLOCK ASSY (TRV9E)
LCD901	1-803-033-21	INDICATOR MODULE, LIQUID CRYSTAL
LCD902	8-753-023-37	LCX024AK-4
M901	A-7044-024-A	DRUM ASSY (DEH-07D-R)
M902	X-3948-346-1	MOTOR ASSY, L (LOADING)
M903	8-835-606-01	MOTOR, DC SCD15A/C-NP (CAPSTAN)
M904	3-709-400-01	MOTOR, FOCUS
M905	3-709-399-01	MOTOR, ZOOM
MIC901	1-542-350-11	MICROPHONE UNIT
⚠ND901	1-517-754-11	TUBE, FLUORESCENT,COLD CATHODE
SP901	1-505-619-11	SPEAKER (2.0 CM)

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES & PACKING MATERIALS ********************************	
	1-475-141-21	REMOTE COMMANDER RMT-808E (TRV9/TRV9E:EXCEPT AEP,UK)	
	1-475-141-31	REMOTE COMMANDER RMT-809E (TRV9E:AEP,UK)	
	1-569-008-21	ADAPTOR, CONVERSION 2P (E,HK,JE)	
	1-573-291-11	CONNECTOR, CONVERSION 21P (TRV9E:AEP,UK)	
	1-765-080-11	AV CONNECTING CABLE 1.5m (TRV9/TRV9E:EXCEPT AEP,UK)	
	1-777-433-21	CORD, CONNECTION (TRV9E:AEP,UK)	
	3-862-548-11	MANUAL, INSTRUCTION (ENGLISH) (TRV9:US,CND)	
	3-862-548-21	MANUAL, INSTRUCTION (FRENCH) (TRV9:CND)	
	3-862-548-31	MANUAL, INSTRUCTION (ENGLISH) (TRV9:E,HK,JE)	
	3-862-548-41	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TRV9:E,HK,JE)	
	3-862-548-51	MANUAL, INSTRUCTION (CHINESE) (TRV9:E,HK)	
	3-862-548-61	MANUAL, INSTRUCTION (KOREAN) (TRV9:JE)	
	3-862-549-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TRV9E:AEP,UK)	
	3-862-549-21	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (TRV9E:AEP)	
	3-862-549-31	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TRV9E:AEP)	
	3-862-549-41	MANUAL, INSTRUCTION ((FRENCH, GERMAN) (TRV9E:AEP)	
	3-862-549-51	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TRV9E:EXCEPT AEP,UK)	
	3-862-549-61	MANUAL, INSTRUCTION (FRENCH, GERMAN) (TRV9E:CN,E,HK,JE)	
	3-862-549-71	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TRV9E:CN,E)	
	3-862-549-81	MANUAL, INSTRUCTION (CHINESE) (TRV9E:CN,E,JE)	
	3-862-549-91	MANUAL, INSTRUCTION (CHINESE) (TRV9E:HK)	
	3-948-162-02	EYE CUP	
	3-987-015-01	BELT (S), SHOULDER	
	X-3948-885-1	ADAPTOR ASSY, F	
**	A-7009-233-A	AC-V316 AC ADAPTOR (US,CND)	
**	A-7009-234-C	AC-V316 AC ADAPTOR (E,JE)	
**	A-7009-237-B	AC-V316 AC ADAPTOR (AUS)	
**	A-7009-238-B	AC-V316 AC ADAPTOR (HK)	
**	A-7009-749-A	AC-V326 AC ADAPTOR (AEP)	
**	A-7009-750-A	AC-V326 AC ADAPTOR (UK)	
**	A-7029-069-A	AC-V326 AC ADAPTOR (CN)	
**	NP-F330	BATTERY PACK	

Note:
** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY

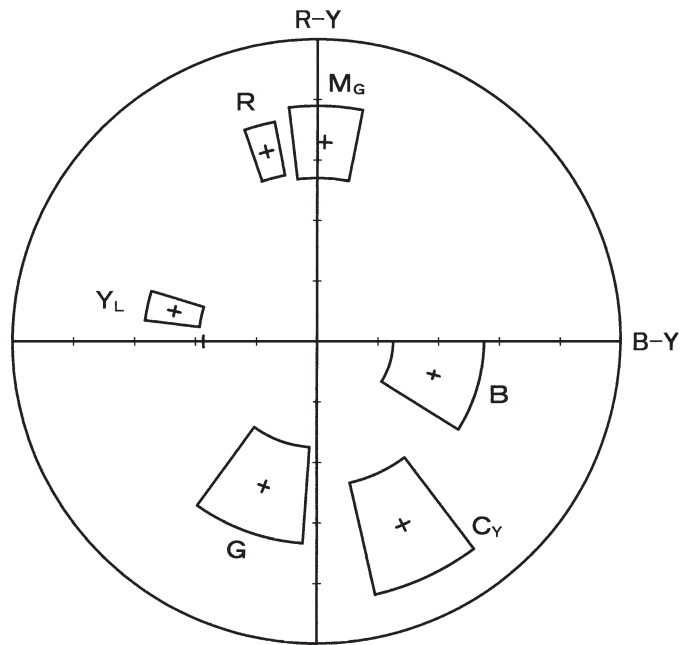| Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

DCR-TRV9

Take a copy of CAMERA COLOR
REPRODUCTION FRAME and
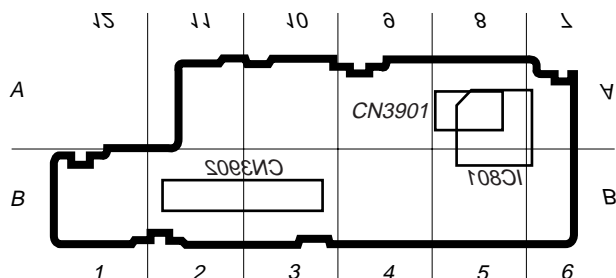Parts referencesheets with a clear
sheet for use.
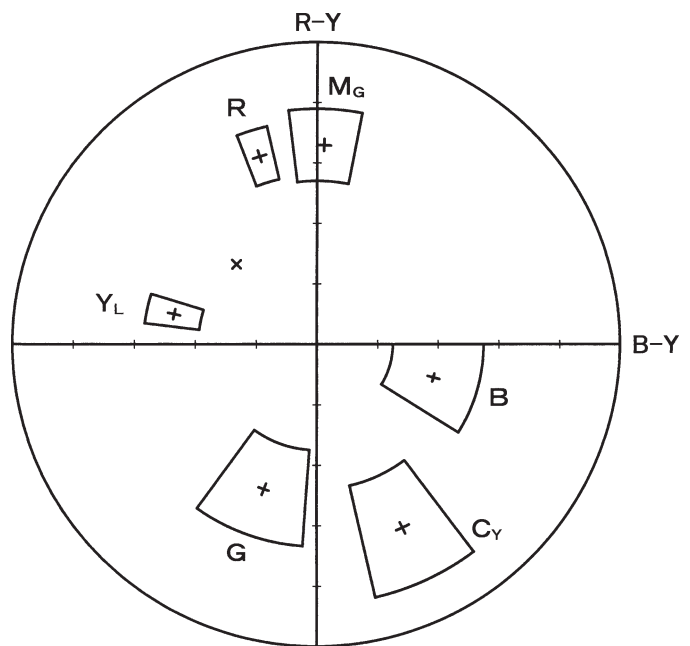
DCR-TRV9E

⟨PARTS REFERENCE SHEET⟩

You can find the parts position of location of mount locations applying to DD-106 board of a set.
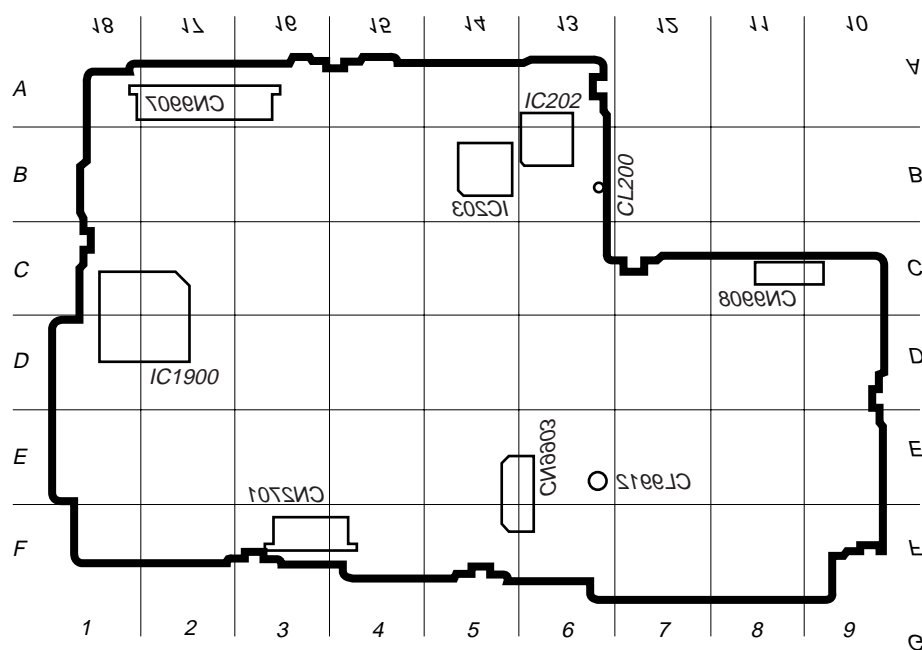
DD-106 DCR-TRV9/TRV9E ⬚ SIDE A

⬚ SIDE B   DCR-TRV9/TRV9E **DD-106**

⟨PARTS REFERENCE SHEET⟩

You can find the parts position of location of mount locations applying to VC-206 board of a set.
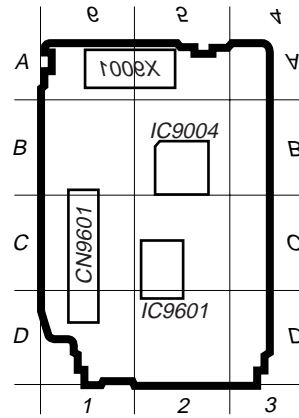
VC-206 DCR-TRV9/TRV9E ⬚ SIDE A

⬚ SIDE B   DCR-TRV9/TRV9E **VC-206**

⟨**PARTS REFERENCE SHEET**⟩
You can find the parts position of location of mount locations applying to VI-148
board of a set.

VI-148 DCR-TRV9/TRV9E SIDE A

DCR-TRV9/TRV9E