

Panasonic®

ORDER NO. VM1602005CE

B27

Service Manual

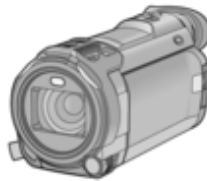
4K Video Camera

Model No. **HC-VXF990EG**
HC-VXF990EB
HC-VXF990EE
HC-VXF990EF
HC-VXF990EP
HC-VXF990GN
HC-VXF999EG
HC-WXF990PU
HC-WXF990GC
HC-WXF990GK
HC-WXF990GW
HC-WXF991PP
HC-WXF990MGH
HC-WXF990MGK
HC-WXF990MGN

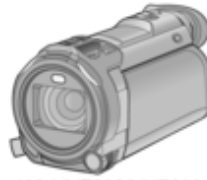
Colour

(K).....Black Type





HC-WXF990/WXF991/WXF990M



HC-VXF990/VXF999

 WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Safety Precautions

1.1 General Guidelines

1. IMPORTANT SAFETY NOTICE

- There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
 3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
 4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
 5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.2 Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 M Ω and 5.2 M Ω . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

1.3 Leakage Current Hot Check (See Figure. 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5 k Ω , 10 W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure. 1.
3. Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 mA. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

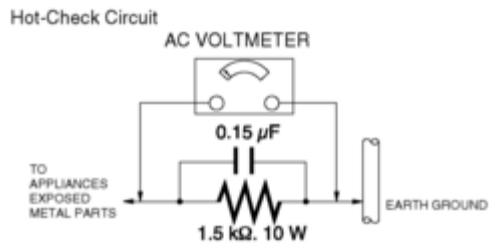


Figure. 1

2 Warning

2.1 Prevention of Electrostatic Discharge (ESD) to Electrostatically Sensitive (ES) Devices

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

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION :

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

2.2 How to Recycle the Lithium Ion Battery (U.S. Only)

ENGLISH		A lithium ion battery that is recyclable powers the product you have purchased. Please call 1-800-8-BATTERY for information on how to recycle this battery.
FRANÇAIS		L'appareil que vous vous êtes procuré est alimenté par une batterie au lithium-ion recyclable. Pour des renseignements sur le recyclage de la batterie, veuillez composer le 1-800-8-BATTERY.

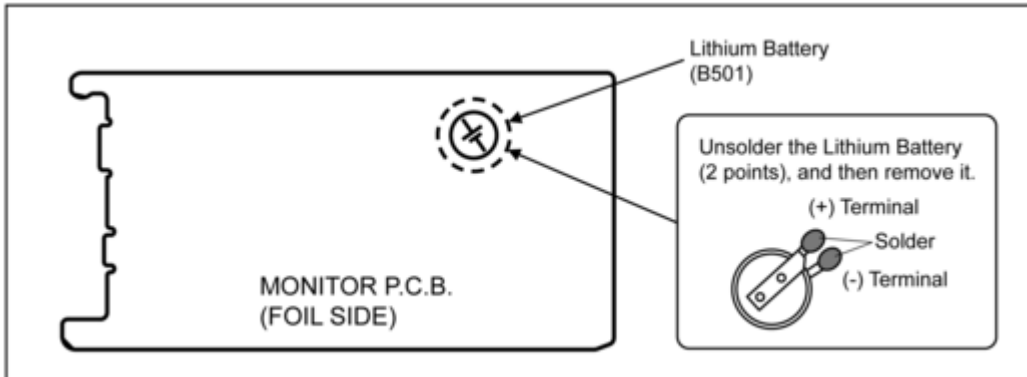
2.3 How to Replace the Lithium Battery

2.3.1 Replacement Procedure

1. Remove the MONITOR P.C.B.. (Refer to Disassembly Procedures.)
2. Unsolder the each soldering point of electric lead terminal for Lithium battery (Ref. No. "B501" at foil side of MONITOR P.C.B.) and remove the Lithium battery together with electric lead terminal. Then replace it into new one.

NOTE:

The Lithium battery includes electric lead terminals.



NOTE:

This Lithium battery is a critical component.

It must never be subjected to excessive heat or discharge.

It must therefore only be fitted in requirement designed specifically for its use.

Replacement batteries must be of same type and manufacture.

They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.

Do not attempt to re-charge the old battery or re-use it for any other purpose.

It should be disposed of in waste products destined for burial rather than incineration.

(For English)

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

(For German)

ACHTUNG

Explosionsgefahr bei falschem Anbringen der Batterie. Ersetzen Sie nur mit einem äquivalentem vom Hersteller empfohlenem Typ.

Behandeln Sie gebrauchte Batterien nach den Anweisungen des Herstellers.

(For French)

MISE EN GARDE

Une batterie de remplacement inappropriée peut exploser. Ne remplacez qu'avec une batterie identique ou d'un type recommandé par le fabricant. L'élimination des batteries usées doit être faite conformément aux instructions du manufacturier.

NOTE:

Above caution is applicable for a battery pack which is for HC-VXF990/VXF999/WXF990/WXF991/WXF990M.

3 Service Navigation

3.1 Introduction

This service manual contains technical information, which allow service personnel's to understand and service this model. Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, the information will be followed by service manual to be controlled with original service manual.

3.2 General Description About Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.

The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and copper (Cu), and the melting point of the lead free solder is higher approx.30°C (86°F) more than that of the normal solder.

Distinction of P.C.B. Lead Free Solder being used

The letter of "PbF" is printed either foil side or components side on the P.C.B. using the lead free solder.(See right figure)	PbF
--	-----

Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used. (Definition: The letter of "PbF" is printed on the P.C.B. using the lead free solder.)
- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the P.C.B. cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30°C (662±86°F).

Recommended Lead Free Solder (Service Parts Route.)

- The following 3 types of lead free solder are available through the service parts route.
SVKZ000001----- (0.3mm 100g Reel)
SVKZ000002----- (0.6mm 100g Reel)
SVKZ000003----- (1.0mm 100g Reel)

Note

* Ingredient: Tin (Sn) 96.5%, Silver (Ag) 3.0%, Copper (Cu) 0.5%. (Flux cored)

3.3 How to Define the Model Suffix (NTSC or PAL model)

There are seven kinds of HC-VXF990/VXF999/WXF990/WXF991/WXF990M.

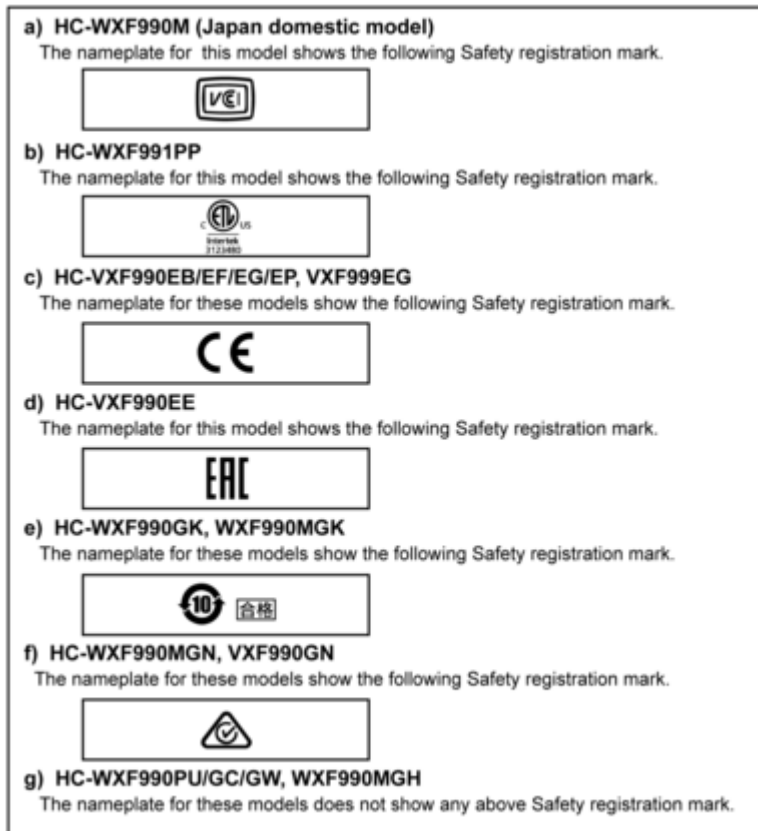
- a) HC-WXF990M (Japan domestic model)

- b) HC-WXF991PP
- c) HC-VXF990EB/EF/EG/EP, VXF999EG
- d) HC-VXF990EE
- e) HC-WXF990GK, WXF990MGK
- f) HC-WXF990MGN, VXF990GN
- g) HC-WXF990PU/GC/GW, WXF990MGH

What is the difference is that the “INITIAL SETTING” data which is stored in Flash ROM mounted on Main P.C.B..

3.3.1 Defining methods:

To define the model suffix to be serviced, refer to the rating label and caution label which are putted on the Unit.



NOTE:

After replacing the MAIN P.C.B., be sure to achieve adjustment.

3.4 Baking of replacement IC and defective P.C.B.

When replacing the CSP/BGA/QFN type IC mounted on the P.C.B., the problem of IC crack or foil pattern breaking in the P.C.B.

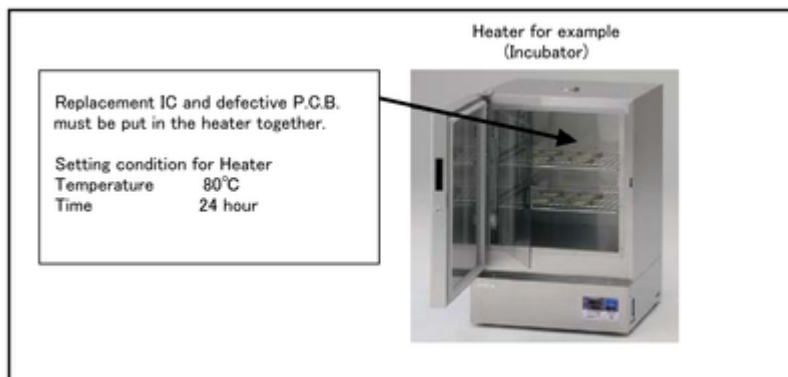
might sometimes occur by rapid heating.

In order to improve the success rate of IC replacement for repair, it would be required to work out baking of replacement IC and defective P.C.B. before replacing IC.

Please refer the way of baking as follows.

Replacement IC and defective P.C.B. must be put in the heater together.

- Baking temperature and time (Hour)
80°C / 24 hour



4 Specifications

The following specification is for HC-WXF990/WXF990M/VXF990/VXF999/VX980/VX989/VX980M (EB/EP).
Some specifications may differ depending on model suffix.

The page number in this chapter does not show the page number of this service manual.

4K Video Camera

- *1 When [REC FORMAT] is set to [4K MP4], or when [REC FORMAT] is set to [24p] with [REC MODE] set to [2160/24p]
- *2 When [REC FORMAT] is set to [AVCHD] or [MP4/iFrame], or when [REC FORMAT] is set to [24p] with [REC MODE] set to [1080/24p]
- *3 When Level Shot Function is set to normal or off
- *4 When Level Shot Function is set to off

Information for your safety

Power source:

DC 5.0 V (When using AC adaptor)
DC 3.6 V (When using battery)

Power consumption:

[WXF990] series

Recording;

6.6 W (When using the viewfinder)
7.8 W (When using the LCD monitor)

Charging; 7.7 W

[VXF990] series

Recording;

6.6 W (When using the viewfinder)
6.8 W (When using the LCD monitor)

Charging; 7.7 W

[VX980] series

Recording; 7.1 W

Charging; 7.7 W

Motion picture recording format:

[4K MP4], [MP4/iFrame], [24p];

MPEG-4 AVC file format compliant (.MP4)

[AVCHD];

AVCHD format version 2.0 compliant
(AVCHD Progressive)

Motion picture compression:

MPEG-4 AVC/H.264

Audio compression:

[4K MP4], [MP4/iFrame], [24p];

AAC/2 ch

[AVCHD];

Dolby® Digital/5.1 ch (built-in microphone),

2 ch (built-in microphone/external microphone)

Recording mode and transfer rate:

[4K MP4];

[2160];

Maximum 72 Mbps (VBR)

[MP4/iFrame]

[1080/50M];

Maximum 50 Mbps (VBR)

[1080/28M];

Maximum 28 Mbps (VBR)

[720];

Average 9 Mbps (VBR)

[iFrame];

Maximum 28 Mbps (VBR)

[AVCHD]

[1080/50p];

Maximum 28 Mbps (VBR)

[PH];

Maximum 24 Mbps (VBR)

[HA];

Average 17 Mbps (VBR)

[HG];

Average 13 Mbps (VBR)

[HE];

Average 5 Mbps (VBR)

[24p]

[2160/24p];

Maximum 72 Mbps (VBR)

[1080/24p];

Maximum 50 Mbps (VBR)

Refer to the operating instructions (PDF format) for the picture size and recordable time of a motion picture.

Still picture recording format:

JPEG (Design rule for Camera File system, based on Exif 2.2 standard)

Refer to the operating instructions (PDF format) for picture size of a still picture and number of recordable pictures.

Recording media:

SD Memory Card
SDHC Memory Card
SDXC Memory Card
Refer to page 14 for details on SD cards usable in this unit.

WXF990M / **VX980M**

Built-in memory; 64 GB

Image sensor:

1/2.3 type (1/2.3") 1MOS image sensor

Total; 18910 K

Effective pixels;

Motion picture; 8290 K (16:9)^{*1},
6100 K (16:9)^{*2, 3}

Still picture; 8290 K (16:9), 6220 K (4:3),
7000 K (3:2)

Lens:

Auto Iris, 20× optical zoom, F1.8 to F3.6

Focal length;

4.08 mm to 81.6 mm

(Full range AF)

35 mm equivalent;

Motion picture;
30.8 mm to 626 mm (16:9)^{*1, 4},
37.0 mm to 752 mm (16:9)^{*2, 3}

Still picture;
30.8 mm to 626 mm (16:9),
37.6 mm to 752.8 mm (4:3),
34.5 mm to 690.3 mm (3:2)

Minimum focus distance;

Normal; Approx. 3 cm (Wide)/

Approx. 1.5 m (Tele)

Intelligent Auto Macro;

Approx. 1 cm (Wide)

Filter diameter:

49 mm

Zoom:

WXF990 / **WXF990M** / **VXF990** / **VX980** /
VX980M

20× optical zoom, 25×^{*1}/40×^{*2} i.Zoom,
60×/1500× digital zoom

VXF990 / **VX980**

20× optical zoom, 25×^{*1}/40×^{*2} i.Zoom,
60×/250× digital zoom

Image stabilizer function:

Optical (Hybrid Optical Image Stabilizer,
Active Mode (Rotation correction), Optical
Image Stabilizer Lock function)

Level Shot Function:

Off/Normal/Strong

Creative Control:

[Miniature Effect]/[Silent movie]/[8mm movie]/
[Time Lapse Rec]

HDR movie:

Low/High

Monitor:

7.5 cm (3.0") wide LCD monitor (Approx.
460 K dots)

WXF990 / **VXF990** series

Viewfinder:

0.61 cm (0.24") wide EVF (Approx. 1550 K
dots equivalent)

Microphone:

5.1 channel surround microphone/
Zoom microphone/Focus microphone/
Stereo microphone

Minimum required illumination:

Approx. 2 lx (1/25 with Low Light Mode in the
Scene Mode)

Approx. 1 lx with the Night Mode ([COLOUR]) function

0 lx with the Night Mode ([Infrared]) function

AV connector video output level:

1.0 Vp-p, 75 Ω, PAL system

HDMI micro connector video output level:

HDMI™ (x.v.Colour™) 2160p/1080p/1080i/576p

AV connector audio output level (Line):

251 mV, 600 Ω, 2 ch

Headphone output:

85 mV, 32 Ω (Stereo mini jack)

HDMI micro connector audio output level:

[4K MP4], [MP4/iFrame], [24p];

Linear PCM

[AVCHD];

Dolby Digital/Linear PCM

MIC input:

−60 dBV (Mic sensitivity −40 dB equivalent,

0 dB=1 V/Pa, 1 kHz)

(Stereo mini jack)

USB:

Reader function

SD card; Read only (No copyright
protection support)

WXF990M / **VX980M**

Built-in memory; Read only

Hi-Speed USB (USB 2.0), USB terminal

Type micro AB

USB host function (for USB HDD)

Battery charging function (Charges from
USB terminal when the main unit is off)

Dimensions:

WXF990 / **VXF990** series
68.0 mm (W)×78 mm (H)×163 mm (D)
(including projecting parts)

VX980 series
65.0 mm (W)×73 mm (H)×139 mm (D)
(including projecting parts)
[with battery (supplied)]:
65.0 mm (W)×73 mm (H)×141 mm (D)
(including projecting parts)

Mass:

WXF990
Approx. 403 g
[without battery (supplied) and an SD card
(optional)]

WXF990M
Approx. 405 g
[without battery (supplied)]

VXF990 / **VXF999**
Approx. 396 g
[without battery (supplied) and an SD card
(optional)]

VX980 / **VX989**
Approx. 351 g
[without battery (supplied) and an SD card
(optional)]

VX980M
Approx. 352 g
[without battery (supplied)]

Mass in operation:

WXF990
Approx. 448 g
[with battery (supplied) and an SD card
(optional)]

WXF990M
Approx. 448 g
[with battery (supplied)]

VXF990 / **VXF999**
Approx. 441 g
[with battery (supplied) and an SD card
(optional)]

VX980 / **VX989**
Approx. 396 g
[with battery (supplied) and an SD card
(optional)]

VX980M
Approx. 395 g
[with battery (supplied)]

Operating temperature:

0 °C to 40 °C

Operating humidity:

10%RH to 80%RH

Battery operation time:

See page 12

Wireless transmitter:

Compliance standard; IEEE802.11b/g/n
Frequency range used;
Central frequency 2412 MHz to 2462 MHz [11ch]
Encryption method; Wi-Fi compliant WPA™/
WPA2™/WEP
Access method; Infrastructure mode

WXF990 series

Sub Camera**Image sensor:**

1/4 type (1/4") 1MOS image sensor
Total; 5270 K

Lens:

F2.2
Focal length;
3.54 mm
35 mm equivalent (Motion picture);
37.2 mm
Minimum focus distance;
Approx. 30 cm

AC adaptor

Information for your safety

Power source:

AC 110 V to 240 V, 50/60 Hz

AC input:

0.25 A

DC output:

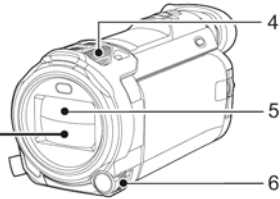
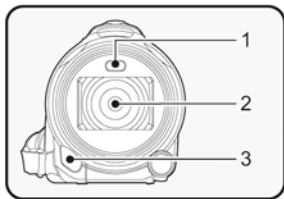
DC 5.0 V, 1.8 A

Dimensions:

(VSK0815L)
66.4 mm (W)×72 mm (H)×46.3 mm (D)
(VSK0815K)
66.4 mm (W)×78.8 mm (H)×31 mm (D)

Mass:

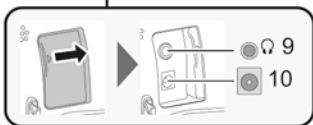
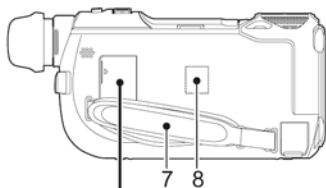
(VSK0815L)
Approx. 70 g
(VSK0815K)
Approx. 65 g



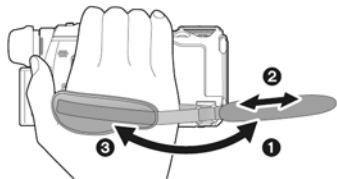
- 1 **Video light** (→ 86, 103)
- 2 **Lens (LEICA DICOMAR)**
 - For information on how to attach the supplied lens hood, refer to page 27.
- 3 **Infrared light** (→ 86)
- 4 **Internal microphones**

- 5 **Lens cover**
 - The lens cover opens in Motion Picture Recording Mode or Still Picture Recording Mode. (→ 20)
- 6 **Multi Manual Dial [CAMERA FUNCTION]** (→ 73, 101)

WXF990 / VXF990 series

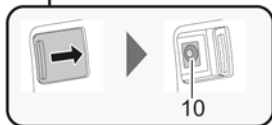
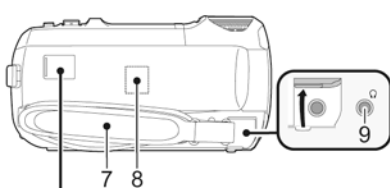


- 7 **Grip belt**
- Adjust the length of the grip belt so that it fits your hand.

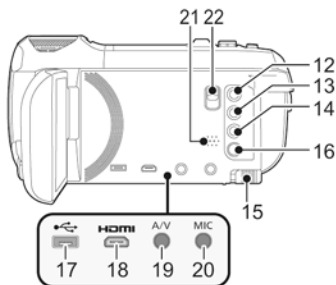
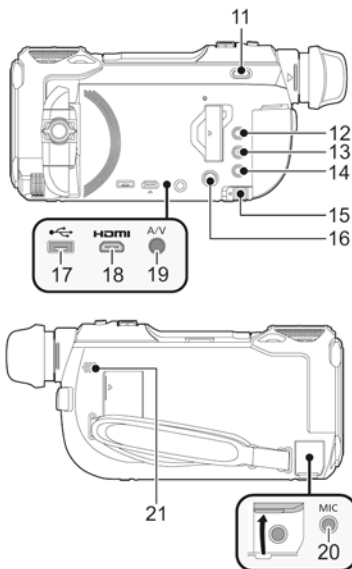


- 1 Flip the belt.
- 2 Adjust the length.
- 3 Replace the belt.

VX980 series



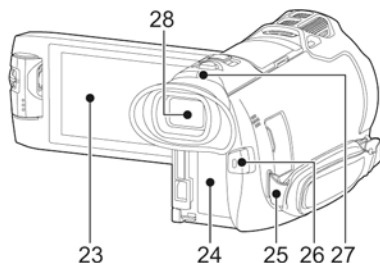
- 8 **Wi-Fi Transmitter** (→ 161)
- 9 **Headphone terminal** [🎧] (→ 88)
 - Excessive sound pressure from earphones and headphones can cause hearing loss.
 - Listening at full volume for long periods may damage the user's ears.
- 10 **DC input terminal [DC IN]** (→ 12)
 - Do not use any other AC adaptors except the supplied one.



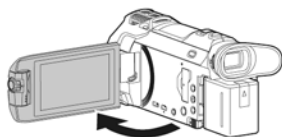
- 11 **WXF990 / VXF990 series only**
Recording mode selector button
[/ 4K PHOTO /] (→ 21)
- 12 Recording/playback button [/]
(→ 20)
- 13 HDR button [HDR] (→ 50)
- 14 Wi-Fi button [Wi-Fi]
(→ 162, 168, 171, 176, 178, 182, 196, 199, 208, 212)
- 15 Battery release lever [BATT] (→ 11)
- 16 Power button [/] (→ 19)
- 17 USB terminal [] (→ 147, 154, 234)
- 18 Micro HDMI connector [HDMI]
(→ 139)
- 19 A/V connector [A/V] (→ 139, 156)
- 20 Microphone terminal [MIC]

- A compatible plug-in powered microphone can be used as an external microphone.
- If you connect an external microphone when a setting other than [AUTO] is selected for [MIC LEVEL] (→ 100), (Microphone input level meter) will be displayed.

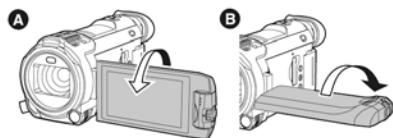
- When the unit is connected with the AC adaptor, sometimes noise may be heard depending on the microphone type. In this case, please switch to the battery for the power supply and the noise will stop.
- 21 **Speaker**
- 22 **VX980 series only**
Shoe adaptor release lever
[SHOE ADAPTOR RELEASE] (→ 259)



23 LCD monitor (Touch screen) (→ 22)



- It can open up to 90°.



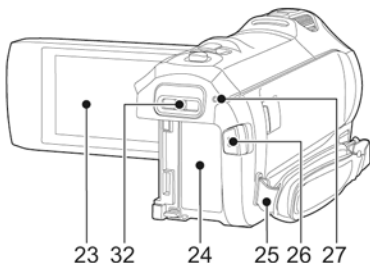
- It can rotate up to 180° **A** towards the lens or 90° **B** towards the opposite direction.

24 Battery holder (→ 11)

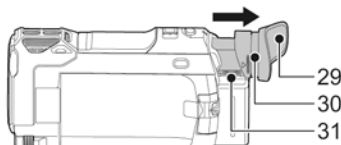
25 Shoulder strap fixture

26 Recording start/stop button (→ 29)

27 Status indicator (→ 19, 189)



**28 WXF990 / VXF990 series only
Viewfinder (→ 22)**



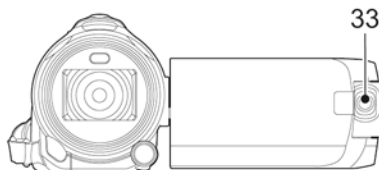
**29 WXF990 / VXF990 series only
Eyecup**

- Keep the Eyecup out of reach of children to prevent swallowing.

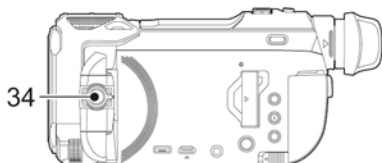
**30 WXF990 / VXF990 series only
Eyecup mount (→ 27)**

**31 WXF990 / VXF990 series only
Diopter adjustment dial (→ 23)**

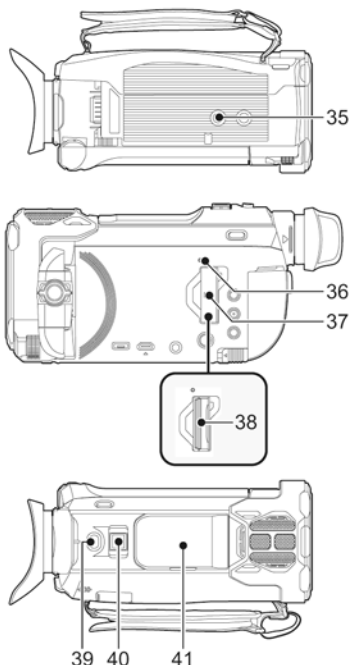
**32 VX980 series only
Shoe adaptor mounting part
[SHOE ADAPTOR] (→ 259)**



33 Sub Camera (→ 51)



34 Sub Camera dial (→ 52)



35 Tripod receptacle

- Attaching a tripod with a screw length of 5.5 mm or more may damage the unit.

36 Access lamp [ACCESS] (→ 18)

37 SD card cover (→ 17)

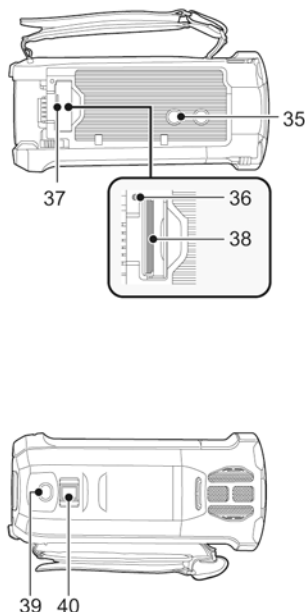
38 Card slot (→ 17)

39 Photoshot button [] (→ 31)

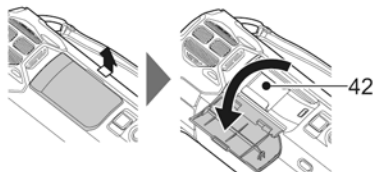
40 Zoom lever [W/T] (In Motion Picture Recording Mode or Still Picture Recording Mode) (→ 49)/

Thumbnail display switch [/]/

Volume lever [-VOL+] (In Playback Mode) (→ 36)



41 WXF990 / VXF990 series only Accessory shoe cover



- Close this cover when not using the accessory shoe.

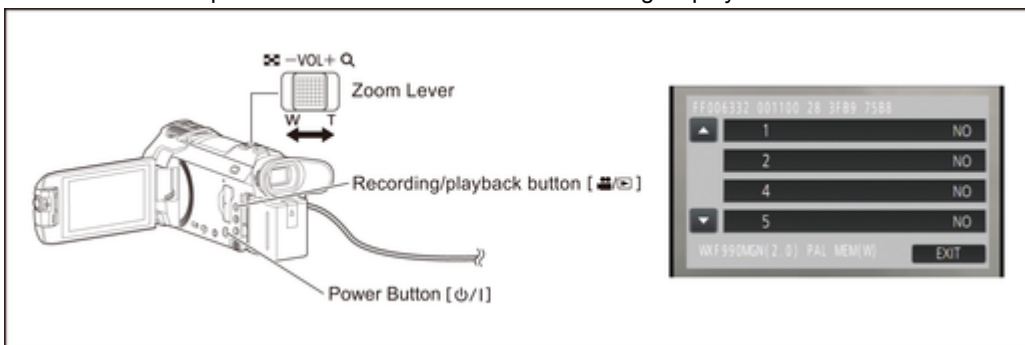
42 WXF990 / VXF990 series only Accessory shoe

- You can attach a variety of optional accessories to the shoe adaptor. For information on how to attach and use those accessories, refer to their manuals.

6 Service Mode

Indication method of the service menu

1. Keep pressing the “Power” button, “Zoom Lever” to W side and “Recording/Playback” button for more than 3 seconds until the top screen of the Service Mode Menu being displayed.



Service mode menu

Screen display	Contents	Function
1	Factory settings	Function to throw a product up in a factory shipment state.
2	Model/Destination settings	Change the Model/Destination. (Selectable models and destinations are displayed.)
4	Lock search history indication	Display the main and sub (*) camera system error code for each three histories saved in EEPROM.
5	Power ON self check result display	Power ON self check (function to diagnose correct function of the device and interface between devices) result display.
14	Adjustment function for the service	The service adjustment do setup and adjustment of the following items required in the field service.
15	Restore the backed up adjustment data	Restore the adjustment data to new or repaired Main P.C.B. from SD card that the data backed up from original Main P.C.B. before repairs or replacement.
16	Touch panel calibration	Calibrate the touch positions of the touch panel.

(*) HC-WXF990/WXF991/WXF990M only.

NOTE:

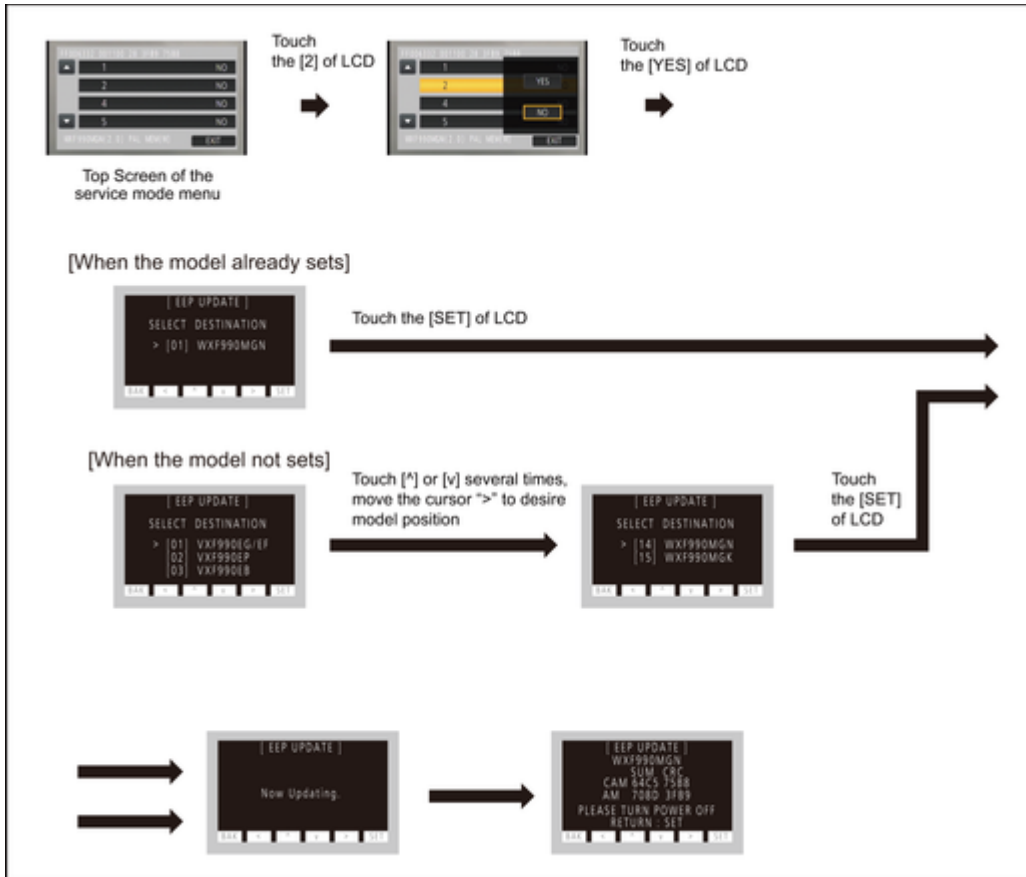
Do not using service mode except above table of Service mode menu.

2. End method of the top screen of the service mode menu
Touch the [EXIT] of LCD to end the service mode, and then POWER OFF.

6.1 Model/Destination Settings

Touch the [2] of LCD, select model/destination settings.

Operation specifications



Function description

- Change the Model/Destination
Display the lists of model/destination which the unit can be changed, if a shipment setup is finished. Therefore in some cases, the model/destination that is currently set is only displayed.

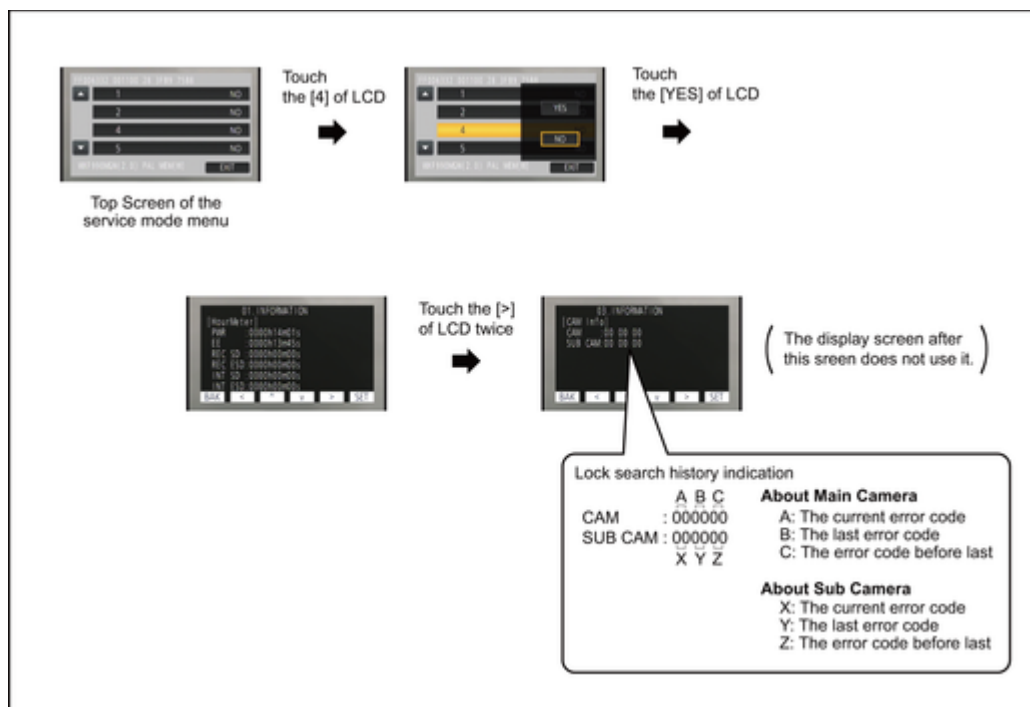
End method of operation

- Touch the [SET] of LCD to exit the model/destination settings, and then POWER OFF.

6.2 Lock Search and Error History Indication

Touch the [4] of LCD, select Lock search and error history indication.

Operation specifications



Indication contents

1. Main Camera

- Lock search history indication of main camera
Display the main camera system error code for three histories saved in EEPROM.
- The error code contents which are displayed

Error code	Description	Problematic Parts
51	Focus control is abnormal	Lens Unit
52	Zoom control is abnormal	2nd Stepping Motor / Lens Unit
53	OIS lens control is abnormal	Lens Unit
54	Zoom control is abnormal (2)	3rd Stepping Motor / Lens Unit
55	Zoom control is abnormal (3)	4th Stepping Motor / Lens Unit
71	Lens barrier open/close is abnormal	Barrier Motor Unit / Lens Frame Unit

2. Sub Camera (HC-WXF990/WXF991/WXF990M only)

- Lock search history indication of sub camera
Display the sub camera system error code for three histories saved in EEPROM.
(Display always "--" for no sub camera models.)
- The error code contents which are displayed

Error code	Description	Problematic Parts
91	Sub camera error	Sub Camera Unit

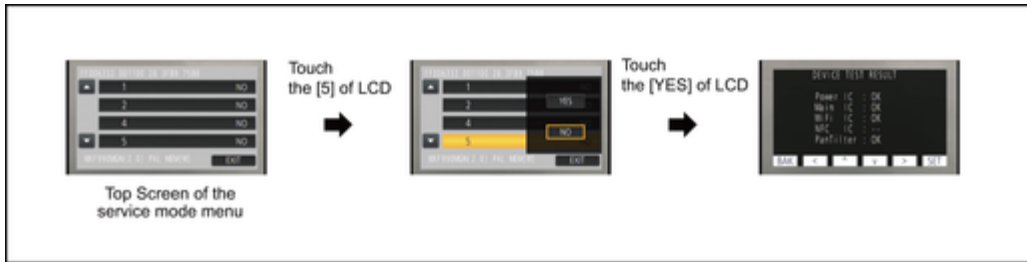
End method of operation

- Touch the [BAK] of LCD to exit the lock search and error history indication, and then POWER OFF.

6.3 Power ON Self Check Result Display

Touch the [5] of LCD, select Power ON self check result display.

Operation specifications



Indication contents

- Power ON self check result display
Function to diagnose correct function of the device and interface between devices result display.
Display the following communication test result.
 - Power IC : Communication test between IC3401 and IC1503.
 - Main IC : DDR. Communication test inside IC3401.
 - Wi-Fi IC : Communication test between IC3401 and Wi-Fi P.C.B..
 - NFC IC : -- (Excluded).
- Display other than “OK” are abnormalities of each lines.
 - PanTilt : Error display of the Remote Pan Tilt Cradle (VW-CTR1)
(When not connected the remote pan tilt cradle, display “--”.)
When error is occurred, display “NG” with the error code.

Error Code	Description
NG 01	Battery undercut
NG 04	The start-up state of the update error factor
NG 10	The failure of Tilt motor
NG 80	USB Communication Error

End method of operation

- Touch the [BAK] of LCD to exit the power on self check result display, and the POWER OFF.

6.4 Adjustment function for the Service

Touch the [14] of LCD, select the adjustment function for the service.

Operation Specifications (until before the start of the adjustment)



Function description

The service adjustment do setup and adjustment of the following items required in the field service.
For a detailed content, such as the adjustment procedure, refer to “9 Measurements and Adjustments”.

- Model setting
- Setting of the file name for adjustment data backup to SD card.
- Execution of adjustment data backup to SD card
- Checking of Switches
- Camera adjustment
- Zoom Tracking adjustments

- Indoor White Balance Adjustment
- Outdoor White Balance Adjustment
- Level shot adjustment

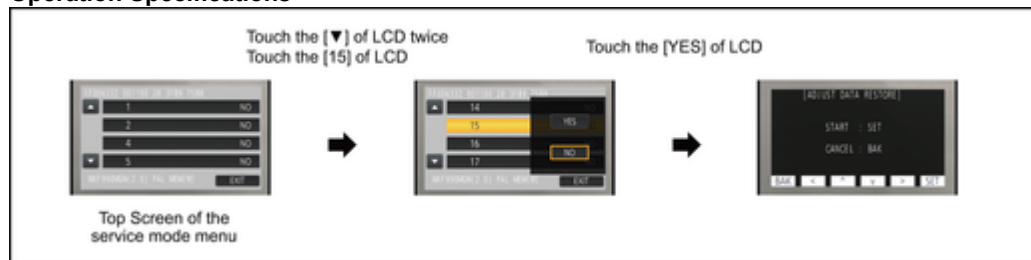
End method of operation

- Press the power button to turn the unit off.

6.5 Restore the backed up adjustment data

Touch the [15] of LCD, select restoring the backed up adjustment data from SD card to the unit.

Operation Specifications



Function description

Restore the adjustment data to new or repaired Main P.C.B. from SD card that the data backed up from original Main P.C.B. before repairs or replacement.

To backup the adjustment data, use “6.4. Adjustment function for the Service”.

Restoring procedure

End method of operation

- Press the power button to turn the unit off.

7 Service Fixture & Tools

7.1 When Replacing the Main P.C.B.

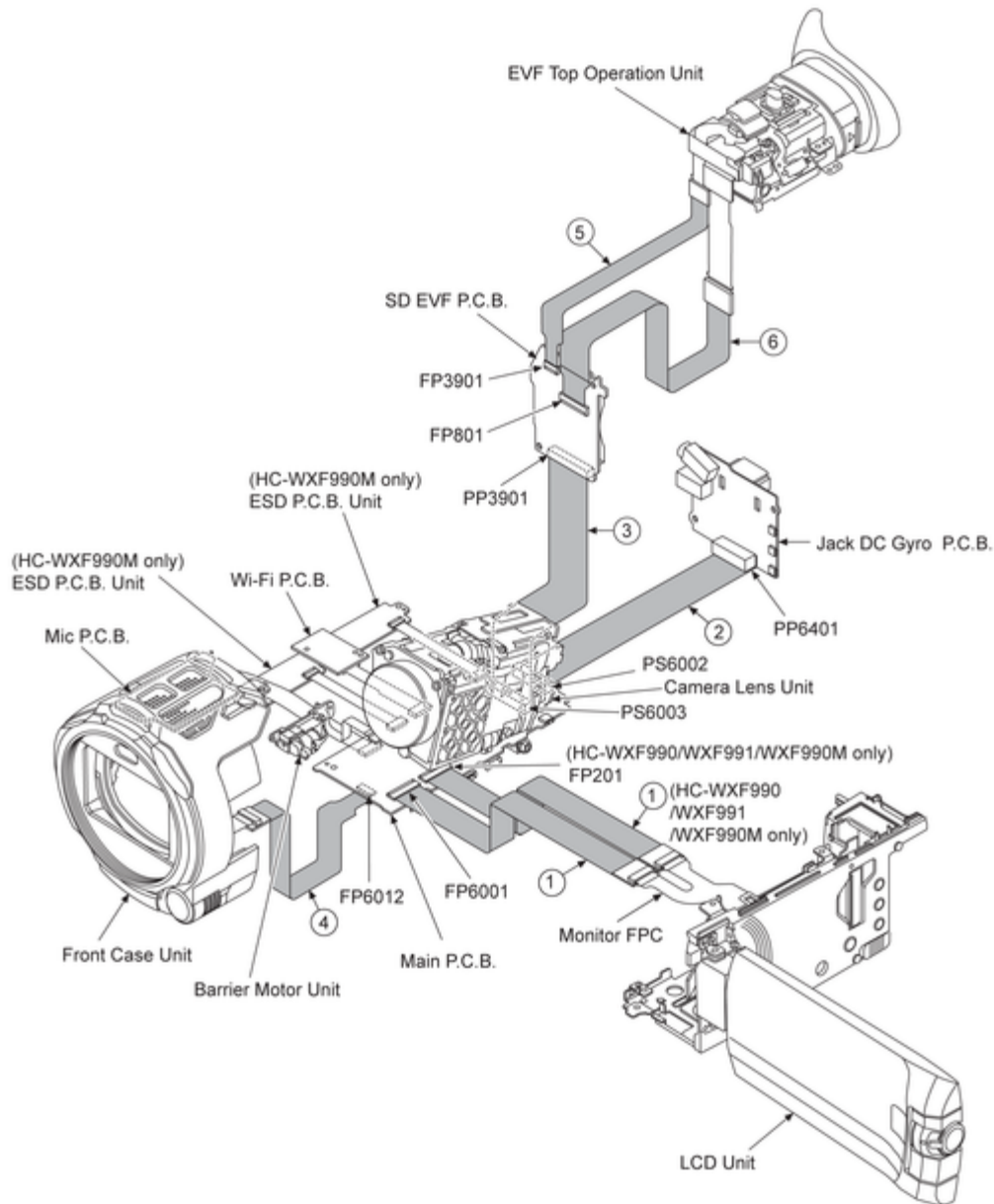
After replacing the MAIN P.C.B., be sure to achieve adjustment.

7.2 Service Position

This Service Position is used for checking and replacing parts. Use the following Extension cables for servicing.

No.	Parts No.	Connection	Form
1	RFKZ0354	FP6001(MAIN) - MONITOR FPC	37PIN 0.3 FFC
1	RFKZ0354	FP201(MAIN) - MONITOR FPC (HC-WXF990/WXF991/WXF990M only)	37PIN 0.3 FFC
2	RFKZ0444	PS6002(MAIN) - PP6401(JACK DC GYRO)	50PIN 0.5 B to B
3	VFK1581A6025	PS6003(MAIN) - PP3901(SD EVF)	60PIN 0.5 B to B
4	VFK1364	FP6012(MAIN) - FRONT FFC	14PIN 0.5 FFC
5	VFK1440	FP3901(SD EVF) - TOP OPERATION	10PIN 0.5 FFC
6	RFKZ0354	FP801(SD EVF) - EVF TOP OPERATION UNIT	37PIN 0.3 FFC

7.2.1 Extention Cable Connection

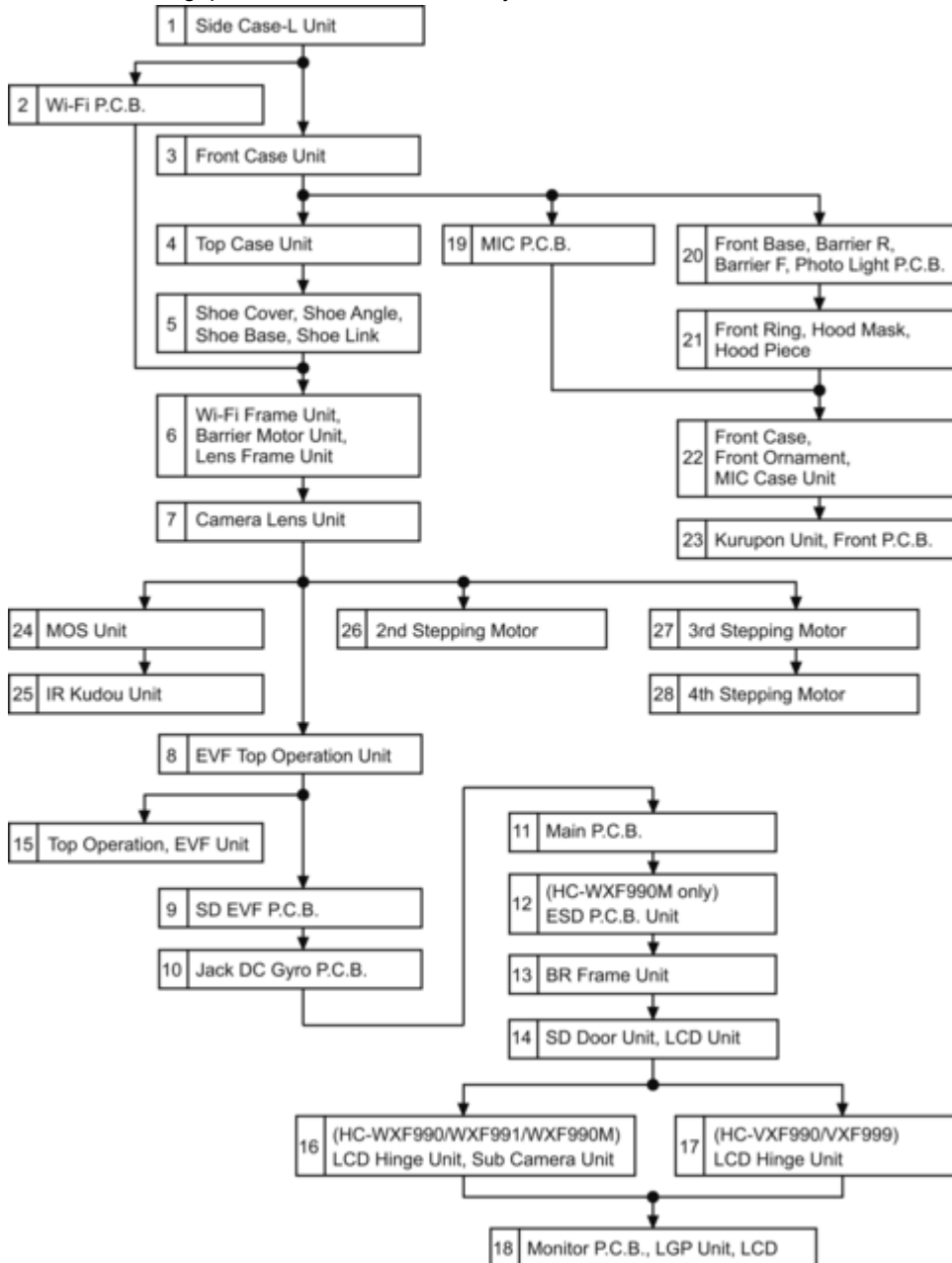


8 Disassembly and Assembly Instructions

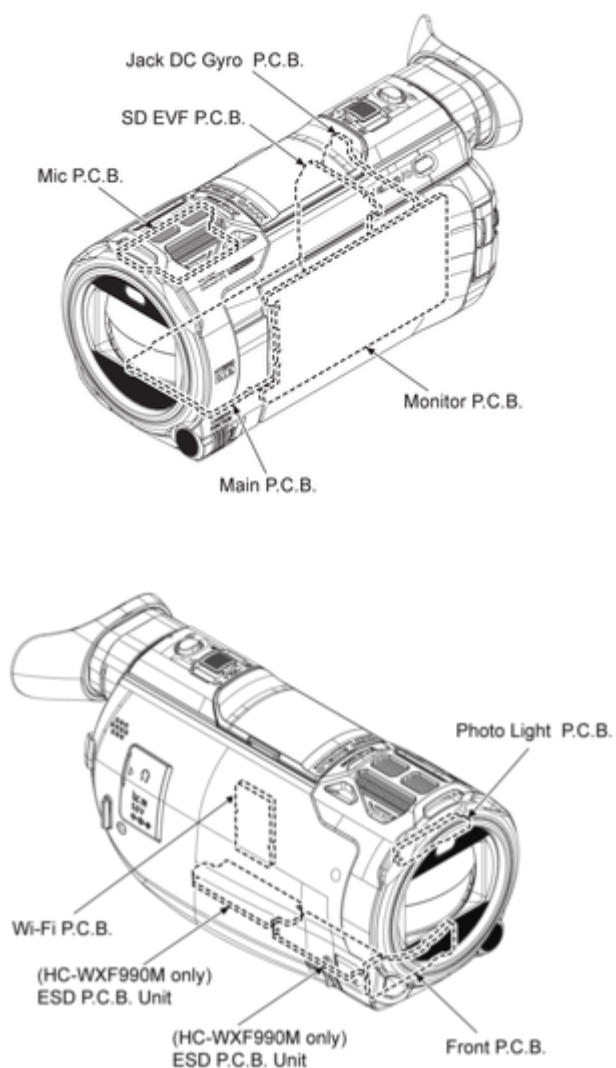
8.1 Disassembly Flow Chart for the Unit

This is a disassembling chart.

When assembling, perform this chart conversely.



8.2 PCB Location



8.3 Disassembly Procedure for the Unit

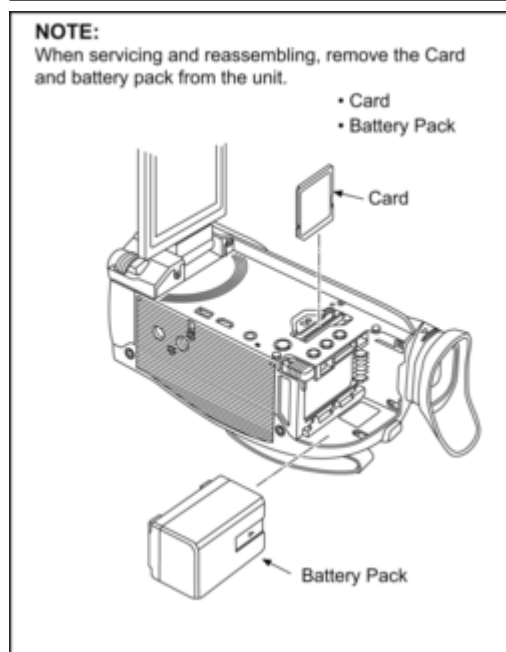
No.	Item	Fig.	Removal
1	Side Case-L Unit	(Fig. D1)	Screw (A) × 2
			Screw (B) × 2
		(Fig. D2)	Screw (C) × 4
			Locking tab × 1
			P3901 (Connector)
			Side Case-L Unit
		(Fig. D3)	Screw (D) × 1
			Speaker Angle
			Speaker
			Convex × 2
			Locking tab × 1
			SS Button
			Screw (E) × 1
			Jack Cover Unit
			SS Lever
			Convex × 2

		(Fig. D4)	DC Jack Cover Unit
			Jack Cover Spring
			Jack Cover Piece
			Screw (F) × 1
			Mic Jack Cover Piece
			Mic Jack Cover
			Convex × 2
			Hooking part × 1
2	Wi-Fi P.C.B.	(Fig. D5)	Flex
			Screw (G) × 1
			Hooking part × 1
			Wi-Fi P.C.B.
3	Front Case Unit	(Fig. D6)	Screw (H) × 2
		(Fig. D7)	Screw (I) × 2
			FP6004 (Flex)
			Locking tab × 3
			FP6012 (Flex)
			Front Case Unit
4	Top Case Unit	(Fig. D8)	Screw (J) × 1
			Screw (K) × 2
			Top Case Unit
5	Shoe Cover, Shoe Angle, Shoe Base, Shoe Link	(Fig. D9)	Shoe Cover Shaft
			Shoe Cover Spring
			Shoe Cover
			Screw (L) × 3
			Shoe Angle
			Convex × 2
			Power Panel Light
			Convex × 2
			Mode Select Button
			Locking tab × 1
			Convex × 2
			Top Frame
		(Fig. D10)	Locking tab × 2
			Shoe Base
			Hooking part × 2
			Shoe Link Spring
			Shoe Link
6	Wi-Fi Frame Unit, Barrier Motor Unit, Lens Frame Unit	(Fig. D11)	Screw (M) × 1
			Convex × 2
			Wi-Fi Frame Unit
			Screw (N) × 3
			Hooking part × 4
		(Fig. D12)	Convex × 1
			FP6005 (Flex)
			Screw (O) × 2
			Barrier Motor Unit
			Lens Frame Unit
7	Camera Lens Unit	(Fig. D13)	FP6008 (Flex)
			FP301 (Flex)
			Convex × 2
			Camera Lens Unit
8	EVF Top Operation Unit	(Fig. D14)	Screw (P) × 1
			FP801 (Flex)
			FP3901 (Flex)

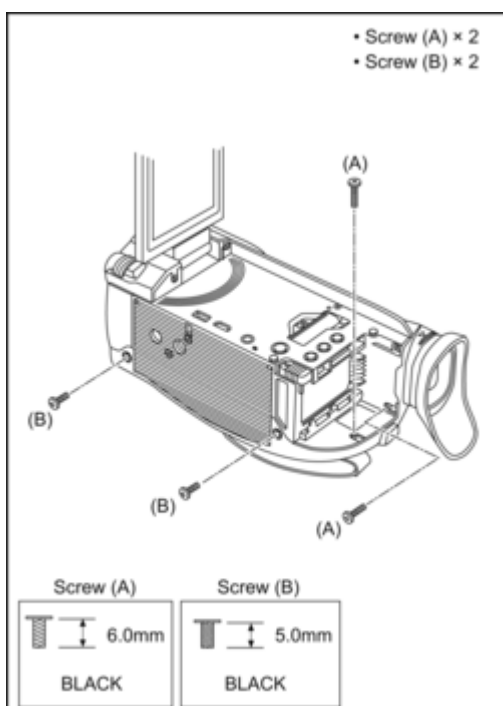
			Convex × 2
			Hooking part × 1
			EVF Top Operation Unit
9	SD EVF P.C.B.	(Fig. D15)	Screw (Q) × 1
			Convex × 1
			SD EVF P.C.B.
10	Jack DC Gyro P.C.B.	(Fig. D16)	Screw (R) × 1
			Hooking part × 2
			Jack DC Gyro P.C.B.
11	Main P.C.B.	(Fig. D17)	Screw (S) × 3
			Hooking part × 3
			Heat Radiation Plate Unit
		(Fig. D18)	FP201 (Flex) (HC-WXF990/WXF991/ WXF990M only)
			FP6001 (Flex)
			Convex × 2
			FP6010 (Flex) (HC-WXF990M only)
			FP6011 (Flex) (HC-WXF990M only)
			Main P.C.B.
12	(HC-WXF990M only) ESD P.C.B. Unit	(Fig. D19)	Screw (T) × 2
			ESD P.C.B. Unit
			ESD P.C.B. Unit
13	BR Frame Unit	(Fig. D20)	Screw (U) × 2
		(Fig. D21)	Screw (V) × 2
			Locking tab × 3
			Convex × 3
			Projecting part × 1
			BR Frame Unit
14	SD Door Unit, LCD Unit	(Fig. D22)	Convex × 1
			LCD Lever
			Locking tab × 1
			SD Door Unit
			Convex × 5
			LCD Unit
15	Top Operation, EVF Unit	(Fig. D23)	Screw (W) × 2
			Projecting part × 4
			Top Operation
			FPC Hold Piece
			EVF Unit
16	(HC-WXF990/WXF991/ WXF990M) LCD Hinge Unit, Sub Camera Unit	(Fig. D24)	Screw (X) × 2
			Screw (Y) × 2
			Locking tab × 8
			LCD Case (T) Unit
			FP251 (Flex)
			FP901 (Flex)
		(Fig. D25)	LCD Hinge Unit
			Screw (Z) × 1
			FP252 (Flex)
			Convex × 3
			LCD Frame A
			Convex × 2
			Sub Camera Unit

17	(HC-VXF990/VXF999) LCD Hinge Unit	(Fig. D26)	Screw (X) × 2
			Screw (Y) × 2
			Locking tab × 9
			LCD Case (T) Unit
			FP901 (Flex)
		(Fig. D27)	LCD Hinge Unit
			Screw (Z) × 1
			Convex × 3
			LCD Frame A
18	Monitor P.C.B., LGP Unit, LCD	(Fig. D28)	FP904 (Flex)
			FP905 (Flex)
			Locking tab × 1
			Hooking part × 1
			Monitor P.C.B.
			Locking tab × 4
			LGP Unit
			LCD
			TP Spacer
			Locking tab × 1
			Convex × 1
			LCD Frame B
			LCD Case (B) Unit
		(Fig. D29)	Reflection Sheet
			Light Guide Plate
			Diffusion Sheet
			Prism Sheet B
			Prism Sheet A
			LGP Holder
19	Mic P.C.B.	(Fig. D30)	Screw (a) × 1
			P7002 (Connector)
			FP4802 (Flex)
			Mic P.C.B.
20	Front Base, Barrier R, Barrier F, Photo Light P.C.B.	(Fig. D31)	Projecting part × 3
			Lens Damper Rubber
			Screw (b) × 5
		(Fig. D32)	Front Base
			Barrier R
			Barrier F
			Convex × 2
			Hooking part × 1
			Photo Light P.C.B.
21	Front Ring, Hood Mask, Hood Piece	(Fig. D33)	Screw (c) × 2
			Front Ring
			Locking tab × 6
			Convex × 2
			Hood Piece
			LED Light Cover
			LED Light Lens
			Hood Mask
22	Front Case, Front Ornament, Mic Case Unit	(Fig. D34)	Screw (d) × 1
			Locking tab × 2
			Locking tab × 1
			Convex × 2
			Front Case
			Locking tab × 2

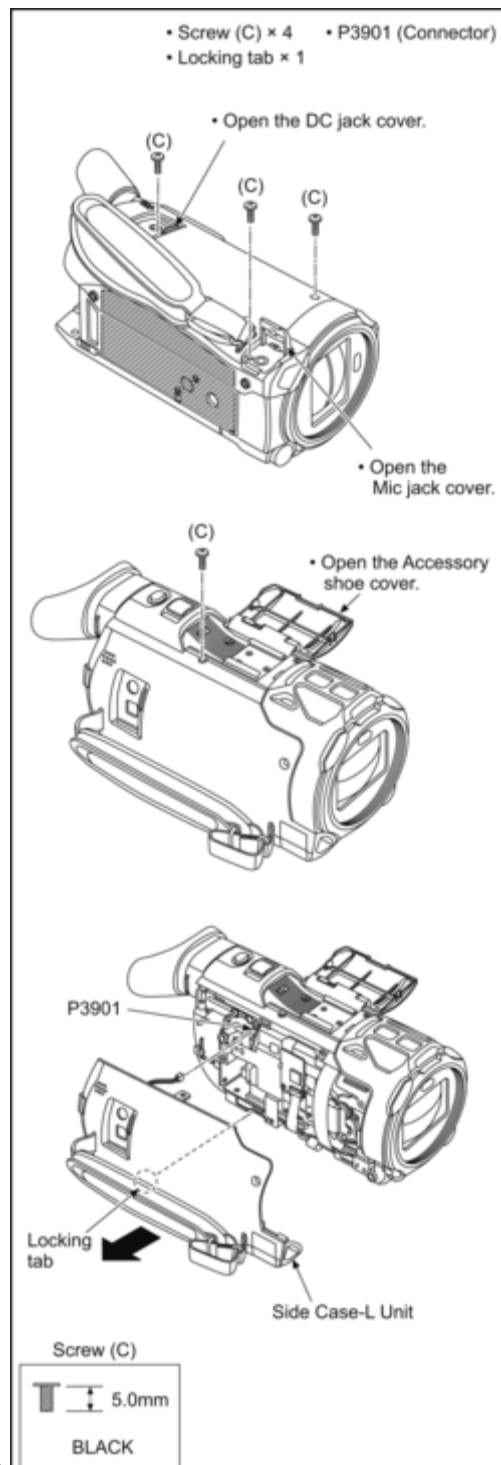
			MF Ornament
			Front Ornament
		(Fig. D35)	Screw (e) × 2
			Mic Case Unit
			Mic Net Cover
23	Kurupon Unit, Front P.C.B.	(Fig. D36)	Screw (f) × 2
			Locking tab × 2
			Convex × 2
			FR Earth Angle
			FP6551 (Flex)
			Kurupon Unit
			Locking tab × 1
			Convex × 2
			Front P.C.B.
24	MOS Unit	(Fig. D37)	Screw (i) × 3
			Convex × 2
			MOS Unit
			MOS Cushion
25	IR Kudou Unit	(Fig. D38)	Solder × 2 points
			Screw (j) × 1
			Convex × 2
			IR Kudou Unit
26	2nd Stepping Motor	(Fig. D39)	Solder × 4 points
			Screw (k) × 2
			2nd Stepping Motor
27	3rd Stepping Motor	(Fig. D40)	Solder × 4 points
			Screw (m) × 3
			Convex × 1
			3rd Stepping Motor
28	4th Stepping Motor	(Fig. D41)	Solder × 4 points
			Screw (n) × 2
			Convex × 2
			4th Stepping Motor



8.3.1 Removal of the Side Case-L Unit

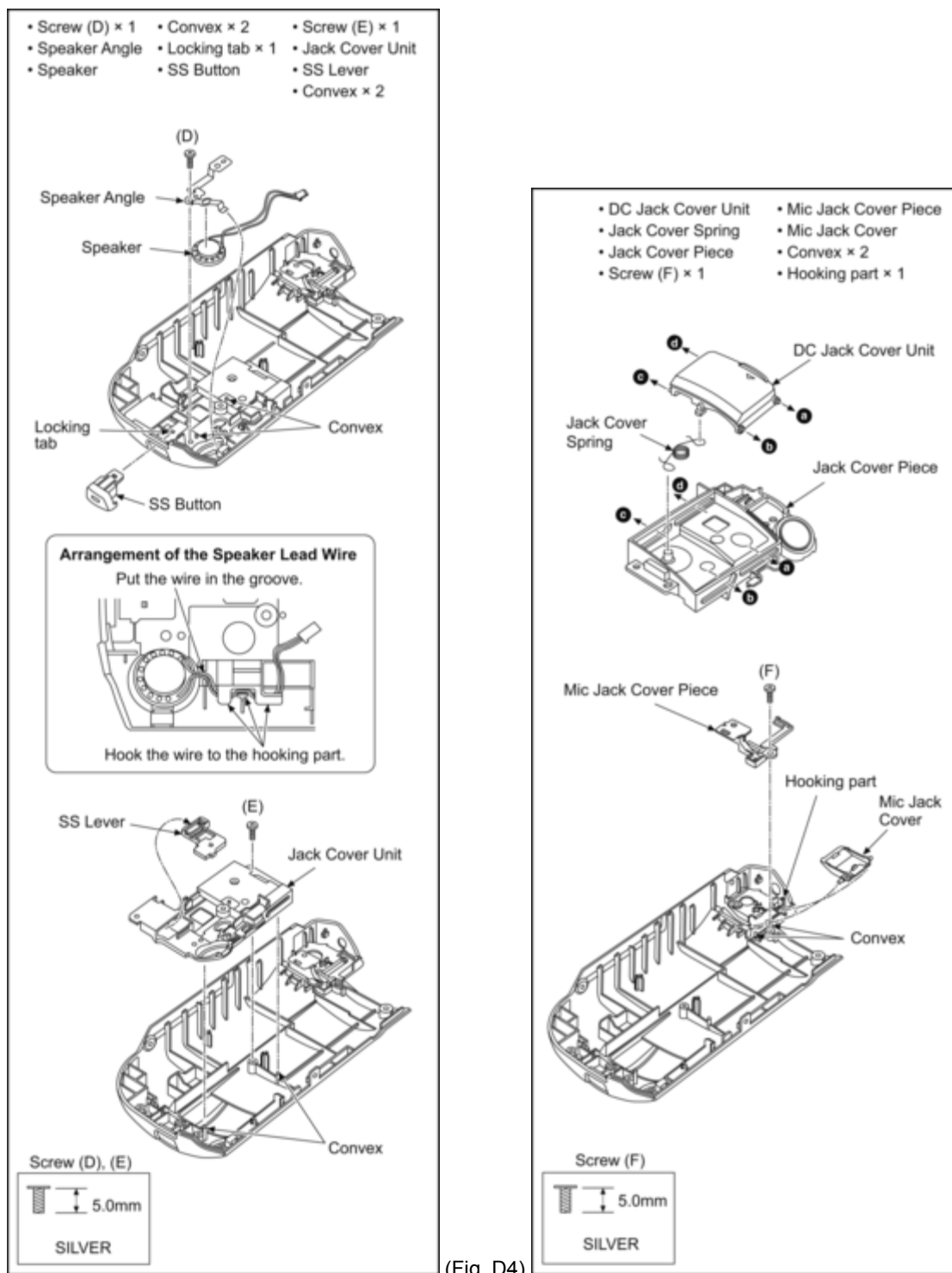


(Fig. D1)



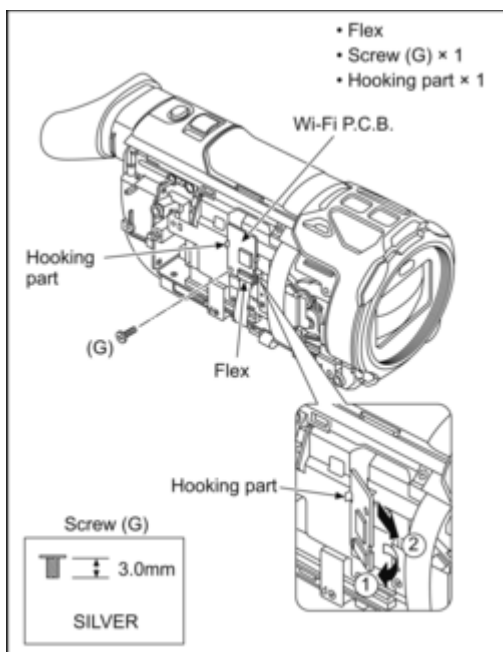
(Fig. D2)

(Fig. D3)



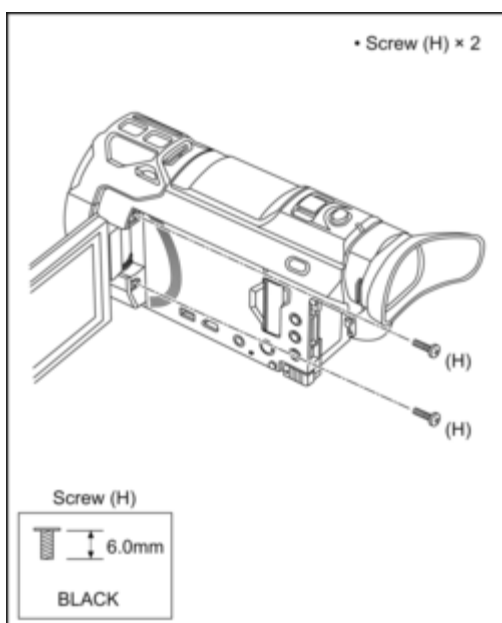
(Fig. D4)

8.3.2 Removal of the Wi-Fi P.C.B.

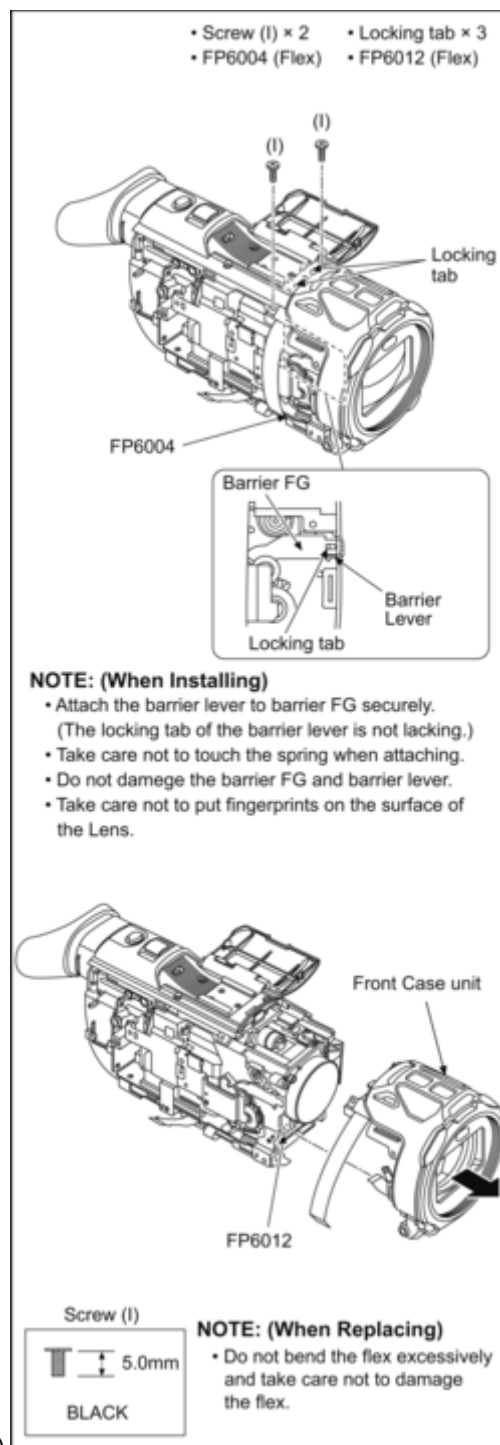


(Fig. D5)

8.3.3 Removal of the Front Case Unit

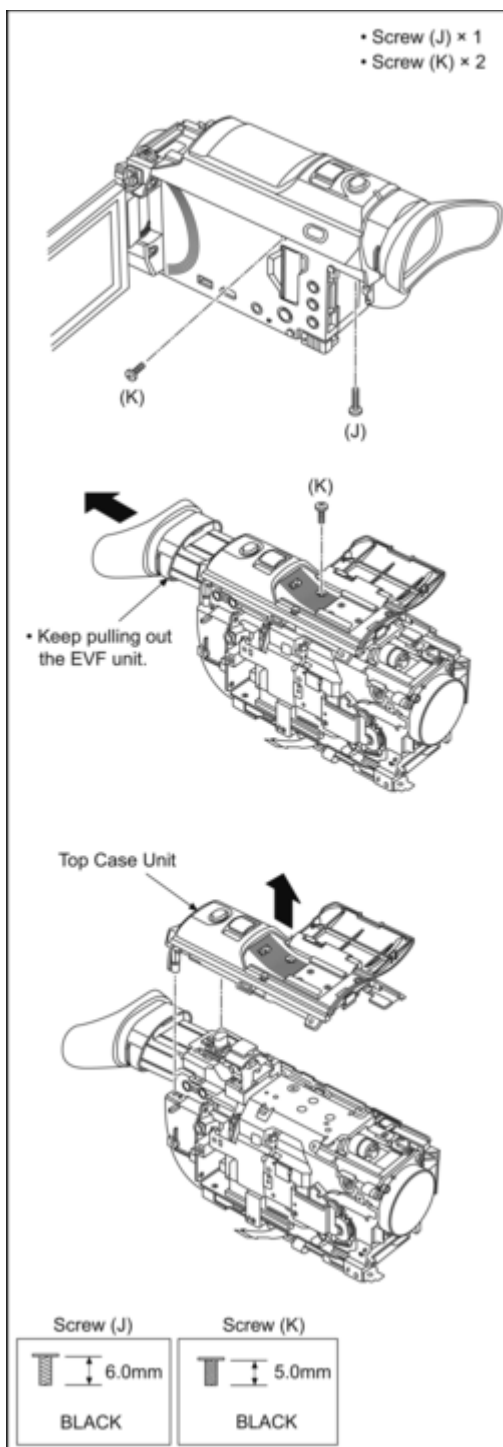


(Fig. D6)



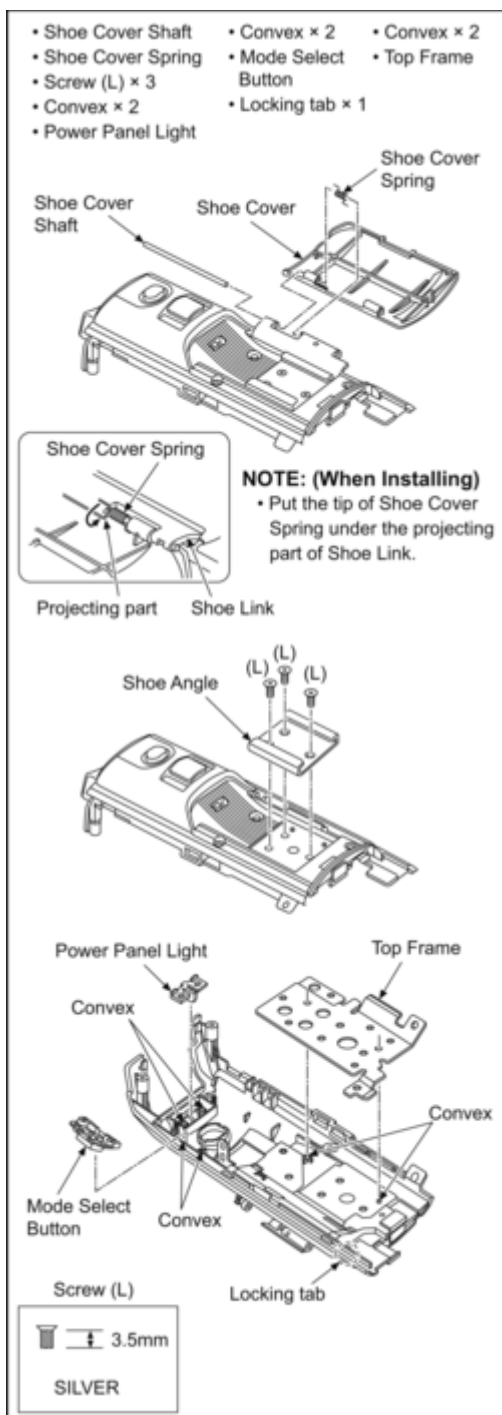
(Fig. D7)

8.3.4 Removal of the Top Case Unit

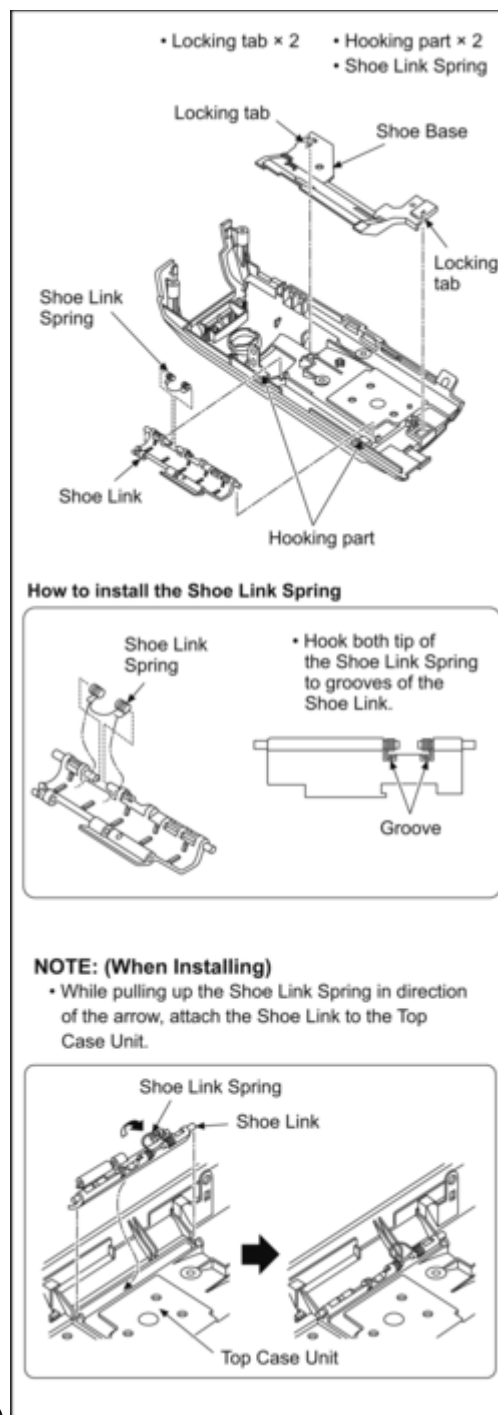


(Fig. D8)

8.3.5 Removal of the Shoe Cover, Shoe Angle, Shoe Base, Shoe Link

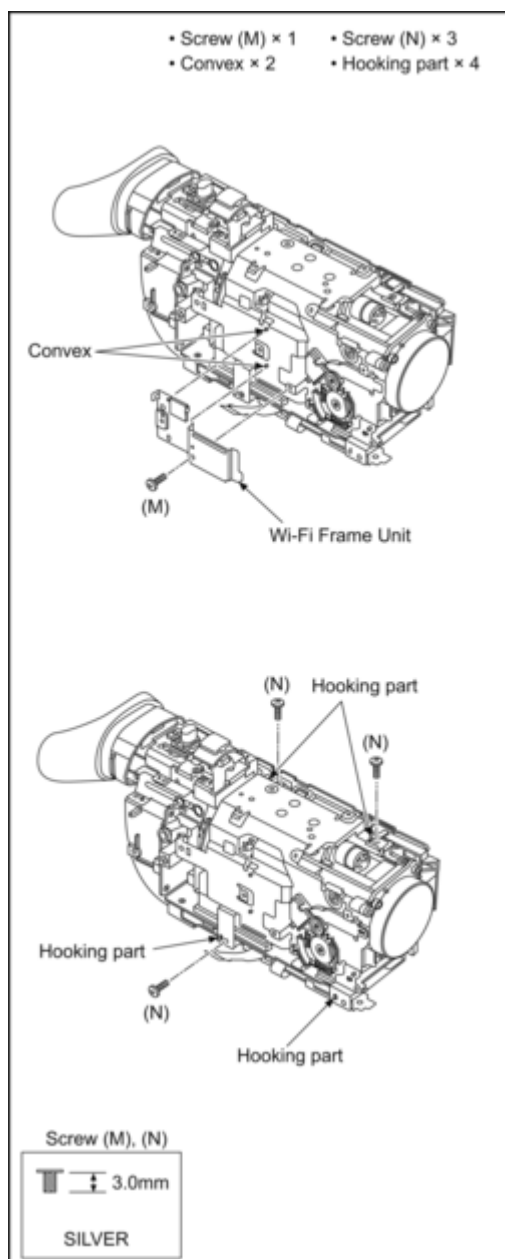


(Fig. D9)

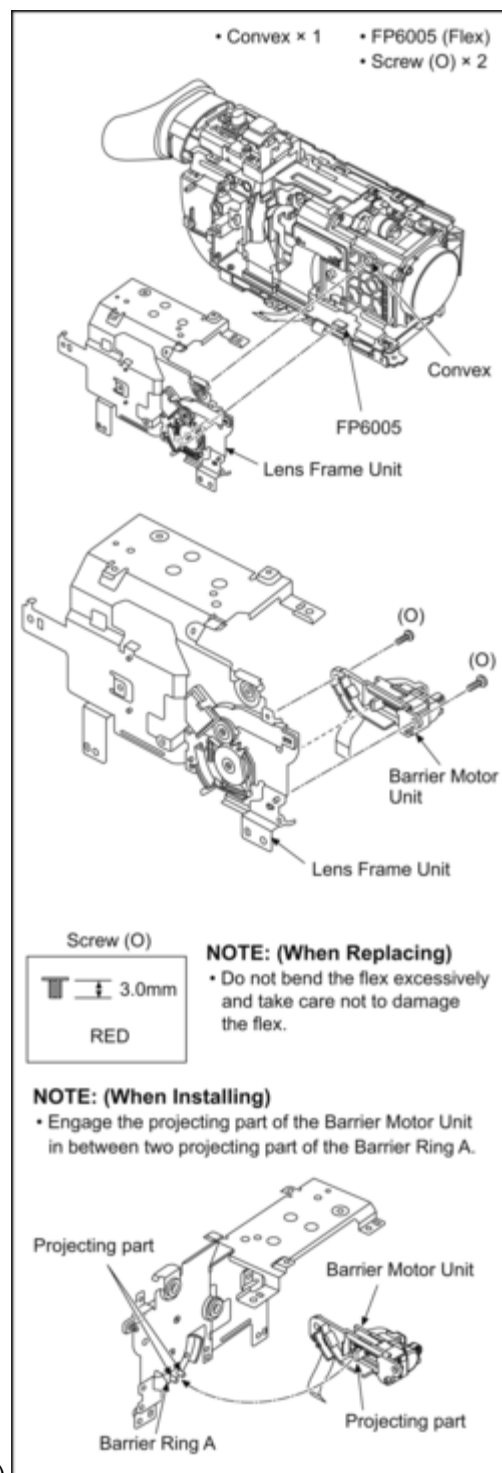


(Fig. D10)

8.3.6 Removal of the Wi-Fi Frame Unit, Barrier Motor Unit, Lens Frame Unit

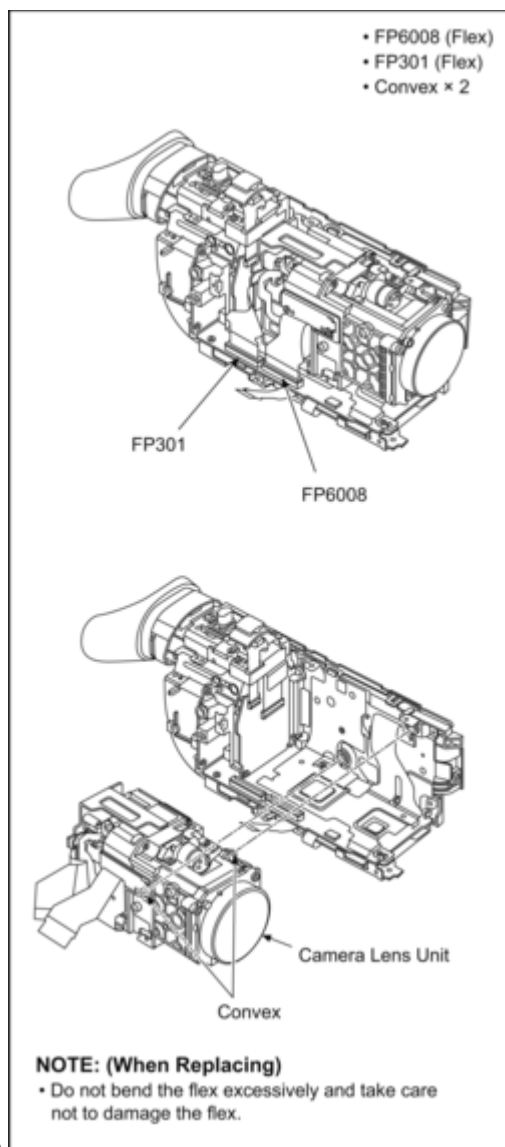


(Fig. D11)



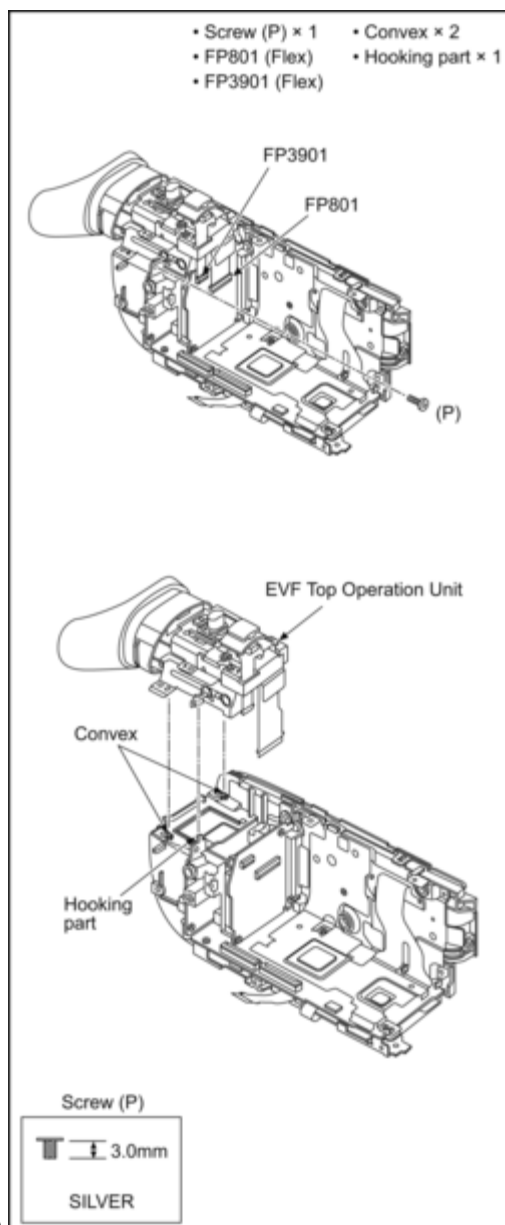
(Fig. D12)

8.3.7 Removal of the Camera Lens Unit



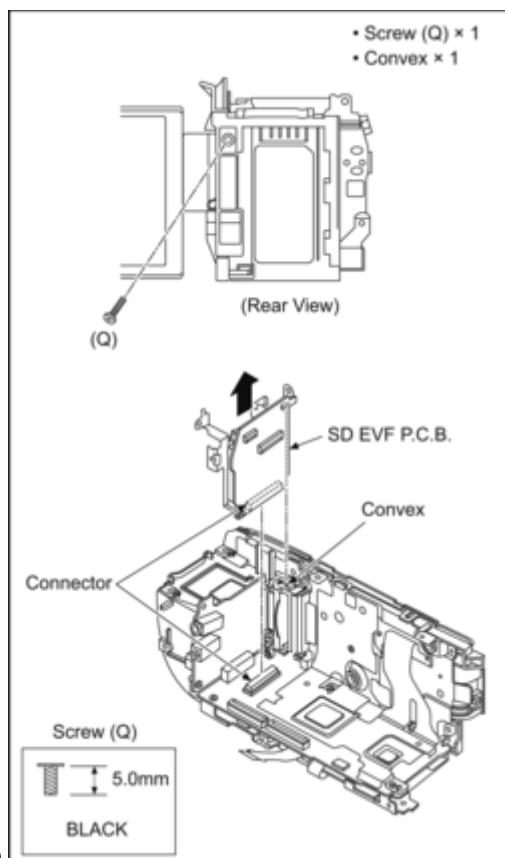
(Fig. D13)

8.3.8 Removal of the EVF Top Operation Unit



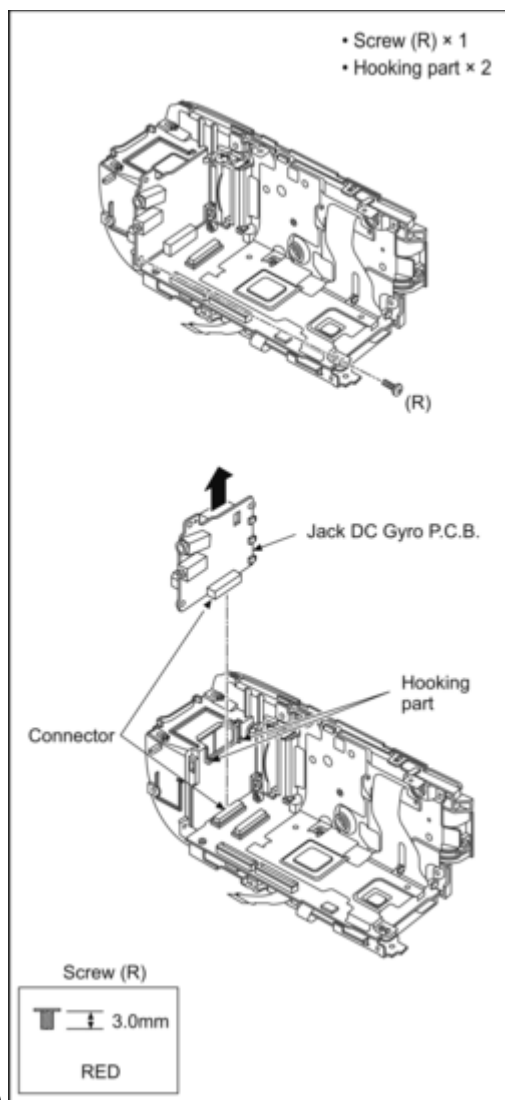
(Fig. D14)

8.3.9 Removal of the SD EVF P.C.B.



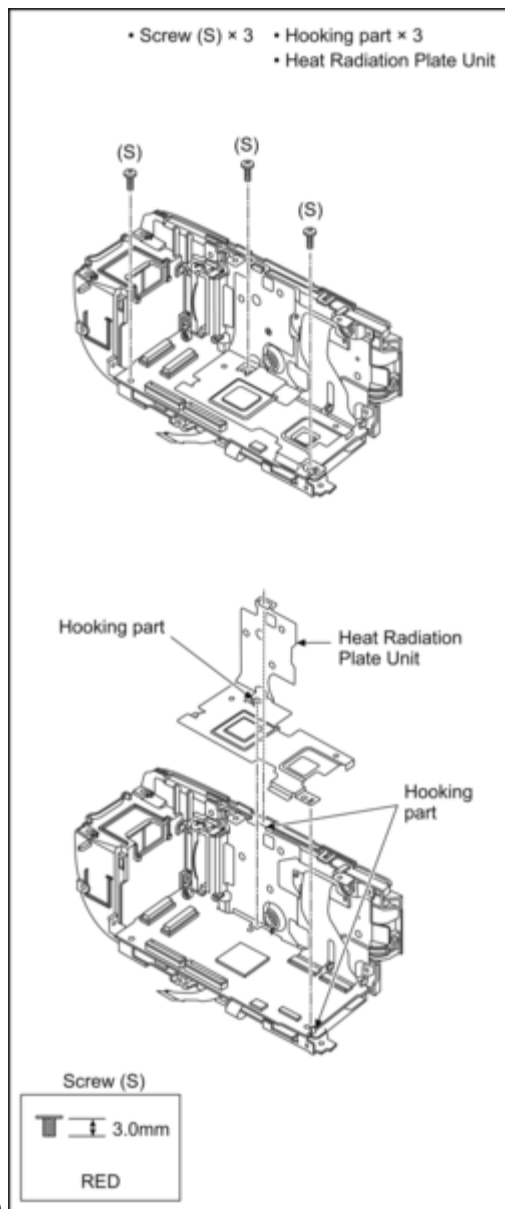
(Fig. D15)

8.3.10 Removal of the Jack DC Gyro P.C.B.

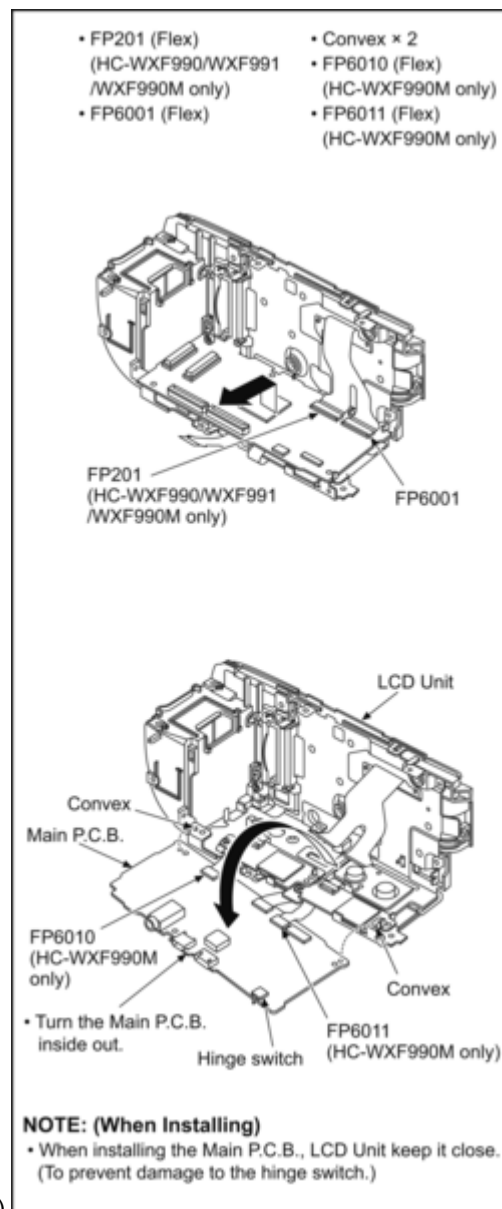


(Fig. D16)

8.3.11 Removal of the Main P.C.B.

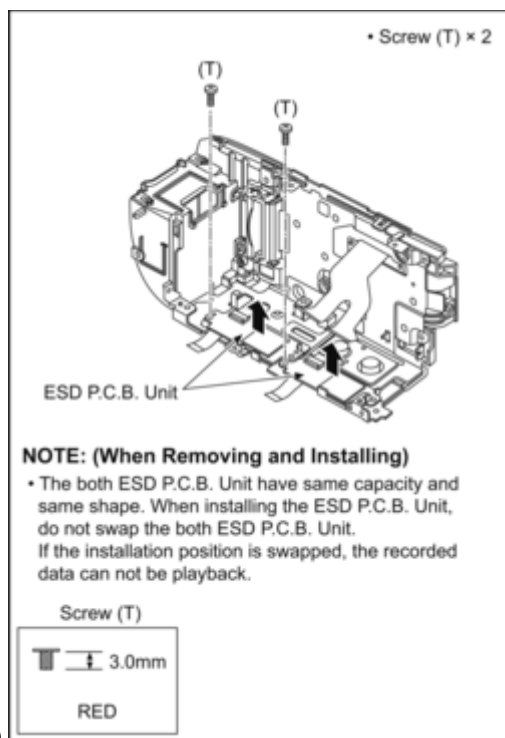


(Fig. D17)



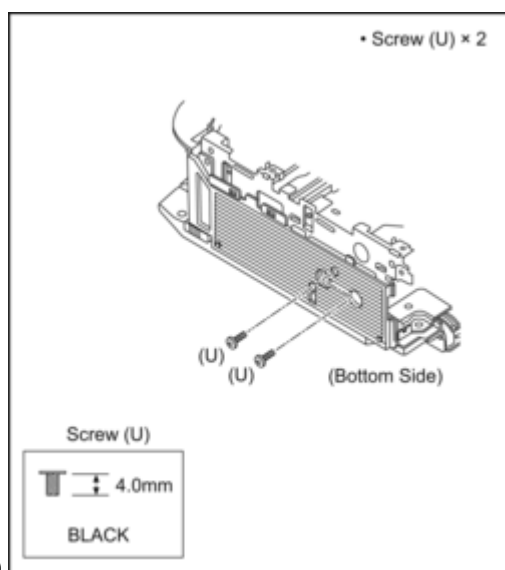
(Fig. D18)

8.3.12 (HC-WXF990M only) Removal of the ESD P.C.B. Unit

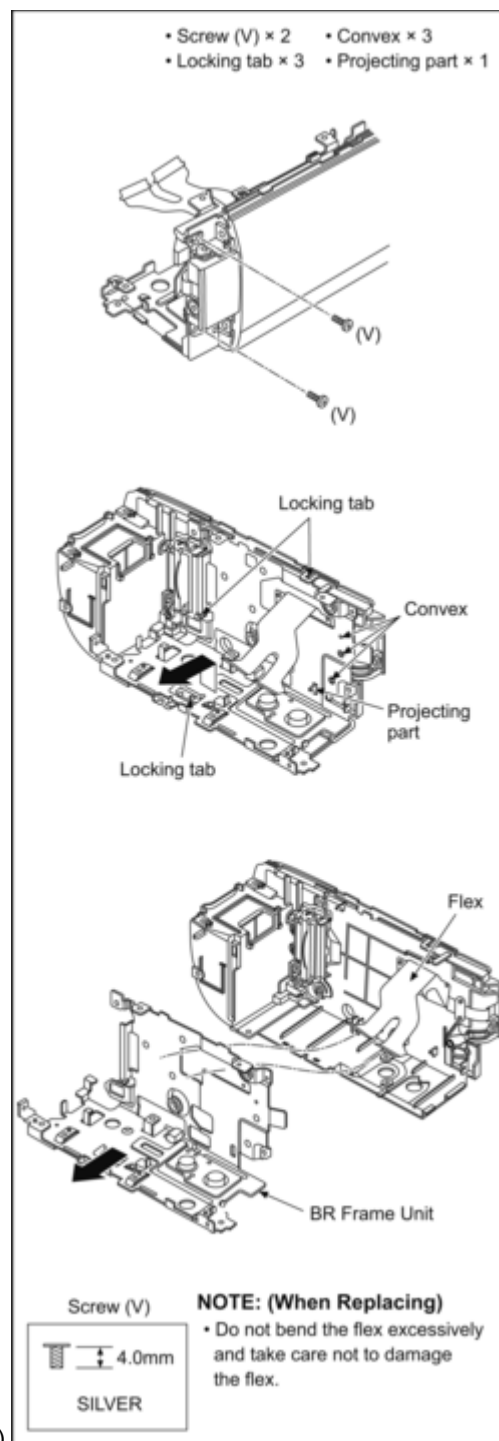


(Fig. D19)

8.3.13 Removal of the BR Frame Unit

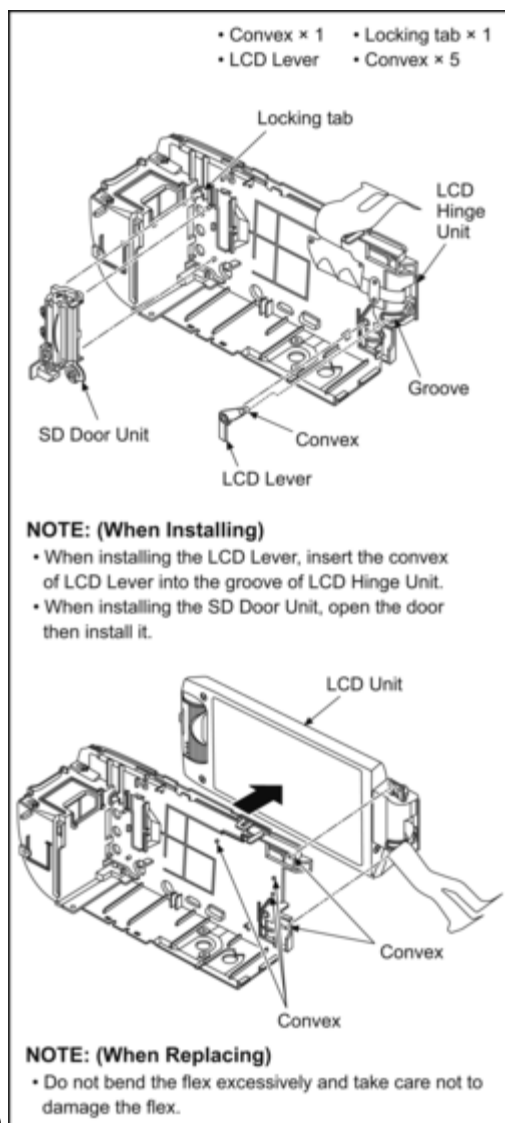


(Fig. D20)



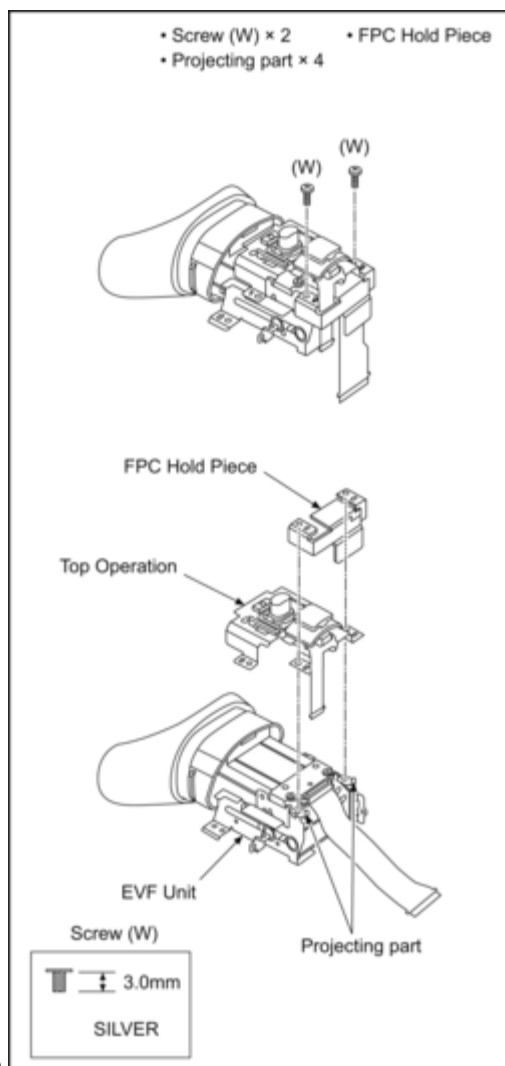
(Fig. D21)

8.3.14 Removal of the SD Door Unit, LCD Unit



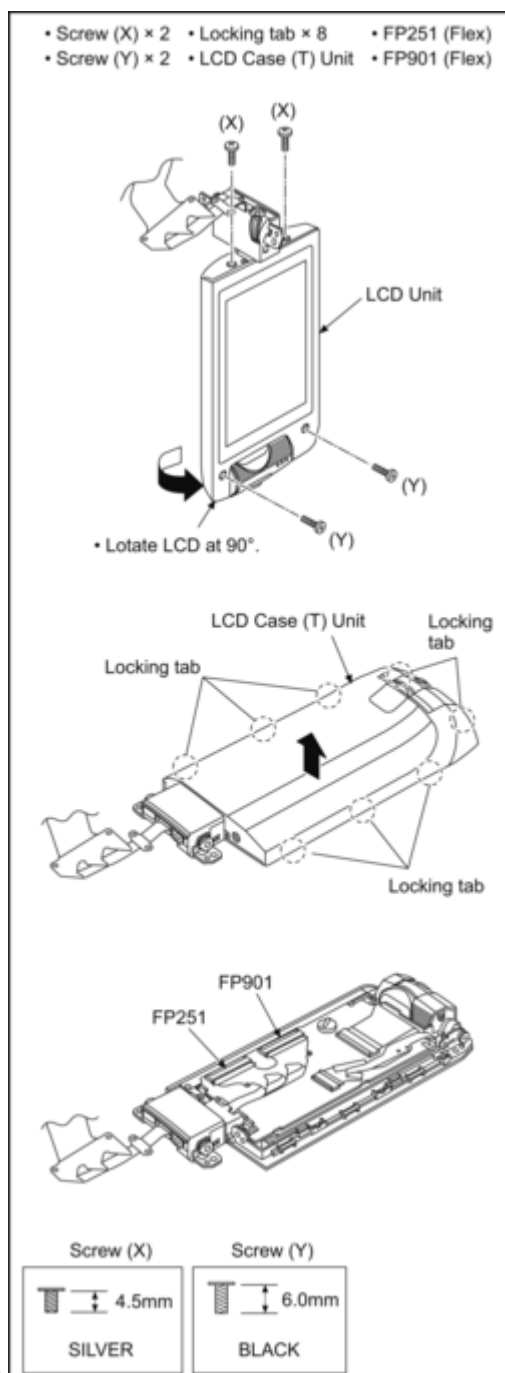
(Fig. D22)

8.3.15 Removal of the Top Operation, EVF Unit

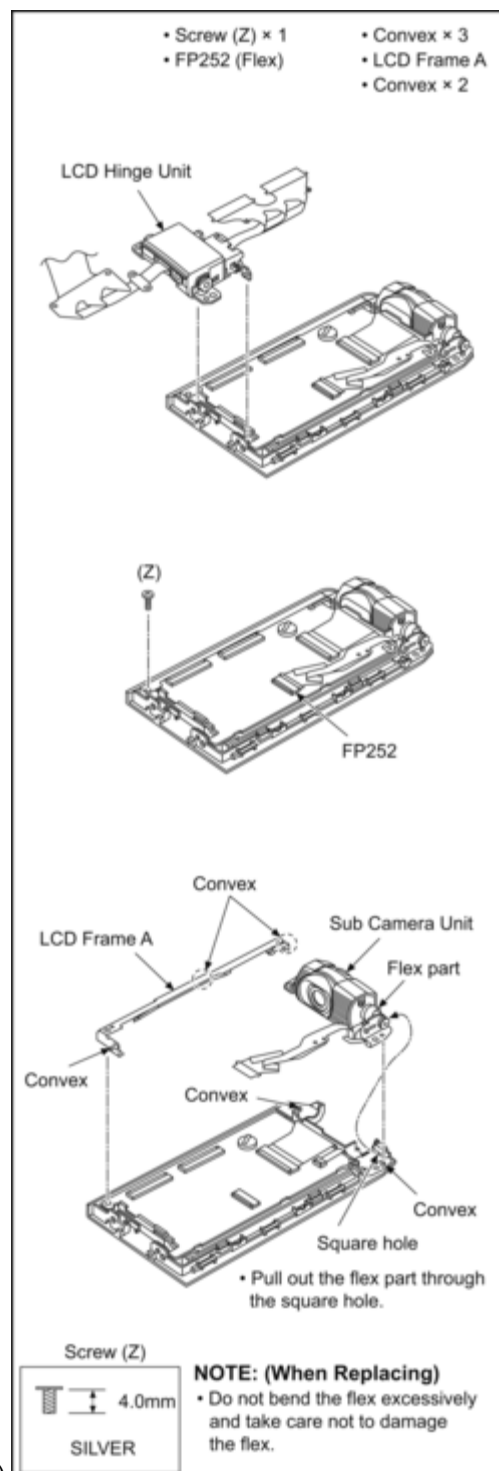


(Fig. D23)

8.3.16 (HC-WXF990/WXF991/WXF990M) Removal of the LCD Hinge Unit, Sub Camera Unit



(Fig. D24)

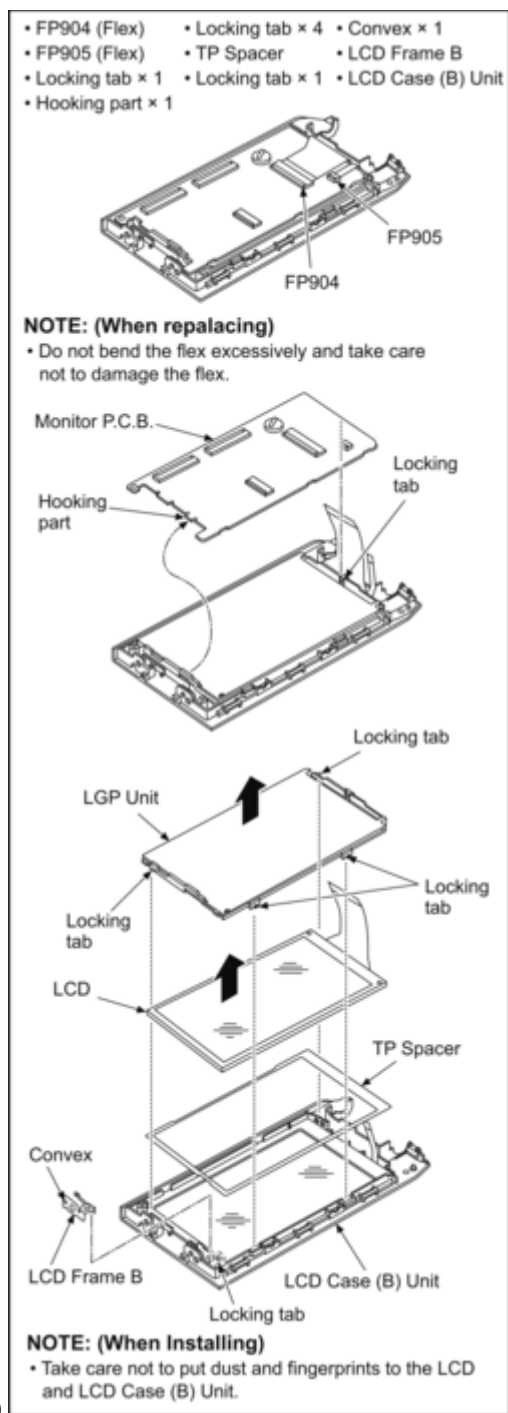


(Fig. D25)

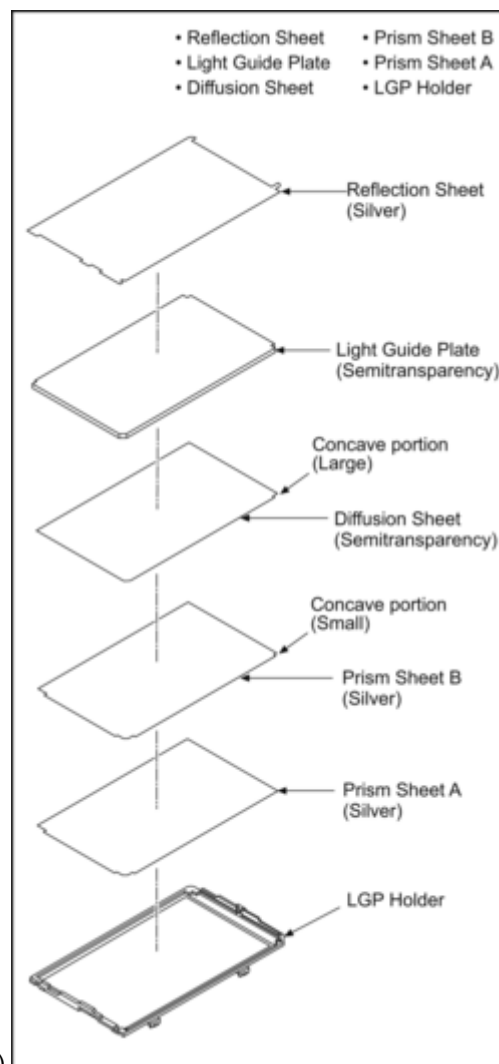
8.3.17 (HC-VXF990/VXF999) Removal of the LCD Hinge Unit

(Fig. D27)

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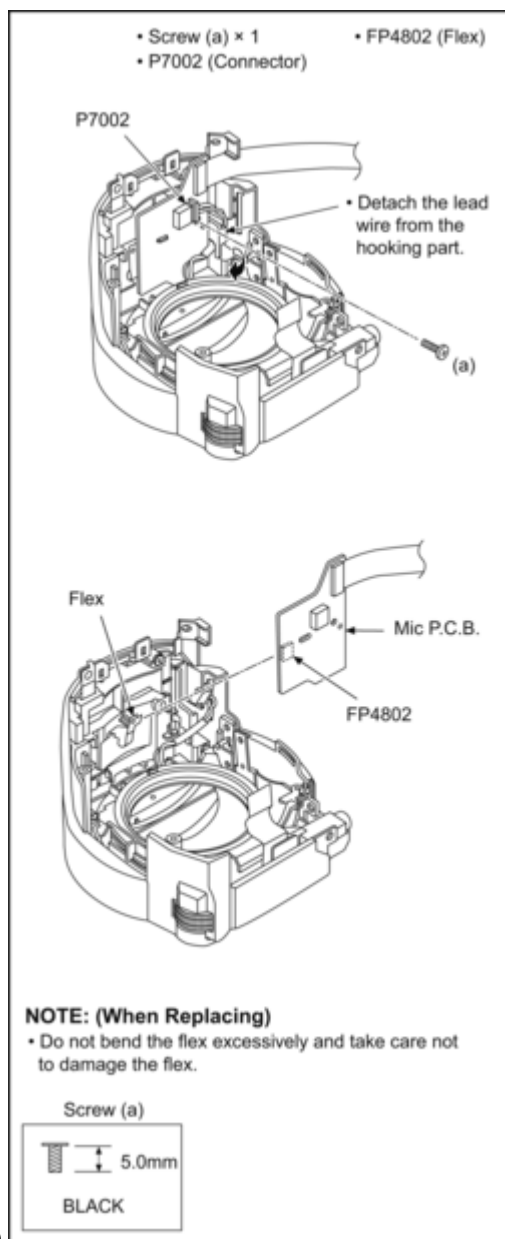


(Fig. D28)



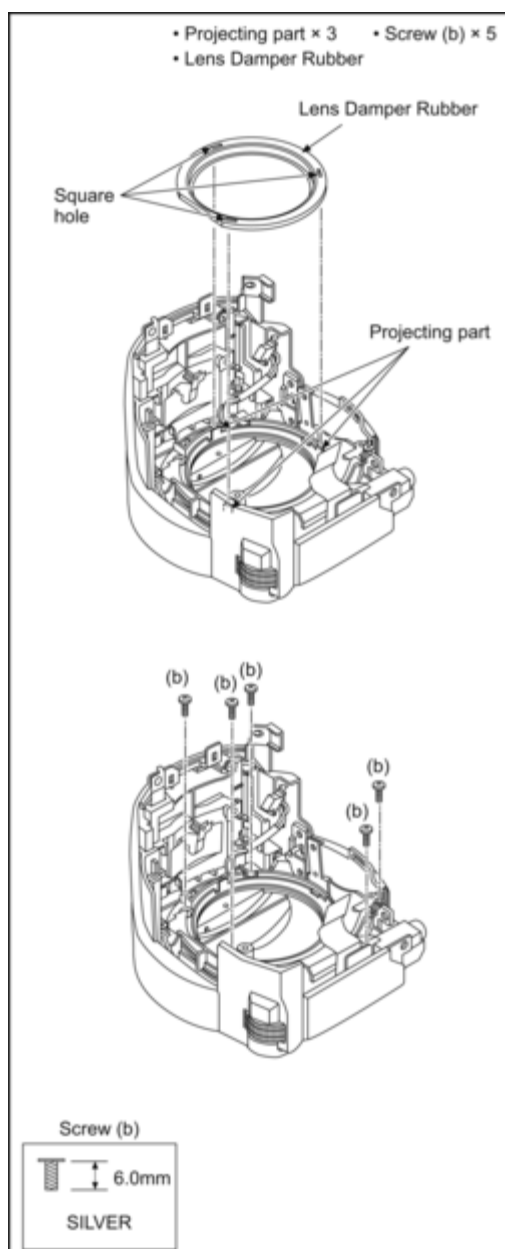
(Fig. D29)

8.3.19 Removal of the Mic P.C.B.

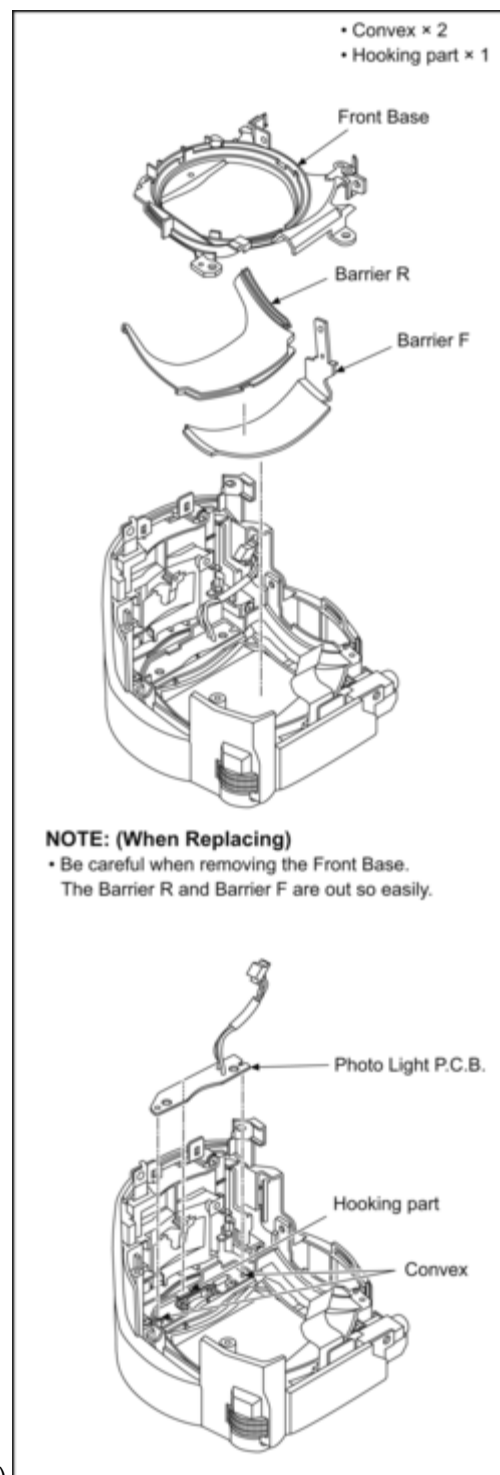


(Fig. D30)

8.3.20 Removal of the Front Base, Barrier R, Barrier F, Photo Light P.C.B.

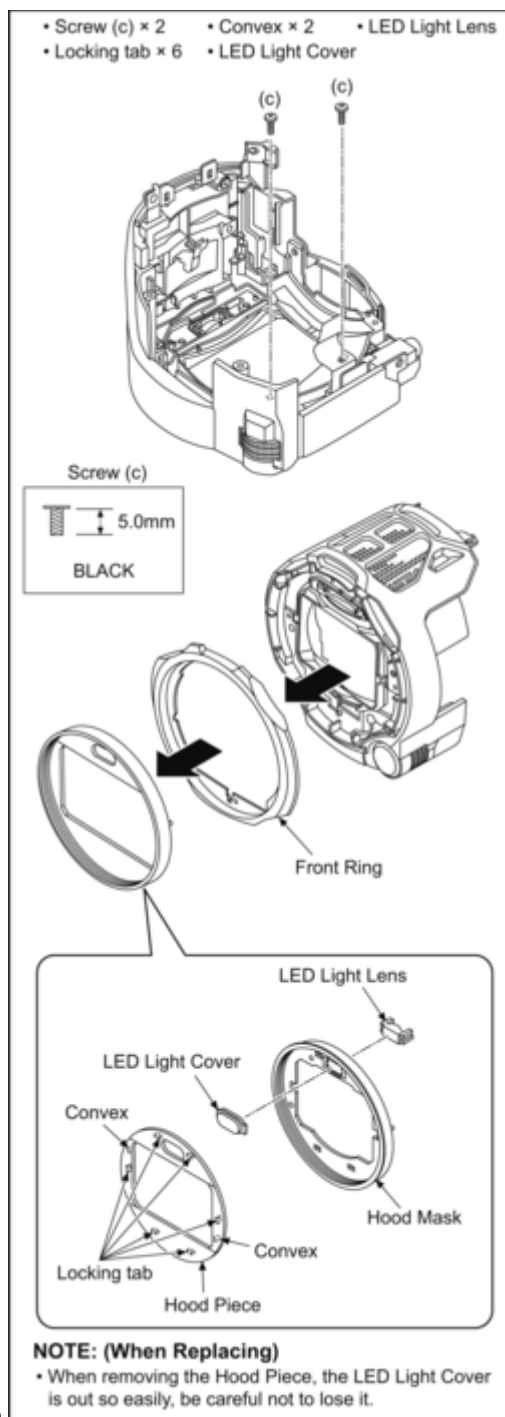


(Fig. D31)



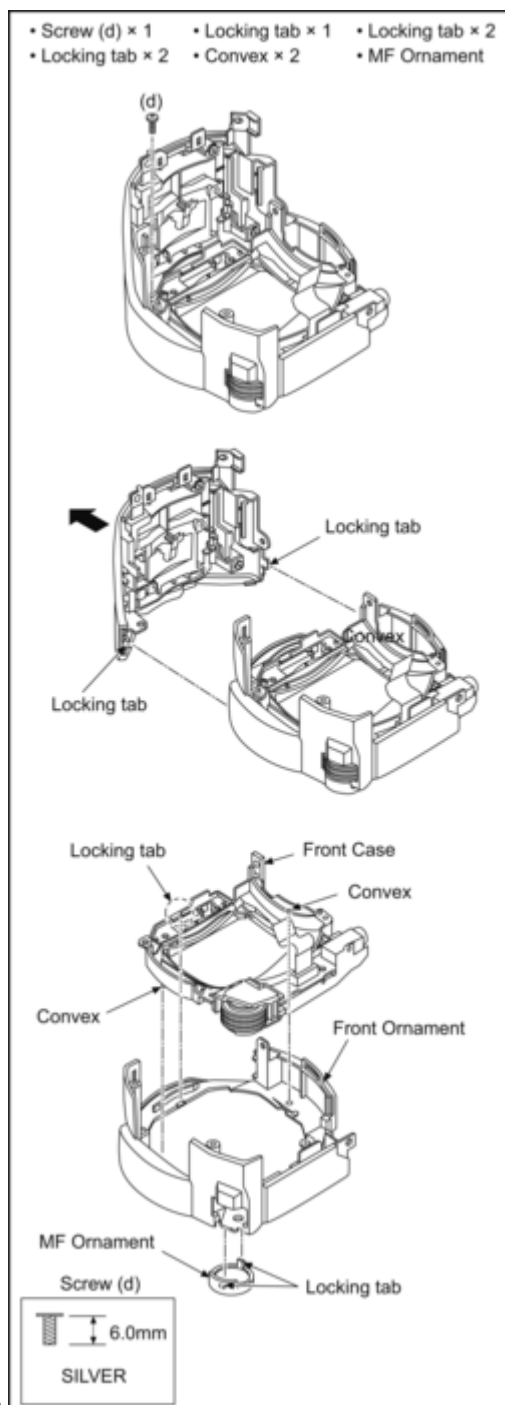
(Fig. D32)

8.3.21 Removal of the Front Ring, Hood Mask, Hood Piece

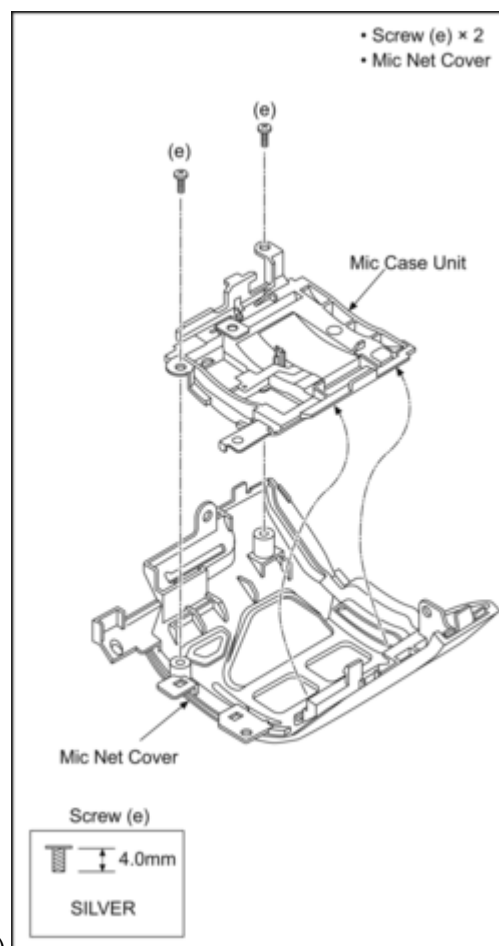


(Fig. D33)

8.3.22 Removal of the Front Case, Front Ornament, Mic Case Unit

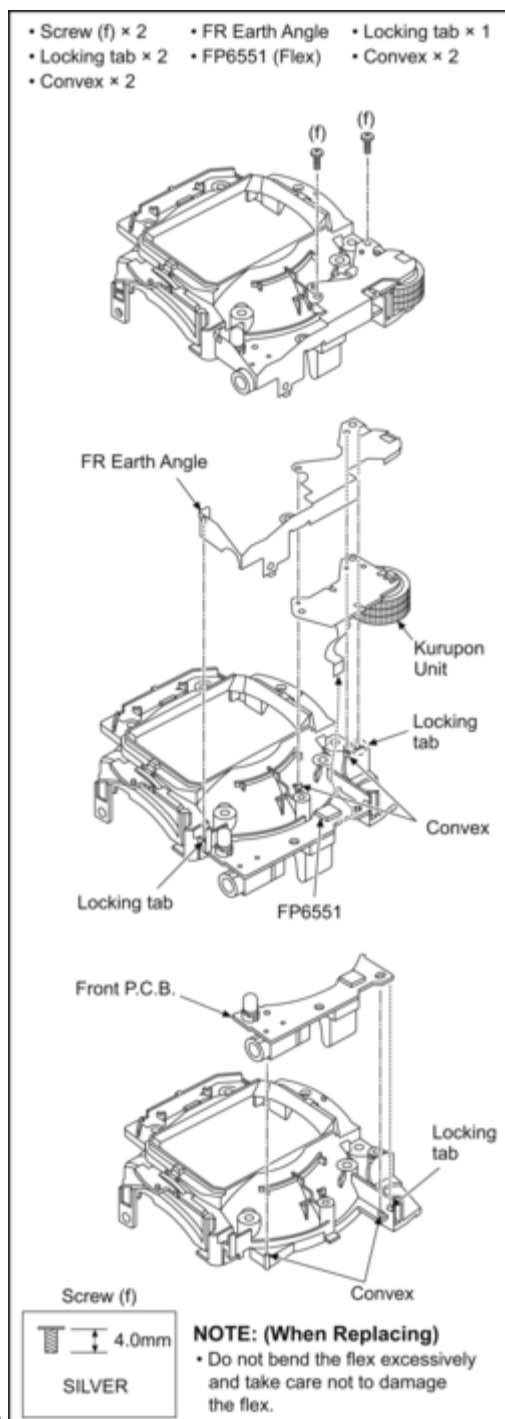


(Fig. D34)



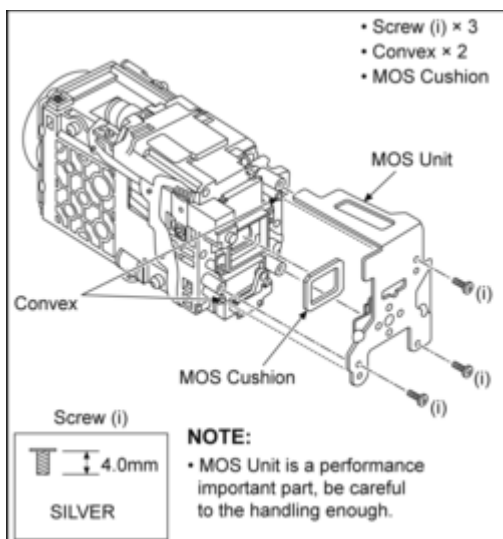
(Fig. D35)

8.3.23 Removal of the Kurupon Unit, Front P.C.B.



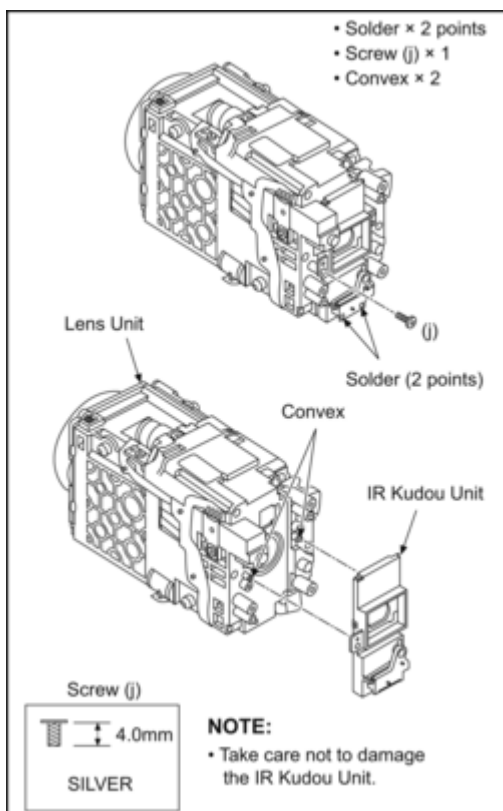
(Fig. D36)

8.3.24 Removal of the MOS Unit



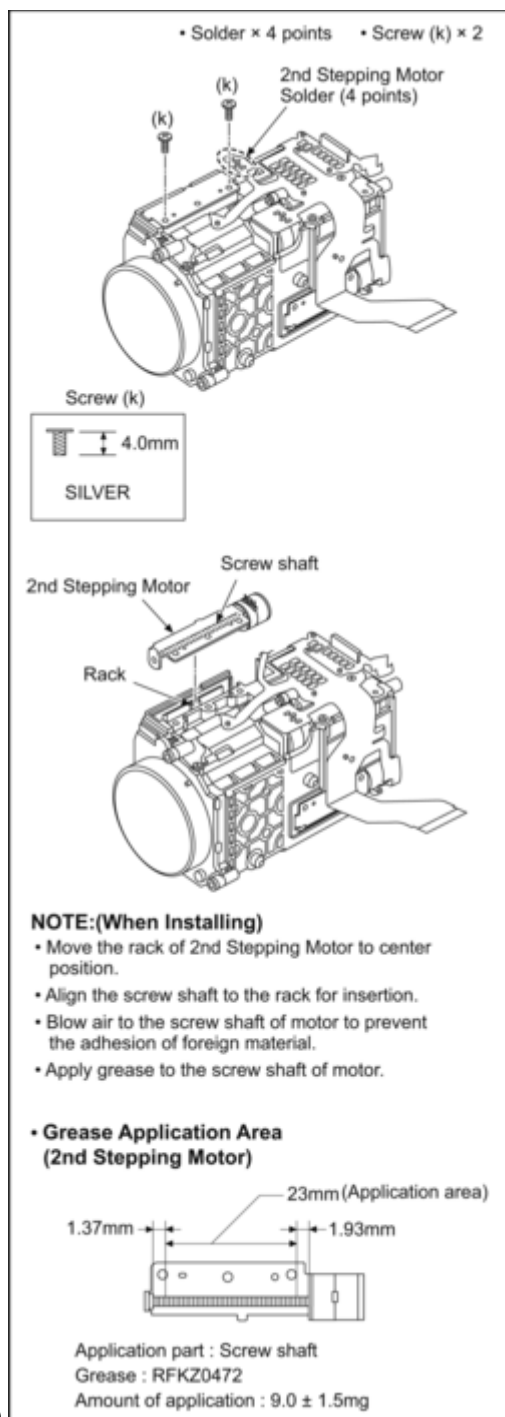
(Fig. D37)

8.3.25 Removal of the IR Kudou Unit



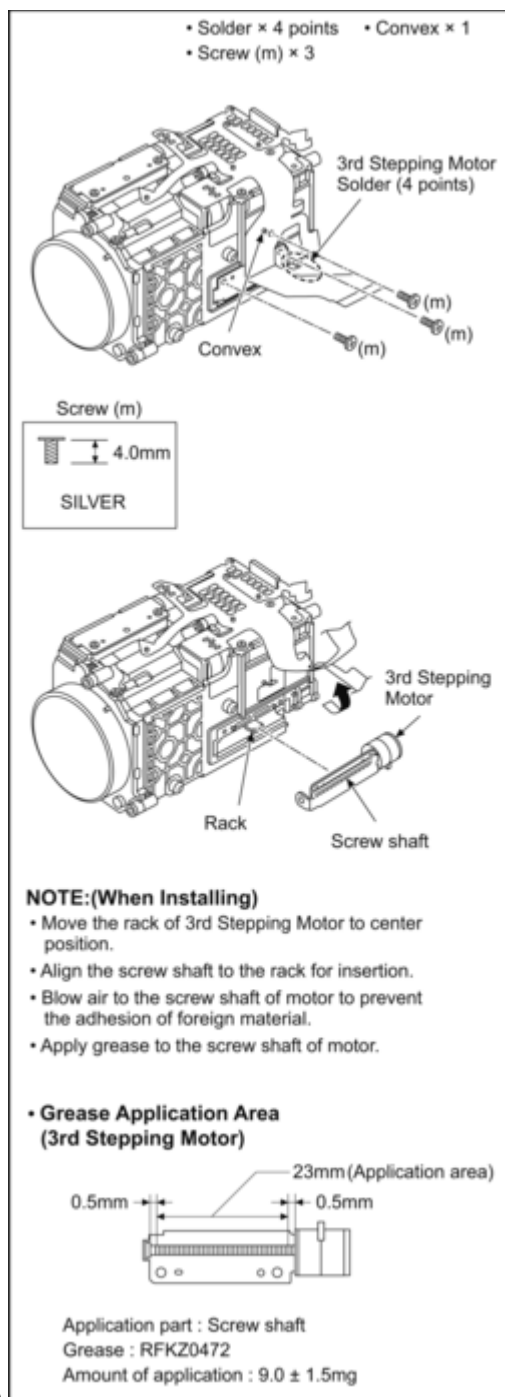
(Fig. D38)

8.3.26 Removal of the 2nd Stepping Motor



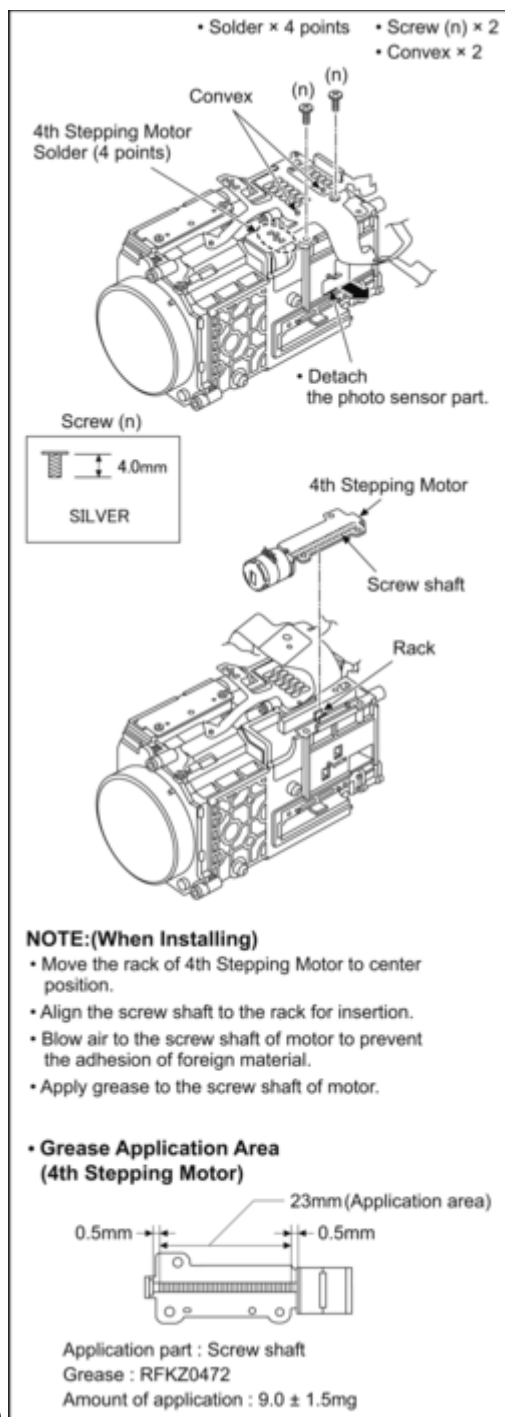
(Fig. D39)

8.3.27 Removal of the 3rd Stepping Motor



(Fig. D40)

8.3.28 Removal of the 4th Stepping Motor



(Fig. D41)

9 Measurements and Adjustments

9.1 Electric Adjustment

- An exclusive jig are necessary for electric adjustment.
- Connection method of the main unit and an exclusive adjustment jig as follows.

Figure of connection

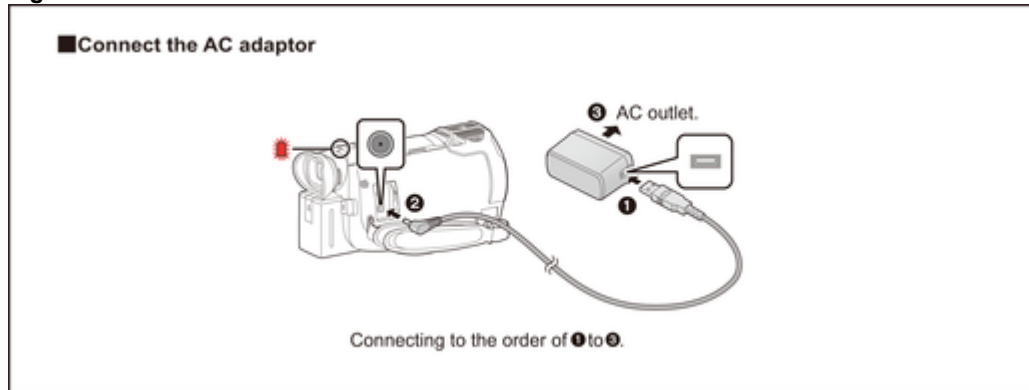
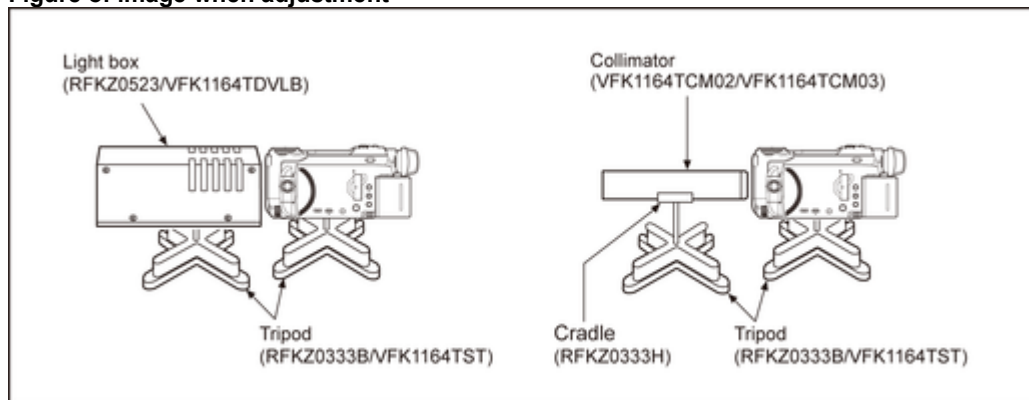


Figure of image when adjustment



Part Number of jig

1. Basic Jig

Item	Contents
AC adaptor	Banded with camcorder
DC Cable	Banded with camcorder

2. Optical Jig for Camera Adjustment

Item		Part number	Remarks
Light box		VFK1164TDVLB/RFKZ0523*	Need external power supply: 12V ± 0.1V /1.8A or over
Collimator with focus chart		VFK1164TCM02/VFK1164TCM03	Same as DSC
CC filter	3100K/5100K	VFK1164CC10G	Need 2 set. For indoor/outdoor white balance adjutment
C2 Filter	5100K	VFK1164LBB2	For outdoor white balance adjustment
C8 Filter	5100K	VFK1164LBB8	For outdoor white balance adjustment

ND Filter 0.1	3100K	VFK1164ND01	For indoor white balance adjustment
ND Filter 0.6	3100K	VFK1164ND06	For indoor white balance adjustment
Adjustment chart for Level Shot		Banded with this Manual	For Level shot adjustment

* RFKZ0523 (same as DSC) is recommended.

[Level Shot Adjustment Chart]

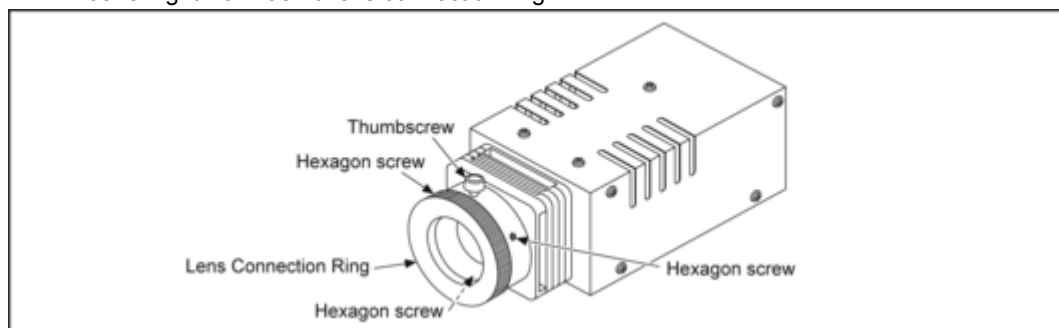


9.1.1 About Light Box

When using VFK1164TDVLB Light Box

If using VFK1164TDVLB Light Box, remove the lens connection ring by loosening thumbscrew and three hexagon screws.

* RFKZ0523 Light Box has no lens connection ring.

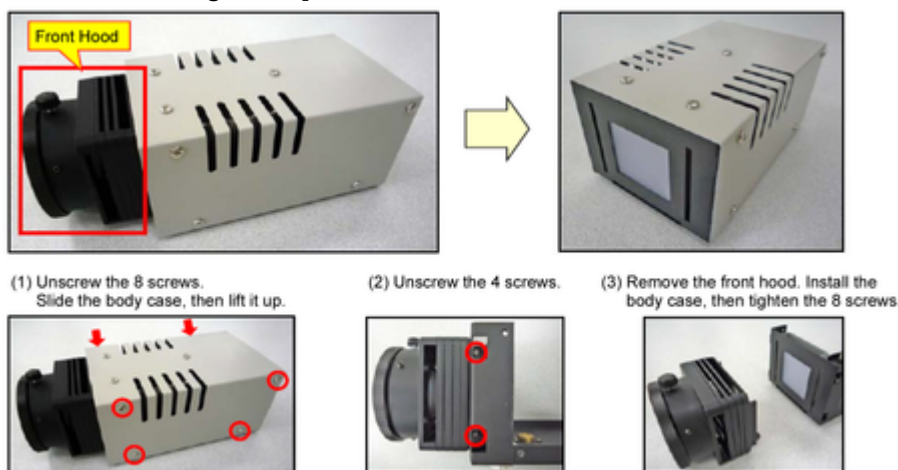


How to remove the Front Hood

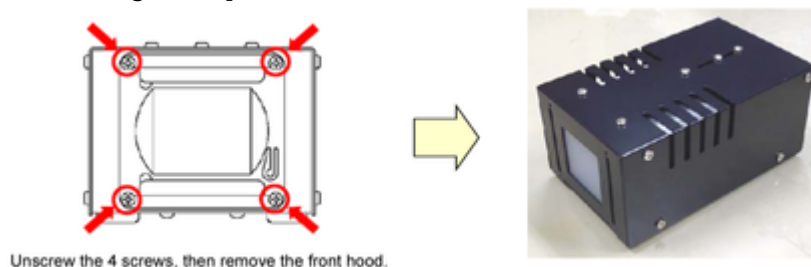
In order to utilize maximum of the diffusing surface of light box, some adjustment items need the distance between diffusing surface of light box and camera body becomes several centimeters.

Before the adjustments, remove the front hood of light box following steps below.

[For VFK1164TDVLB Light Box]



[For RFKZ0523 Light Box]



Unscrew the 4 screws, then remove the front hood.

9.1.2 Adjustment Items

Adjustment item as follows.

Adjustment item Replacement part			Adjustments						Settings	
			Camera Adjustments ^{*1}	Zoom Tracking Adjustment	Indoor White Balance Adjustment	Outdoor White Balance Adjustment	Level Shot adjustment ^{*2}	Touch Panel Calibration	Model setting	Factory settings
MAIN P.C.B.			○	○	○	○	○	-	○	○
	IC701	LENS DRIVE IC	○	○	-	-	○	-	-	-
	IC751	ROLL GYRO	○	-	-	-	○	-	-	-
	IC1001	7CH DC/DC IC	○	○	○	○	○	-	-	-
	IC1421	REG 3V I/O	○	○	○	○	○	-	-	-
	IC3401	VENUS ENGINE	-	-	-	-	○	-	-	-
	IC3404	FLASH ROM	○	○	○	○	○	-	○	○
SD HOLDER P.C.B.			○	-	-	-	○	-	-	-
	IC6401	PIT/YAW GYRO	○	-	-	-	○	-	-	-
	IC6402	ACCELEROMETER	-	-	-	-	○	-	-	-
ESD P.C.B. ^{*3}			-	-	-	-	○	-	-	-
Wi-Fi P.C.B.			-	-	-	-	○	-	-	○
LENS UNIT			○	○	○	○	○	-	-	-
MOS UNIT			○	○	○	○	○	-	-	-
LCD CASE (B) UNIT			-	-	-	-	○	○	-	-

*1...IRIS adjustment, OIS hall amp adjustment, Missing pixels compensation, OIS gyro adjustment, AGS adjustment.

*2...Accelerometer : Since the assembly is accompanied, always need to be adjusted.

*3...HC-WXF990M only

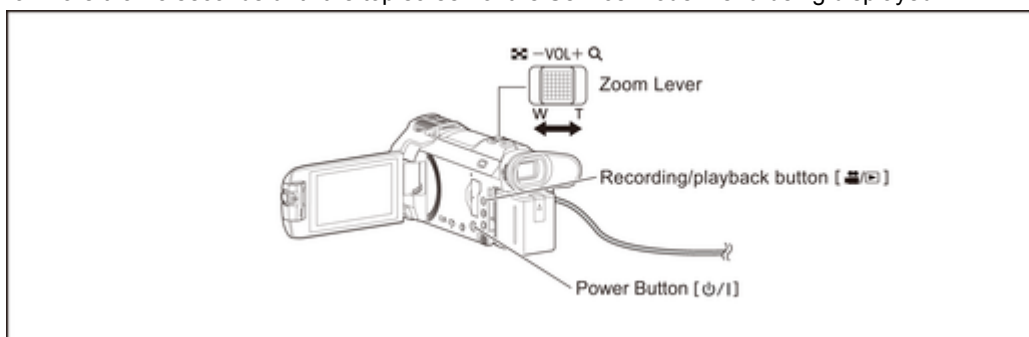
9.1.3 Adjustment Procedure

All adjustments except “Touch Panel Calibration” and “Factory Setting” performs using “14 Adjustment function for the service” in service mode menu.

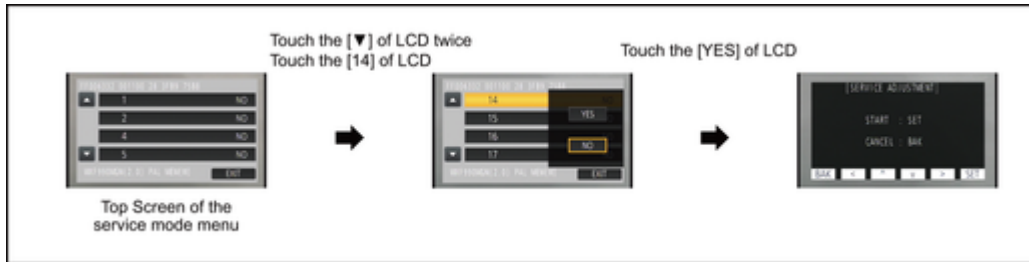
“Touch Panel Calibration” is performed using 16 of service mode menu and “Factory Setting” is performed using 1 of service mode menu. Refer to “6 Service mode” and “10 Factory Setting”.

[Execute adjustment function for service]

1. While the power is turned OFF, keep pressing the “Power” button, “Zoom Lever” to W side and “Recording/Playback” button for more than 3 seconds until the top screen of the Service Mode Menu being displayed.



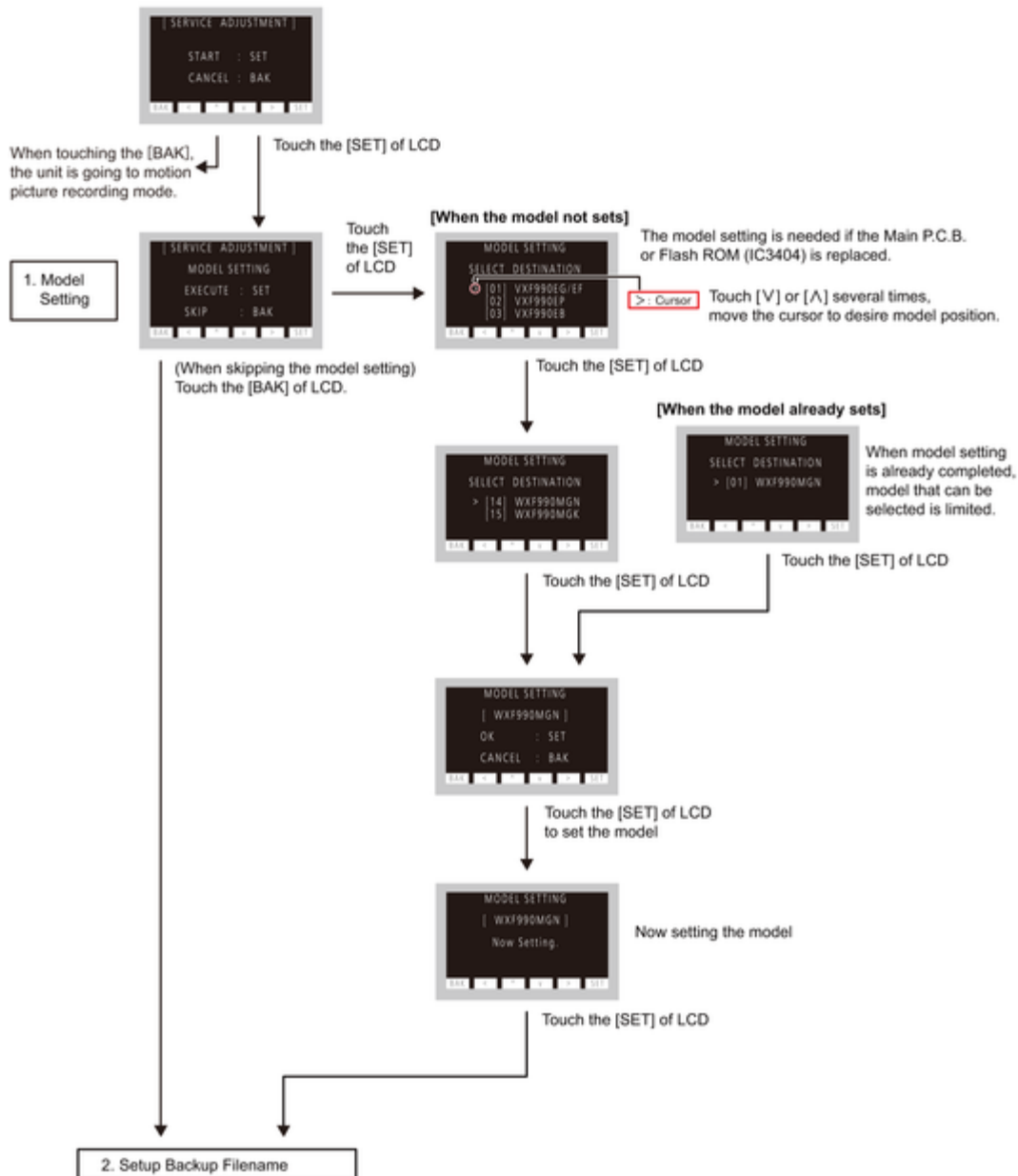
2. Touch the ▼ twice then touch the [14] of LCD.
3. Touch the [YES] of LCD.

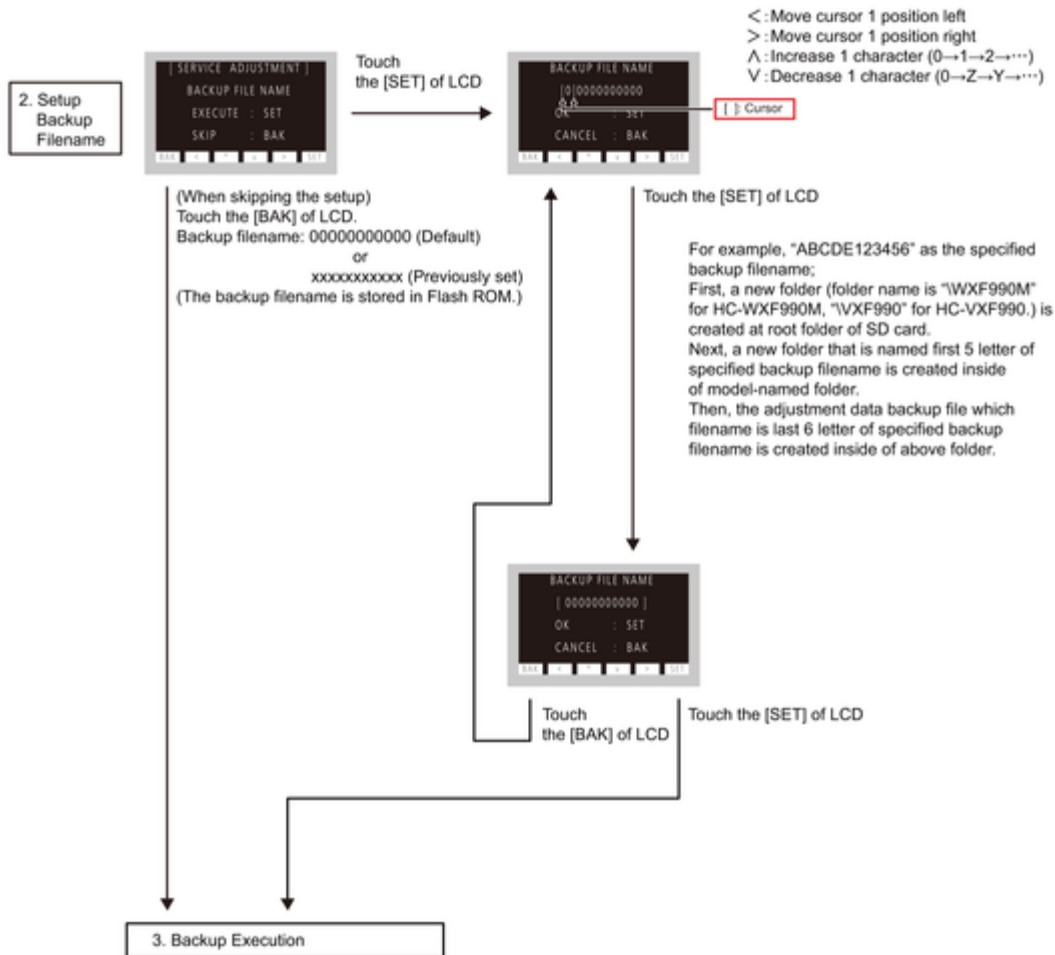


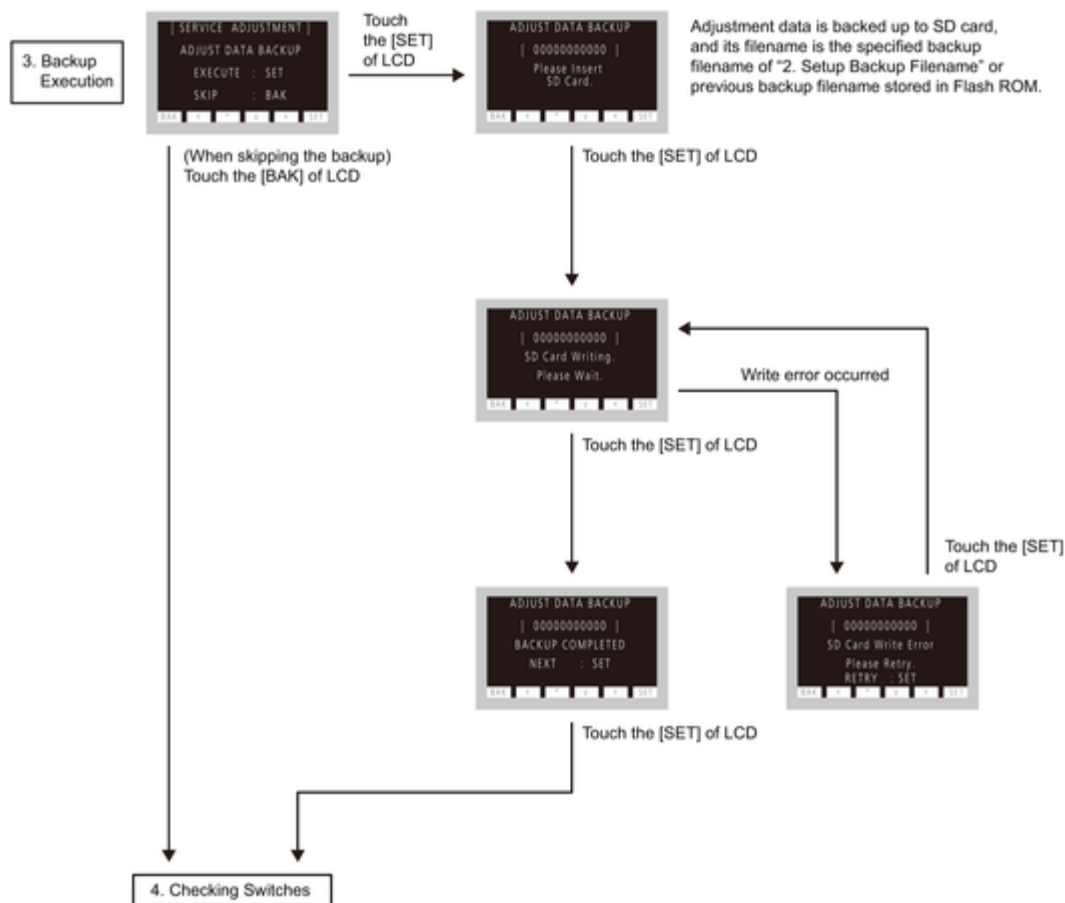
[Adjustment Procedure]

Adjustments and settings are performed following order:

1. Model setting
2. Filename setting for backup to SD card
3. Backing up adjustment data to SD card
4. Checking switches
5. Camera adjustment
6. Zoom/tracking adjustment
7. Indoor white balance adjustment
8. Outdoor white balance adjustment
9. Level shot adjustment

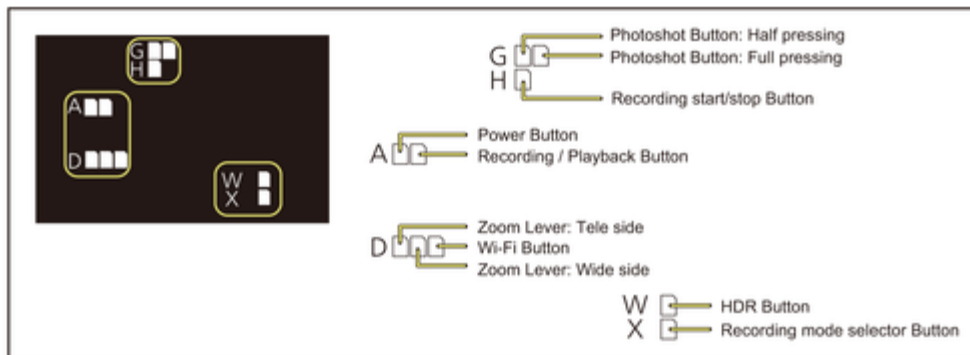


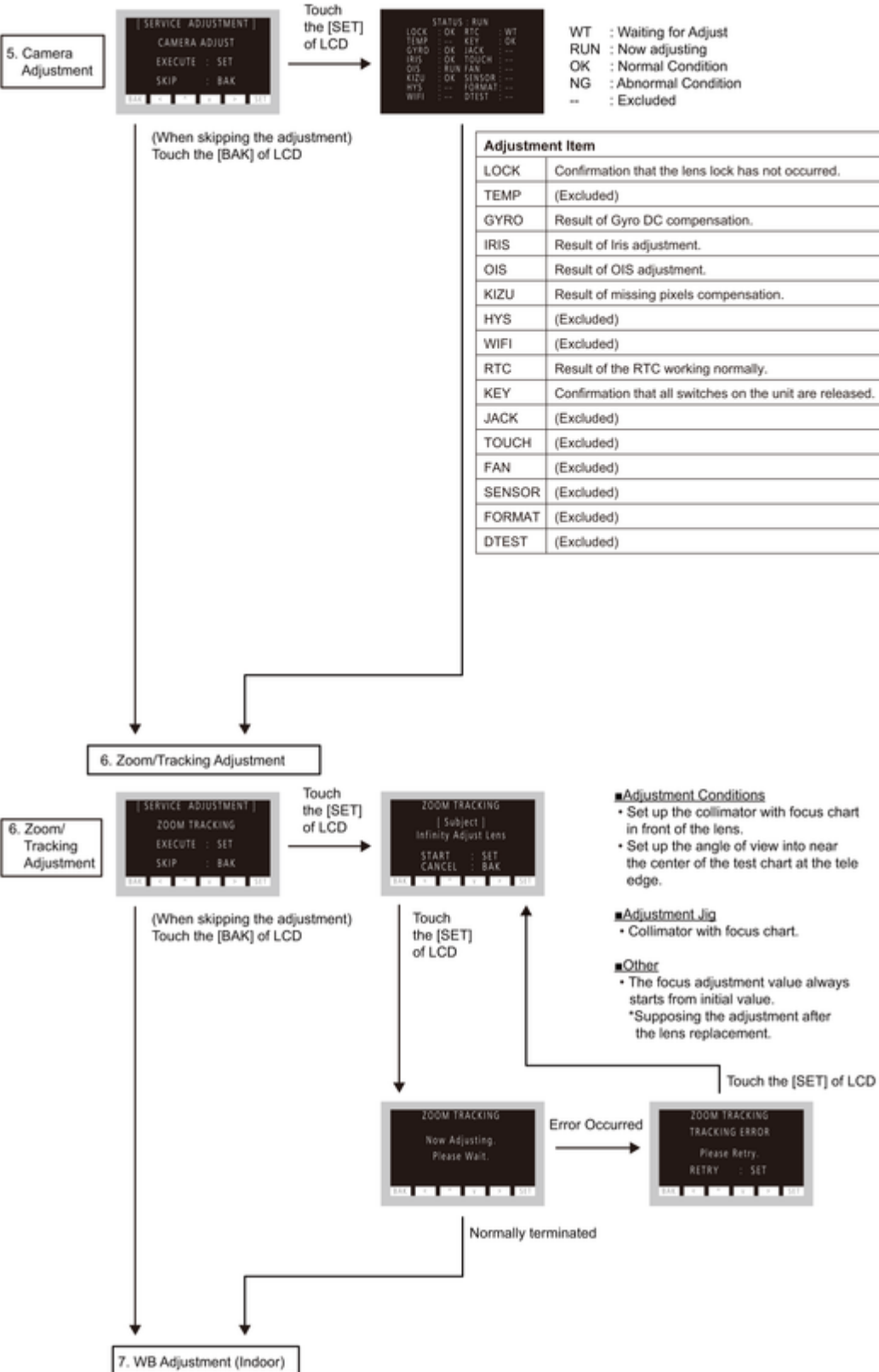


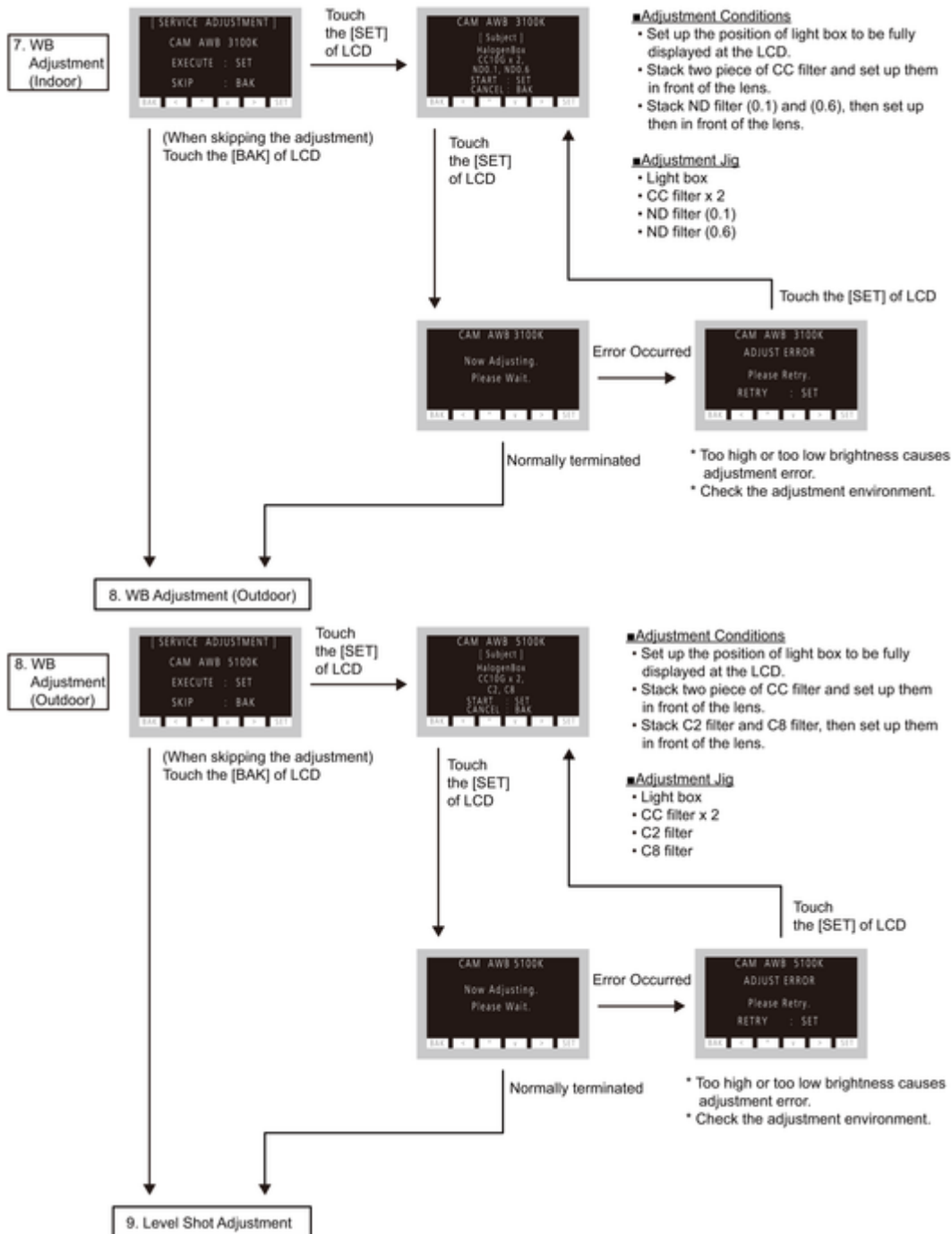


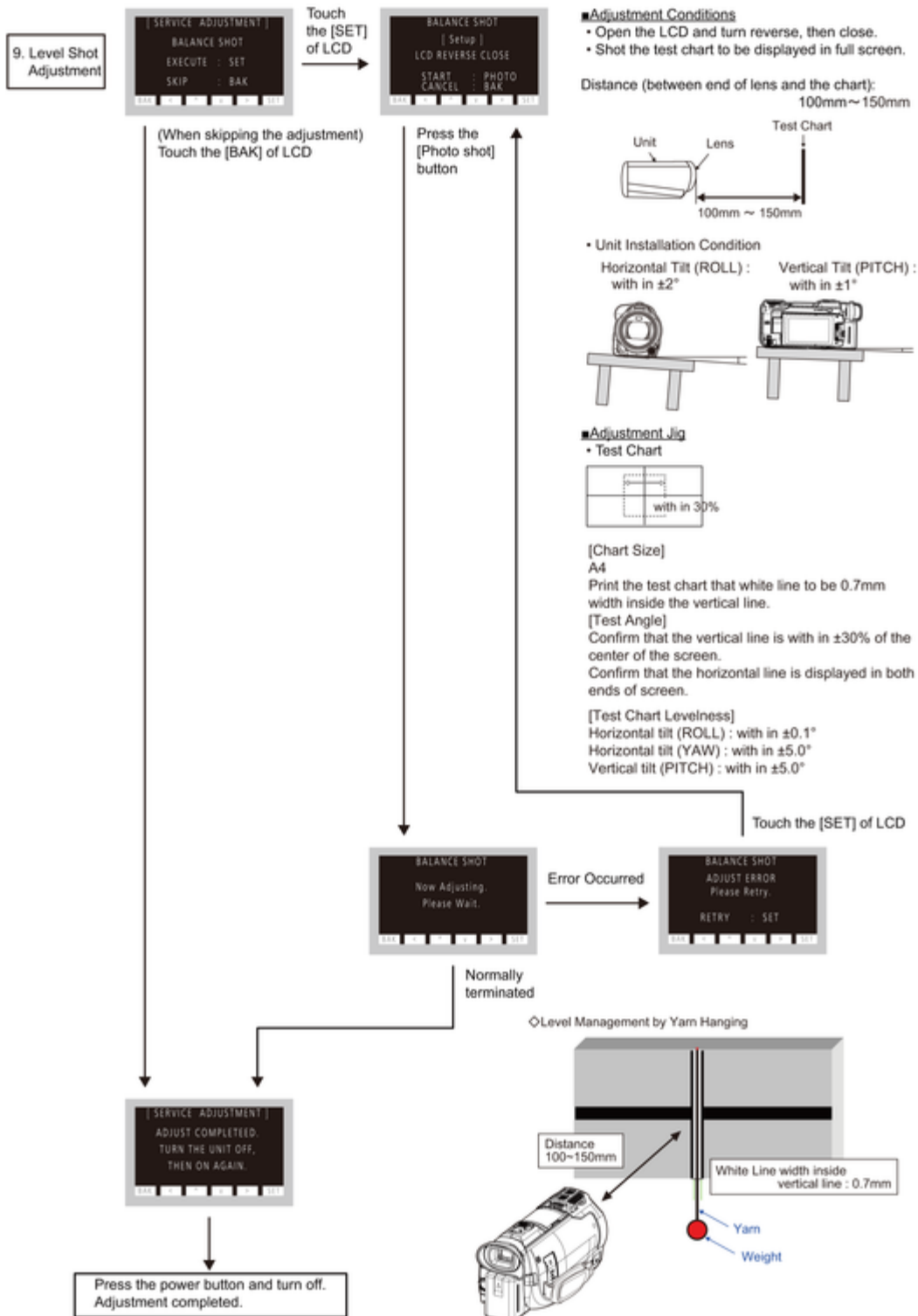


< Switches arrangement >





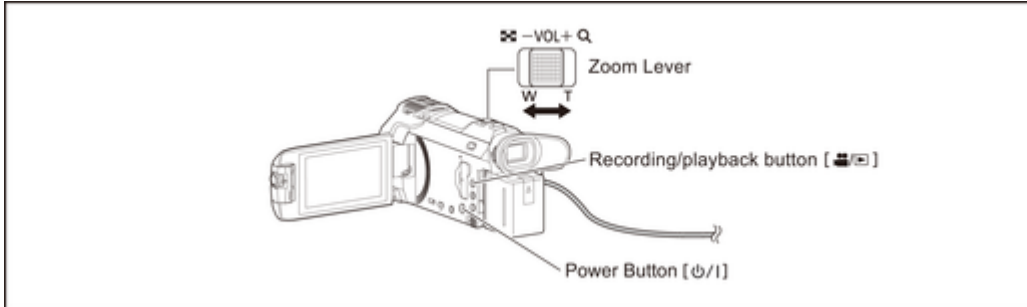




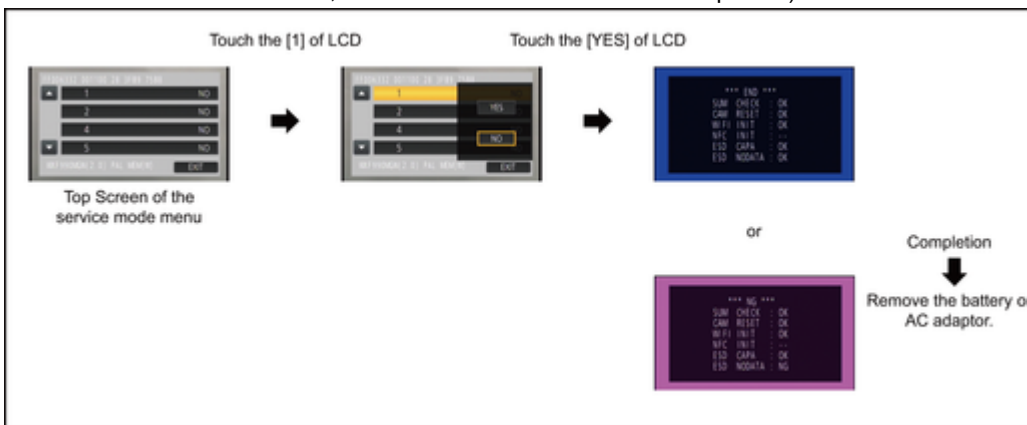
10 Factory Setting

10.1 How To Turn On The Factory Settings?

1. While the power is turned OFF, keep pressing the “Power” button, “Zoom Lever” to W side and “Recording/Playback” button for more than 3 seconds until the top screen of the Service Mode Menu being displayed.



2. Touch the [1] of LCD.
3. Touch the [YES] of LCD.
4. After few seconds “END” is displayed or “ESD NODATA” as “NG” is displayed on LCD monitor. Cutting of battery connection or AC power supply connection as a completion of the “FACTORY SETTINGS”.
(After recording at least once, even if the physical format of the build-in memory will be performed, “ESD NODATA” as “NG” is indicated, but “FACTORY SETTINGS” is completed.)



10.2 What Is The Factory Settings?

The factory settings clean up and/or refresh the following settings.

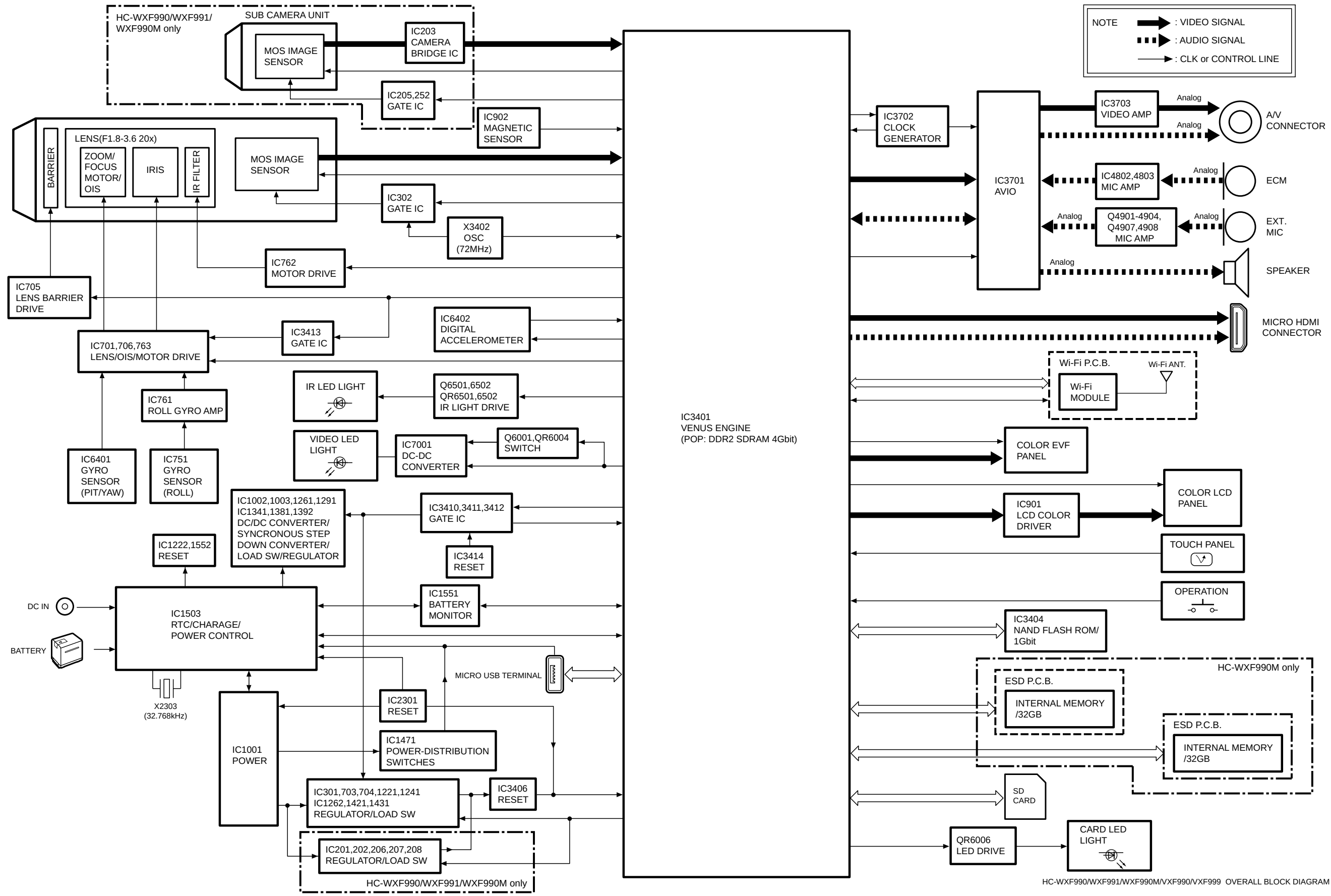
1. Setting Values of menu.
2. Clear the time and date setting.
3. Initialize the Wi-Fi data settings.
4. Confirm that the built-in memory capacity is correct. (HC-WXF990M only)
(Checking of the built-in memory mounting error.)
5. Confirm that the data area of built-in memory is cleared. (HC-WXF990M only)
6. Close the lens cover

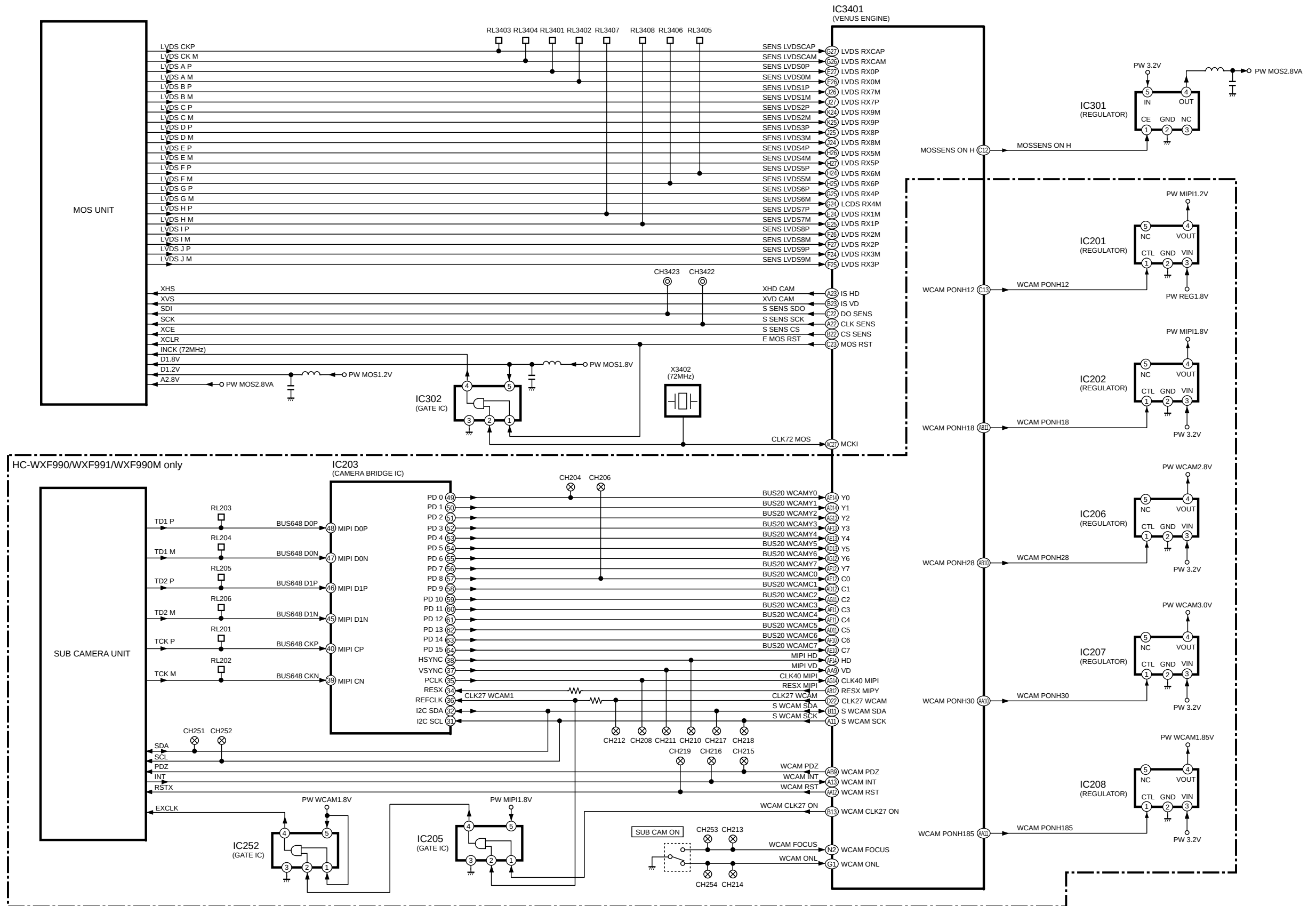
(HC-WXF990M only)

If the “Factory Settings” is completed, physical format of the built-in memory is not performed, execute physical format according to the following procedure.

To physically format the built-in memory, connect the unit via the AC adaptor, select [SETUP] → [FORMAT MEDIA] → [Built-inMemory] from the menu, and then press and hold the recording start/stop button on the screen below for about 3 seconds. When the built-in memory data deletion screen appears, select [YES], and then follow the on-screen instructions.

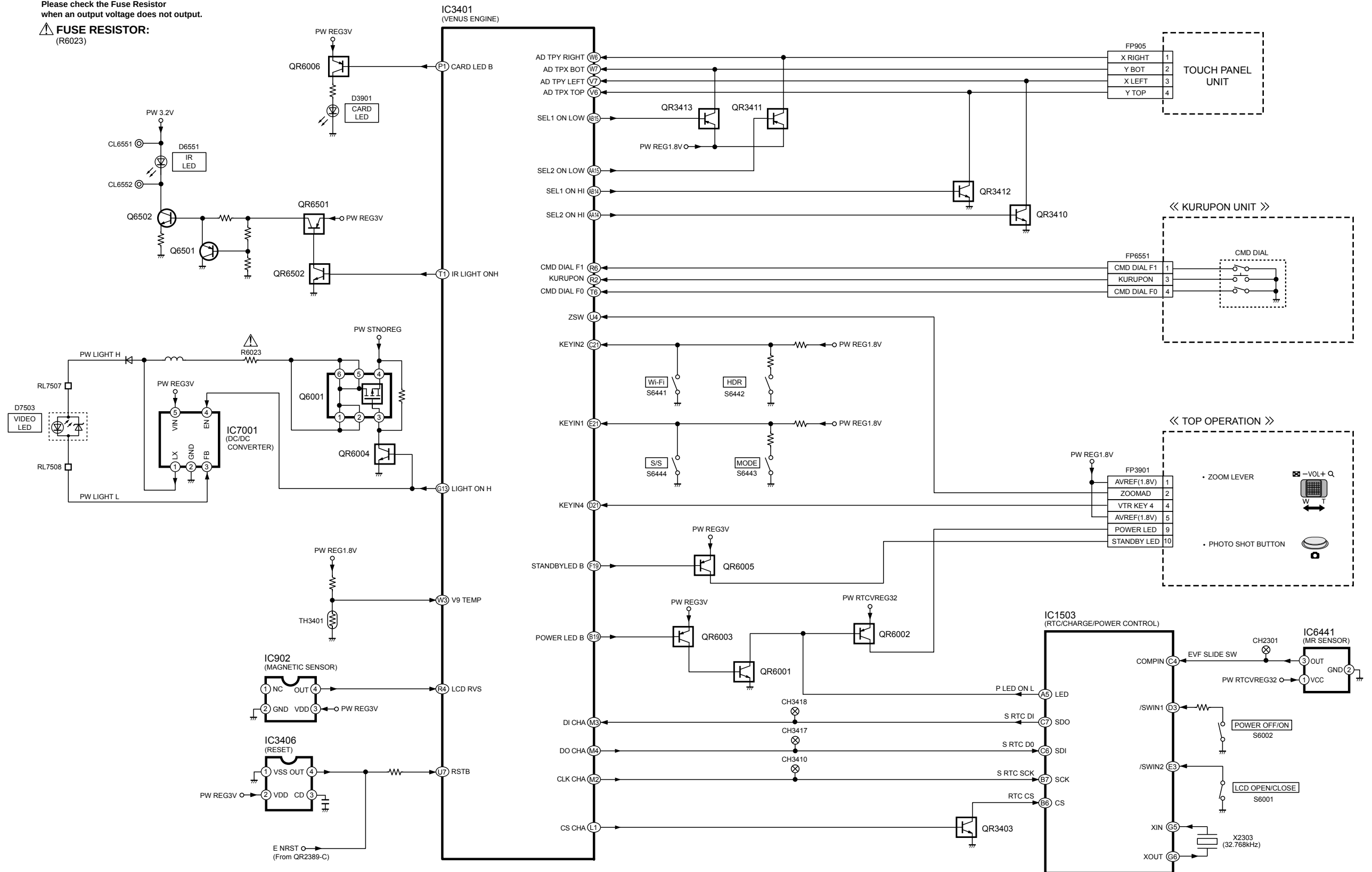






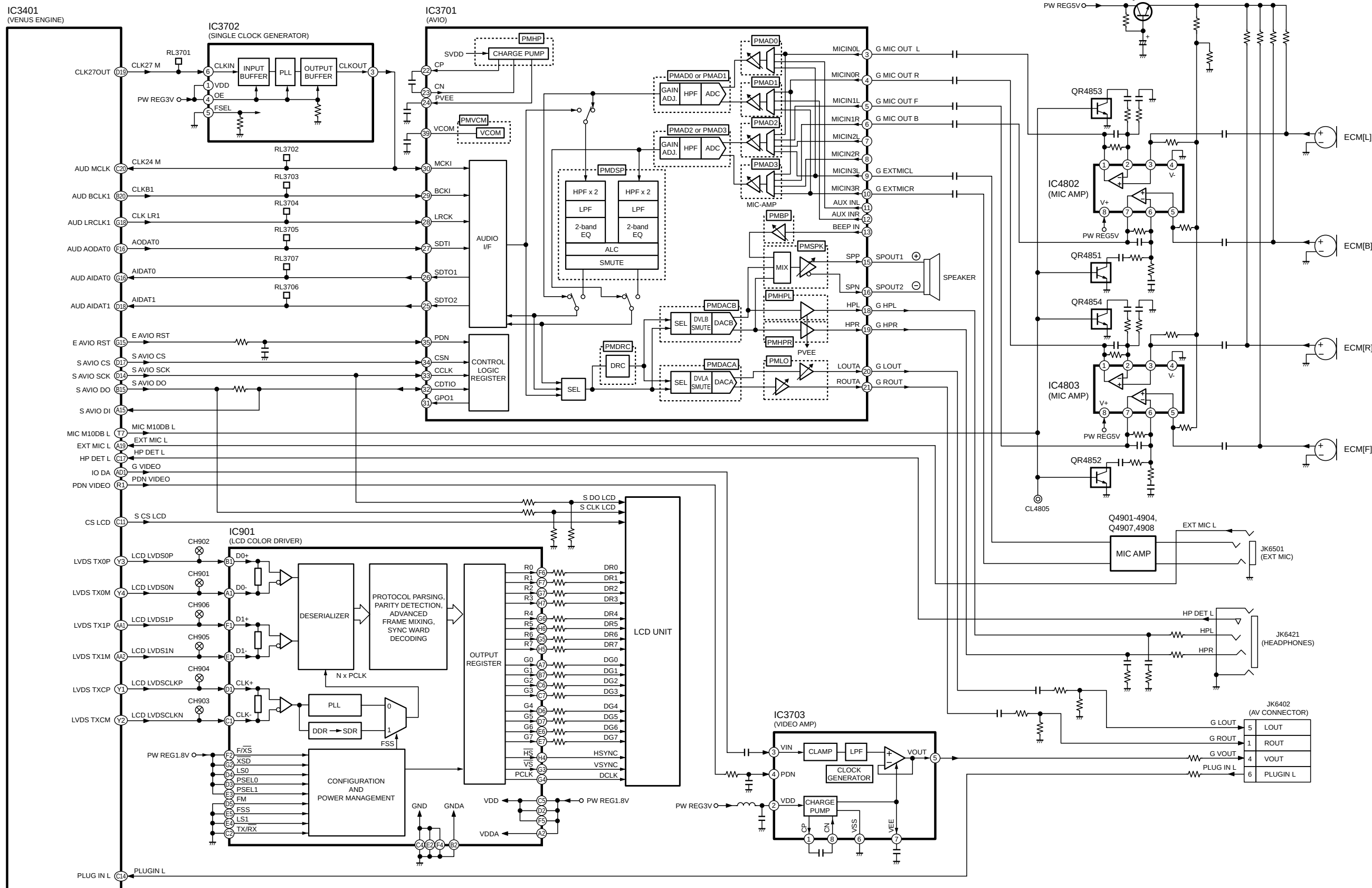
Please check the Fuse Resistor
when an output voltage does not output.

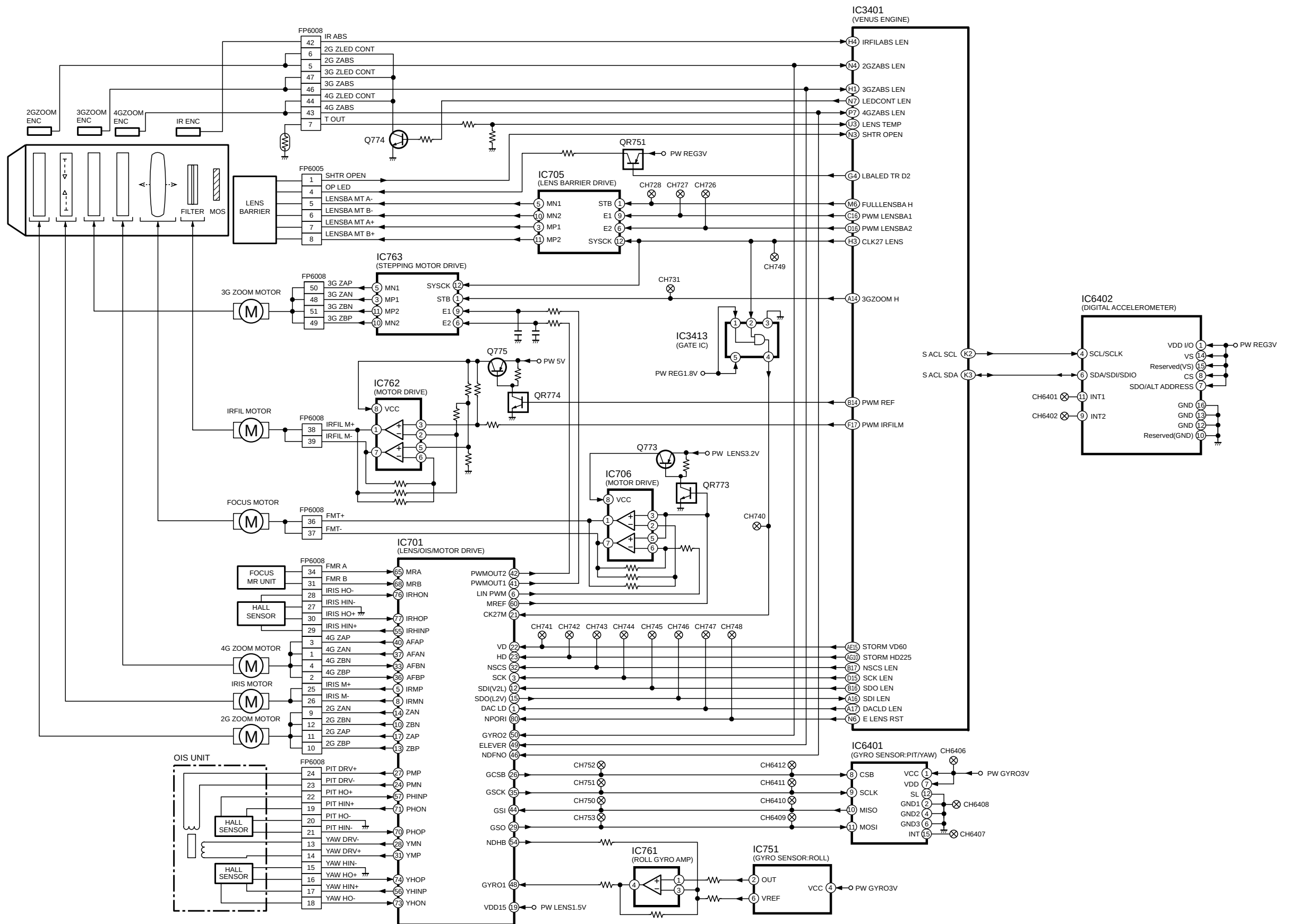
⚠ FUSE RESISTOR:
(R6023)





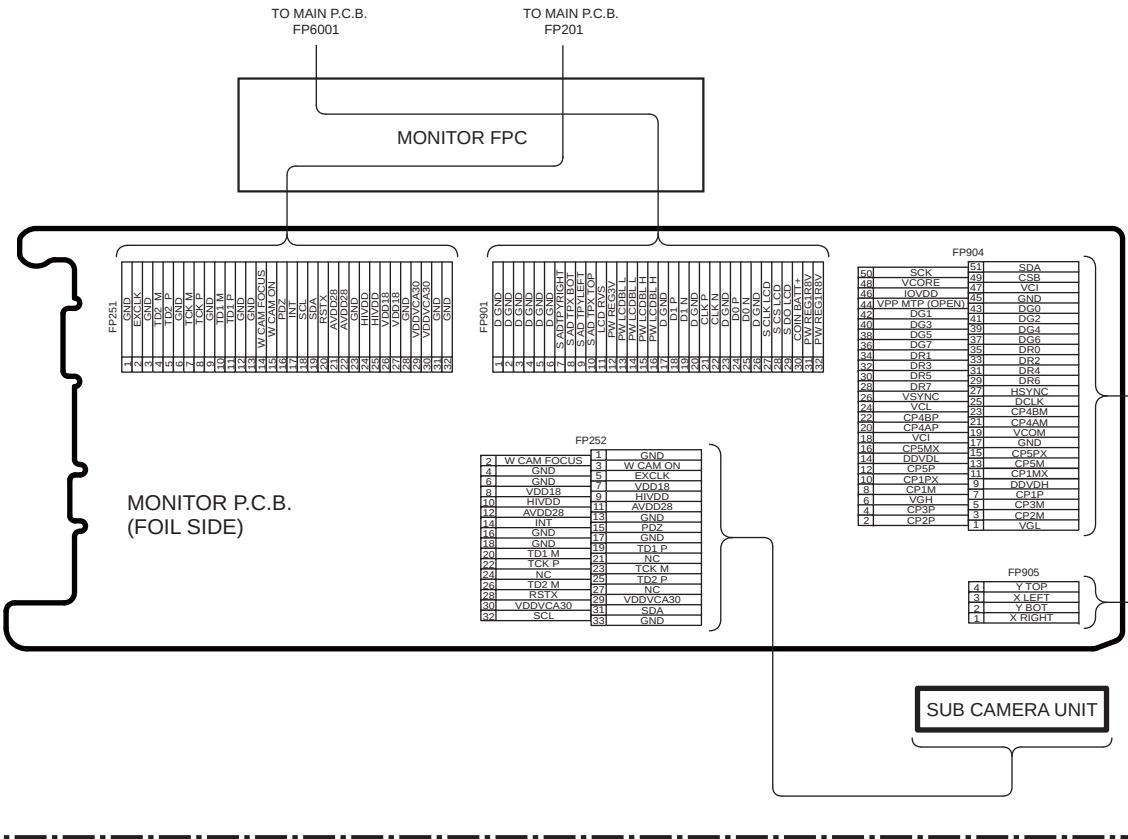
IC3401
(VENUS ENGINE)



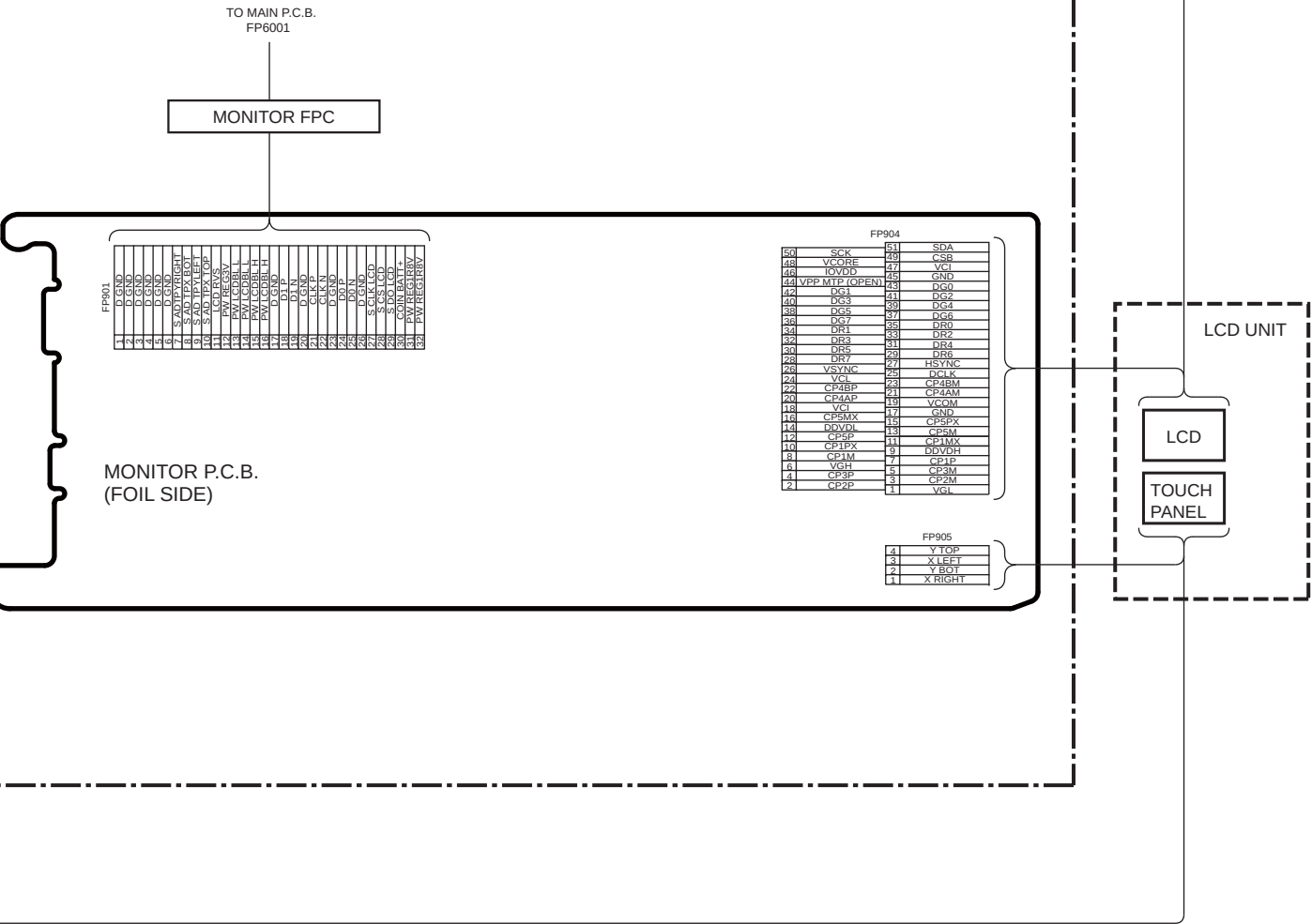


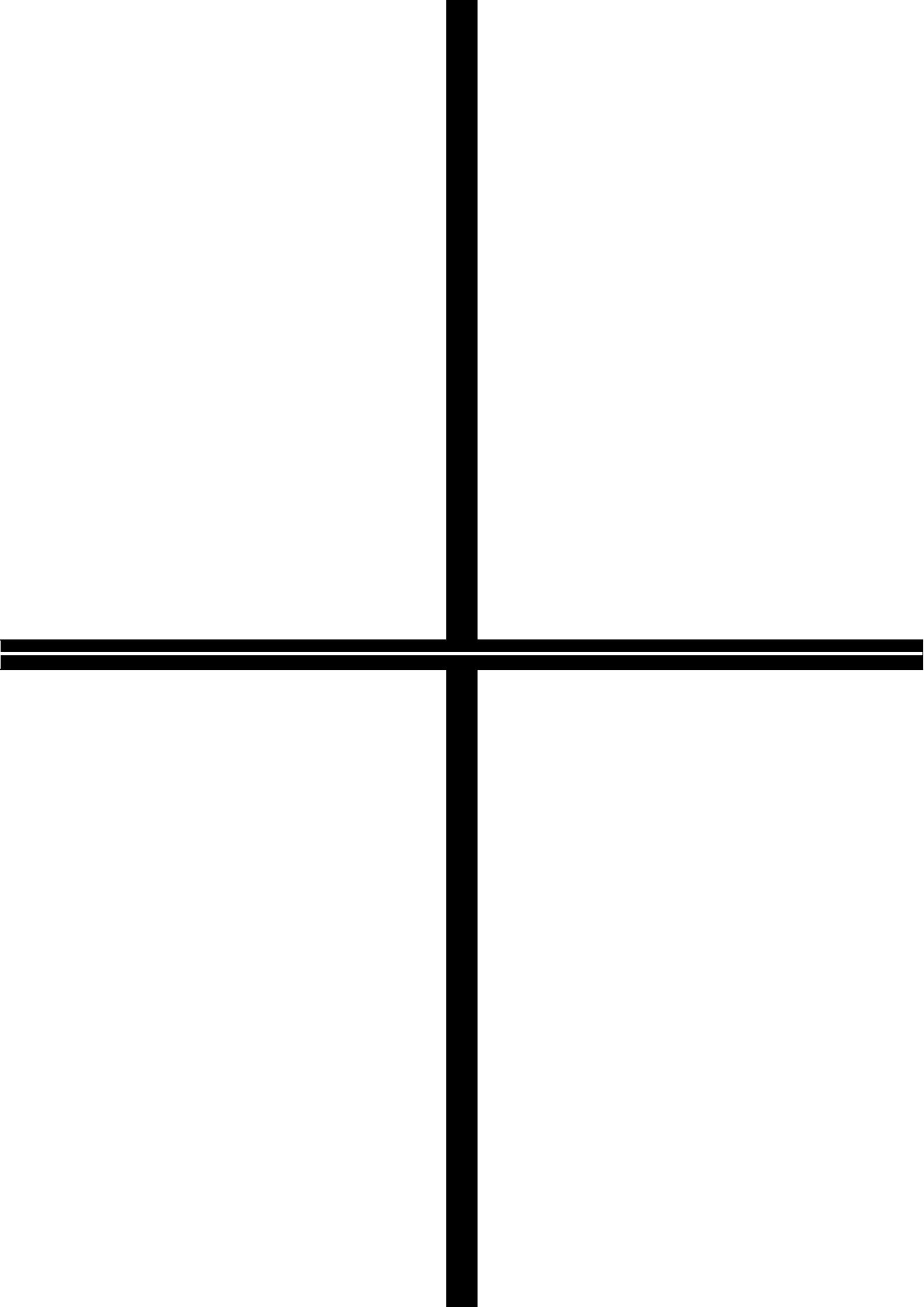


HC-WXF990/WXF991/WXF990M



HC-VXF990/VXF999



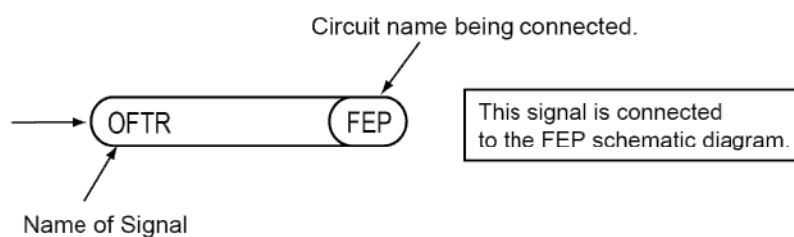


Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Schematic Diagram Note

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

- 1.Although reference number of the parts is indicated on the P.C.B. drawing and/or schematic diagrams, it is NOT mounted on the P.C.B. when it is displayed with "\$" mark.
- 2.It is only the "Test Round" and no terminal (Pin) is available on the P.C.B. when the TP (Test Point) indicated as "●" mark.
- 3.Use the parts number indicated on the Replacement Parts List .
- 4.Indication on Schematic diagrams:



5. It might be taking time for display and/or access of the Schematic Diagrams & P. C. B. having the heavy data volume.

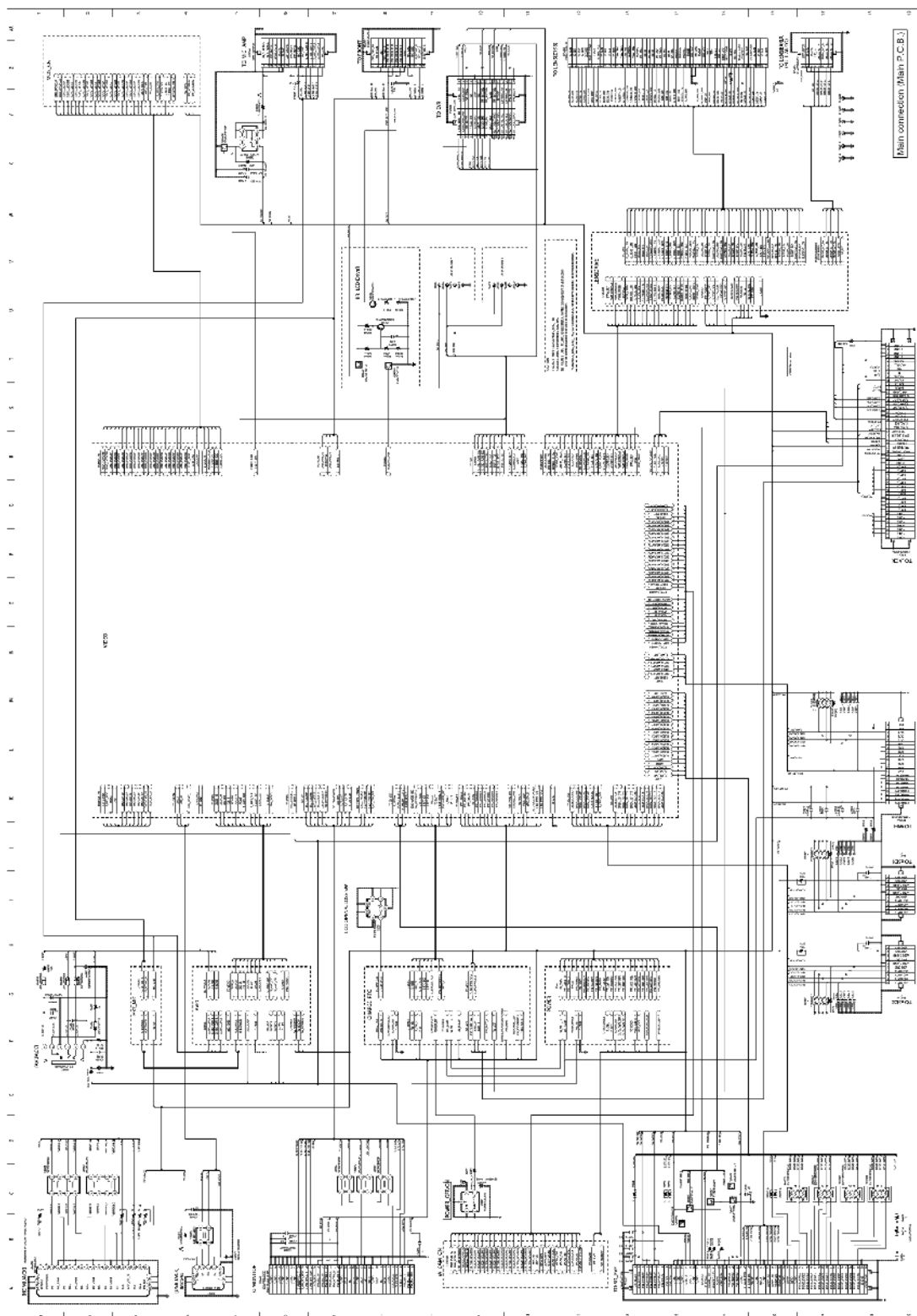
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List Note

- Note:
1. * Be sure to make your orders of replacement parts according to this list.
 2. IMPORTANT SAFETY NOTICE
Components identified with the mark  have the special characteristics for safety.
When replacing any of these components, use only the same type.
 3. Unless otherwise specified,
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICRO-FARADS (uf), P=uuF.
 4. The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

E.S.D. standards for Electrostatically Sensitive Devices, refer to PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES section.

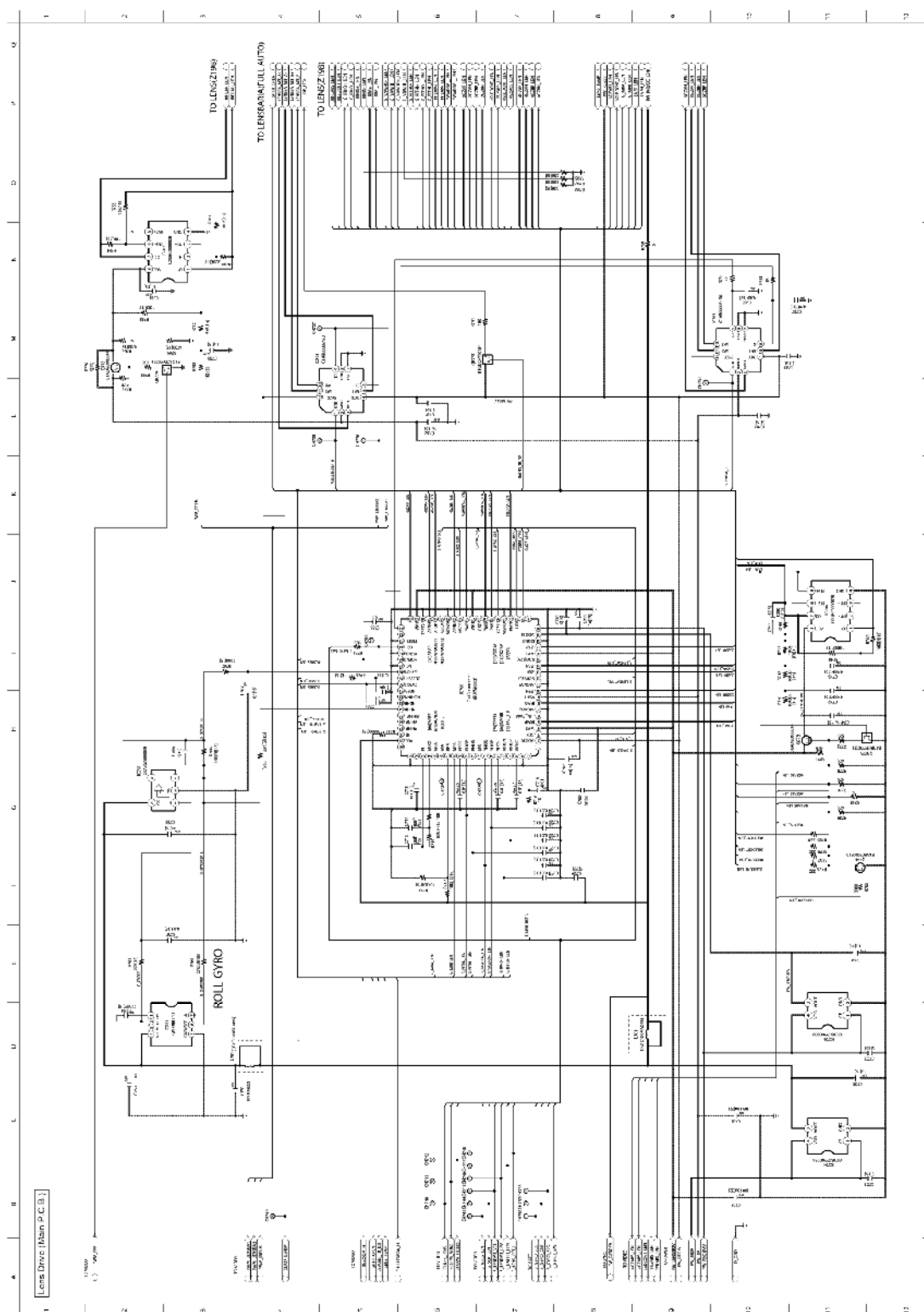
Definition of Parts supplier:

1. Parts marked with [INBD] in the remarks column are supplied from AVC-IMAGING.
Others are supplied from PAVCJM.

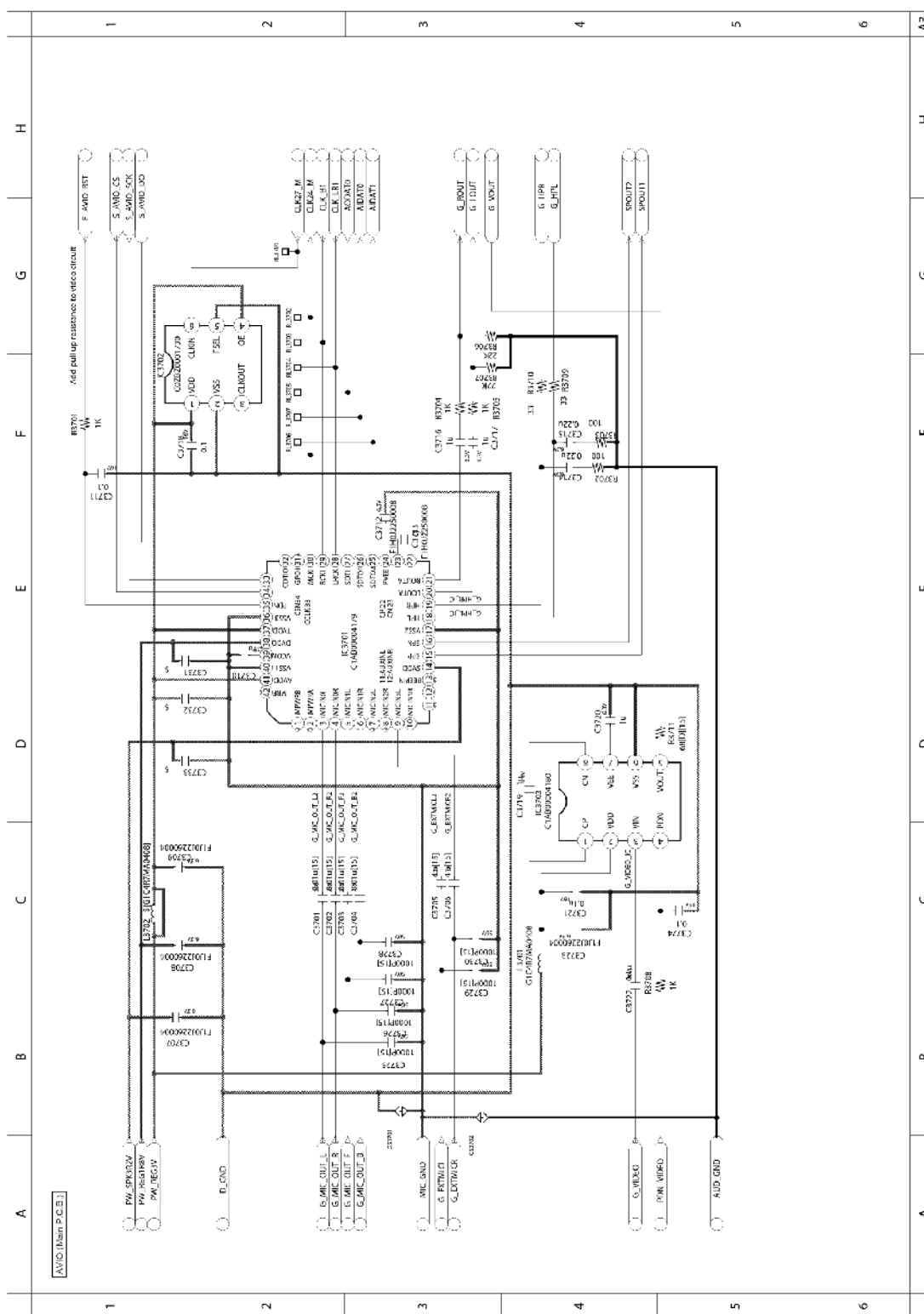
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Main connection (Main P.C.B.)

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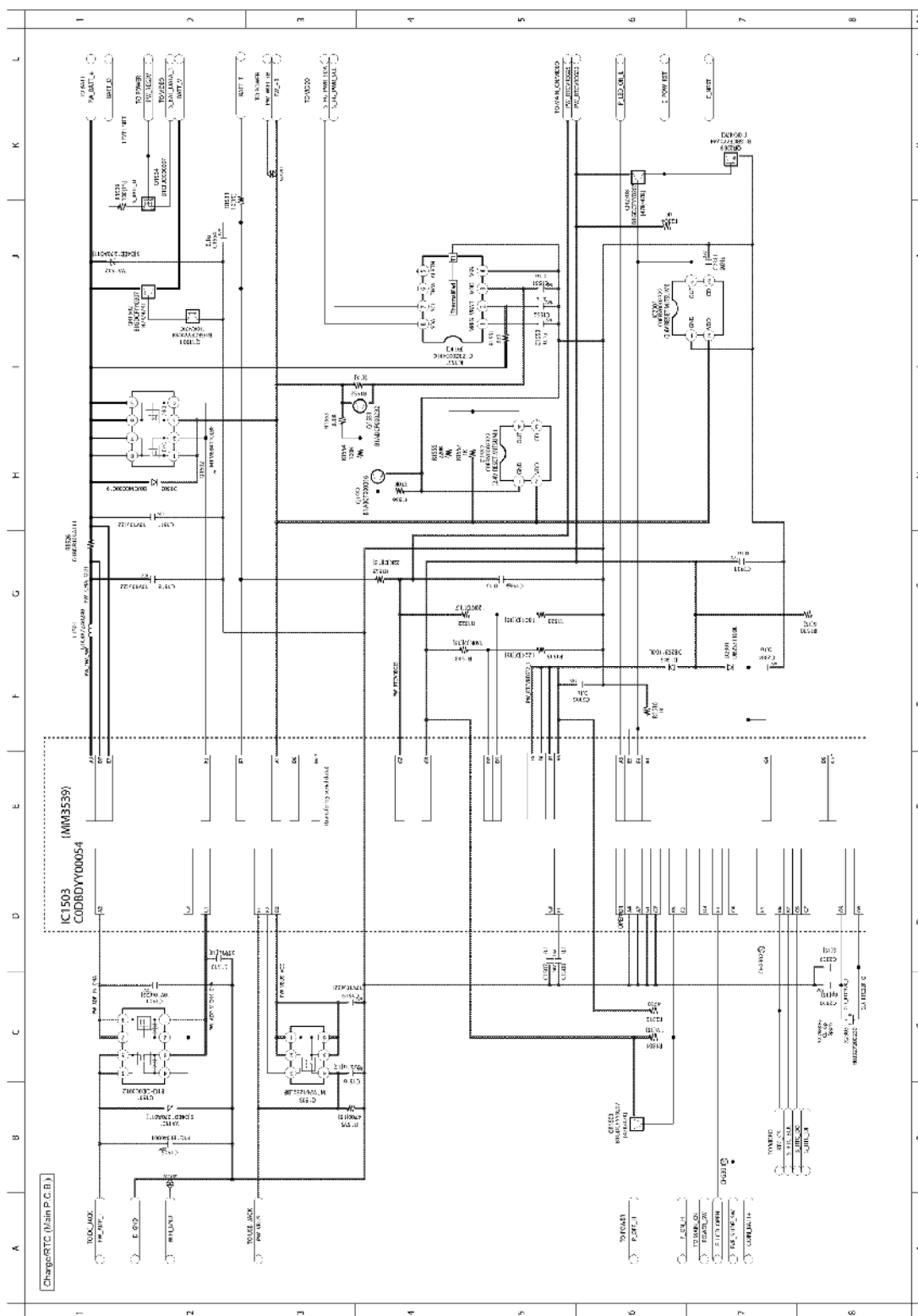
file://\\royalfs\Service\Technical\Ms.dehghani\All SVC sent by CD\24\HC-VXF990EGA... 12/18/2017

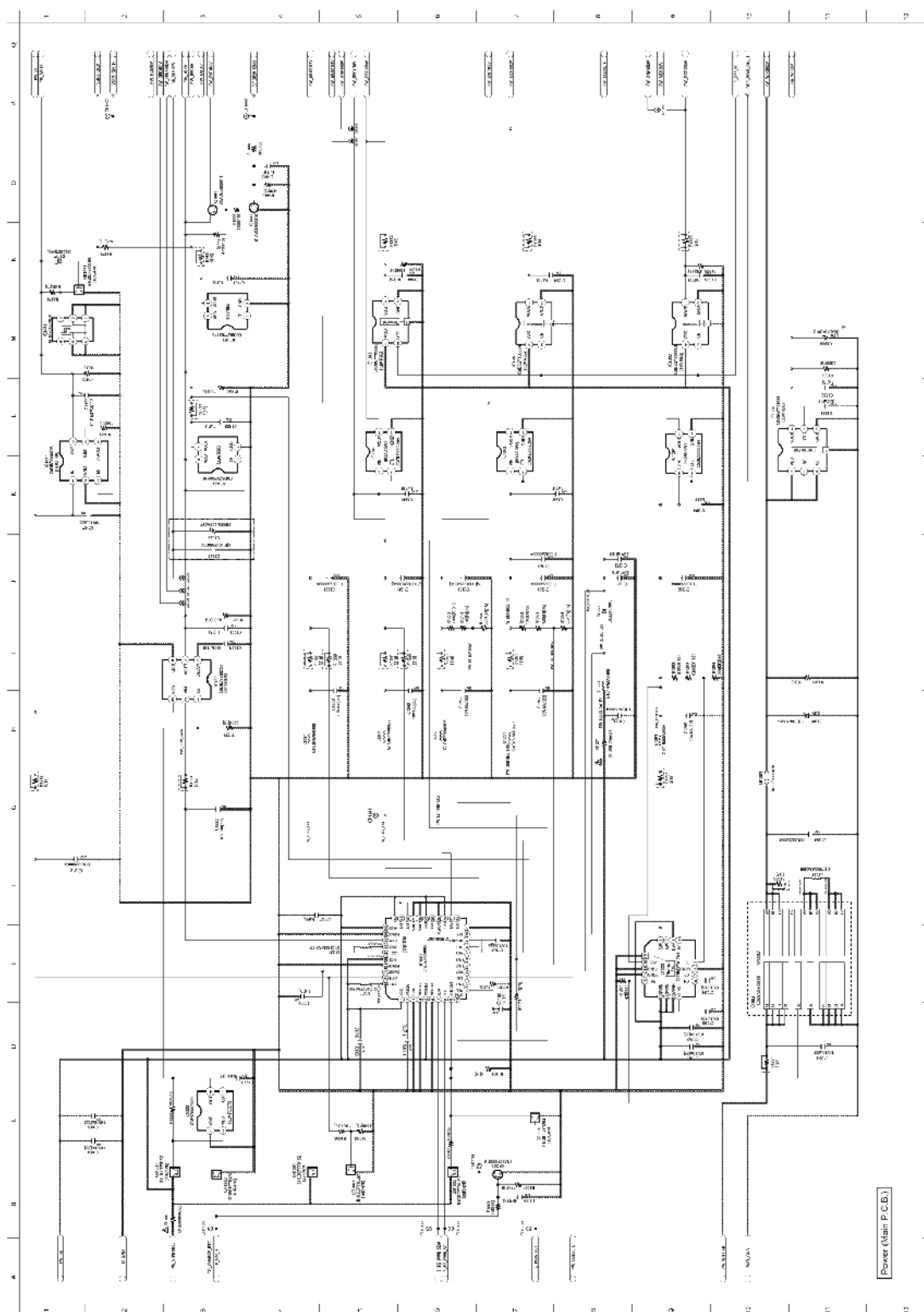


Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 AVIO (Main P.C.B.)

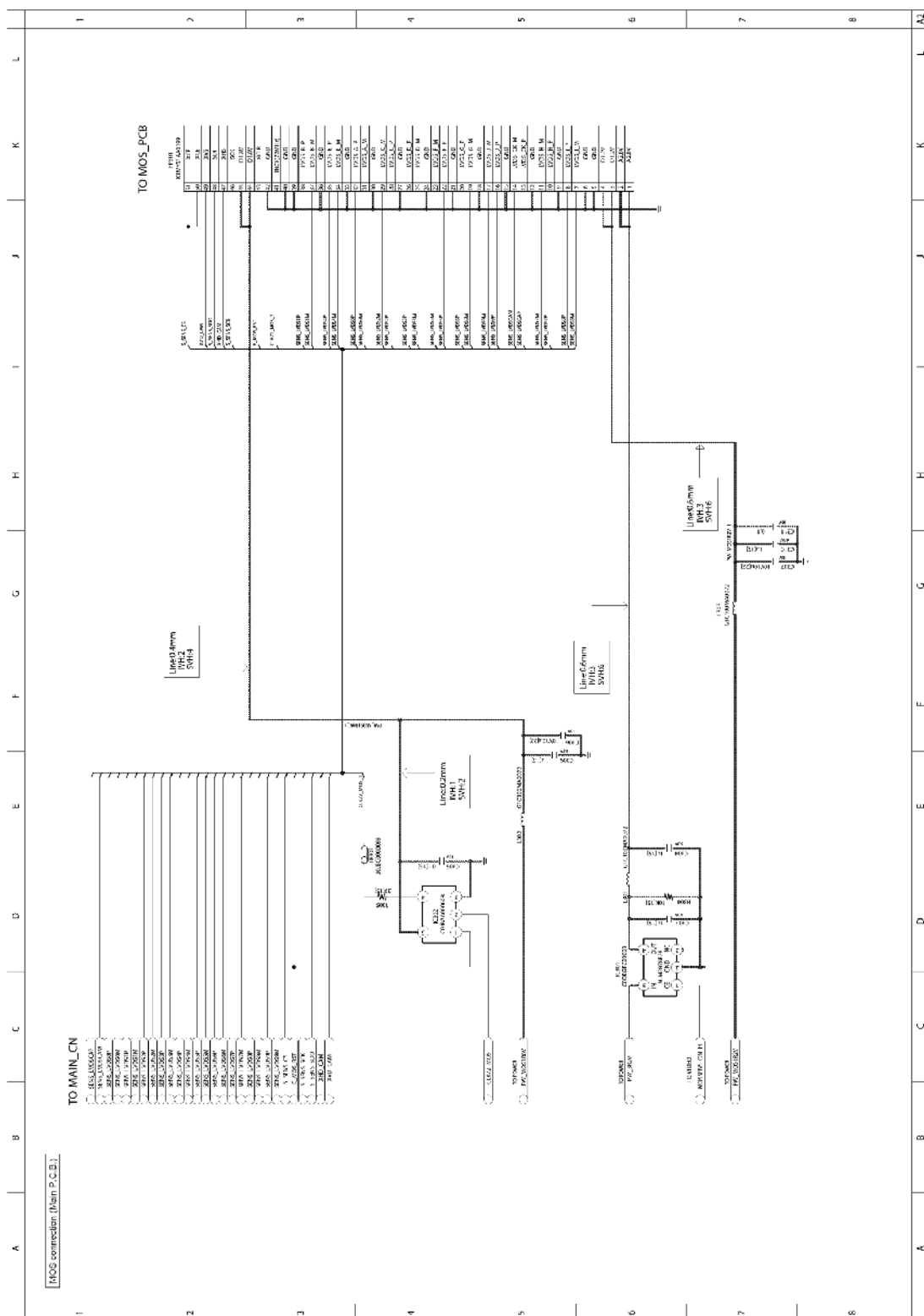


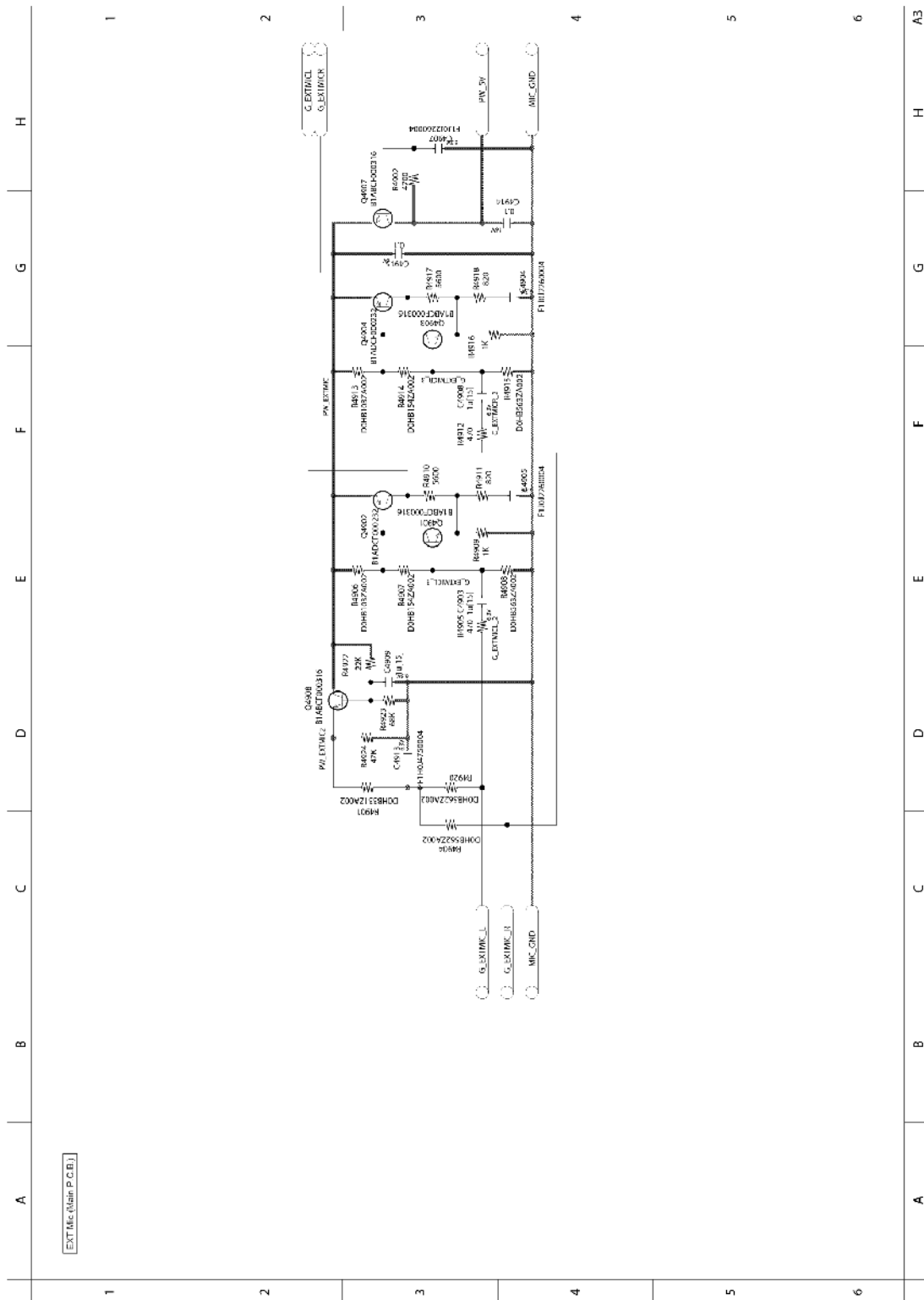
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Charge/RTC (Main P.C.B.)



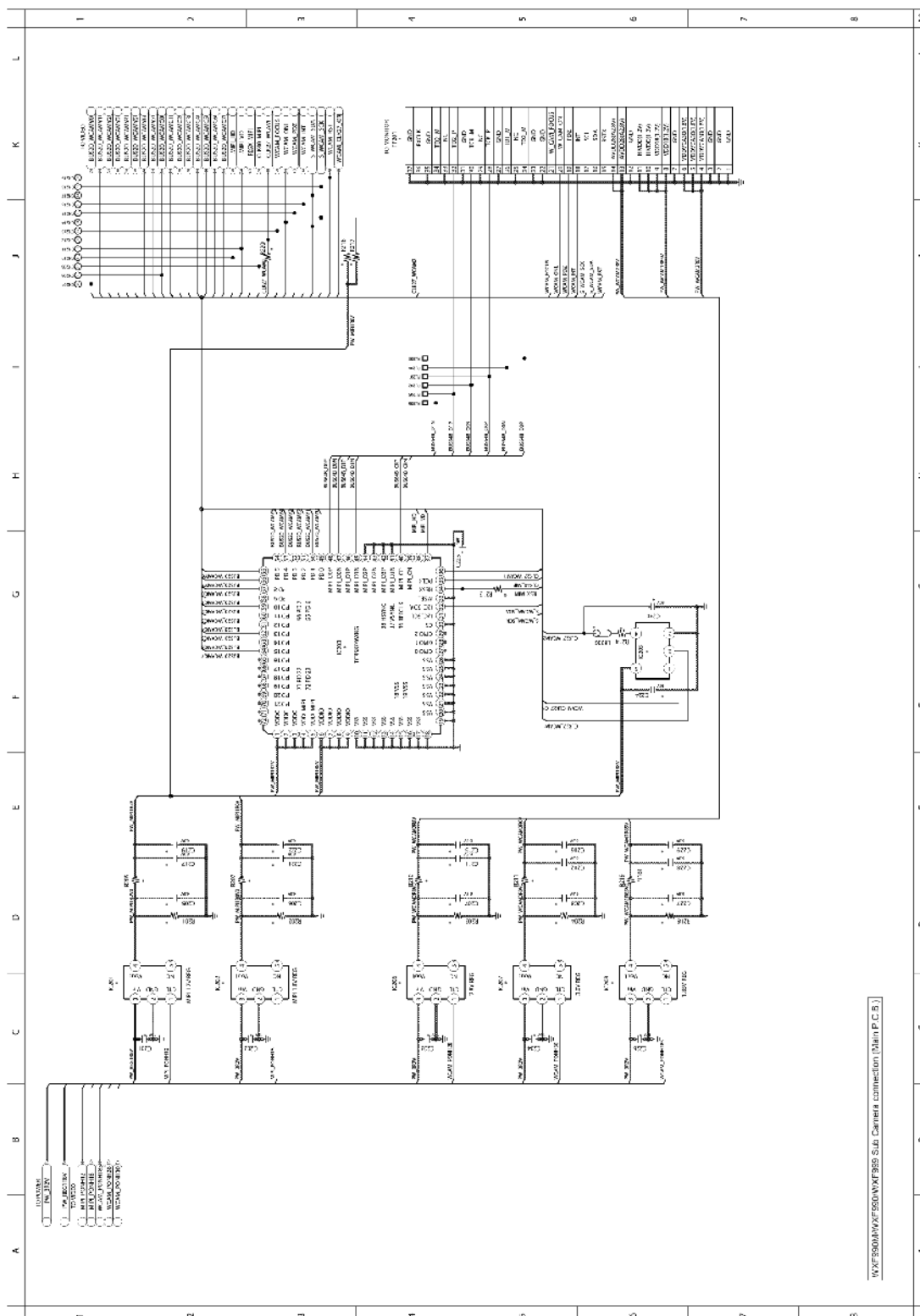
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Power (Main P.C.B.)

Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 MOS connection (Main P.C.B.)

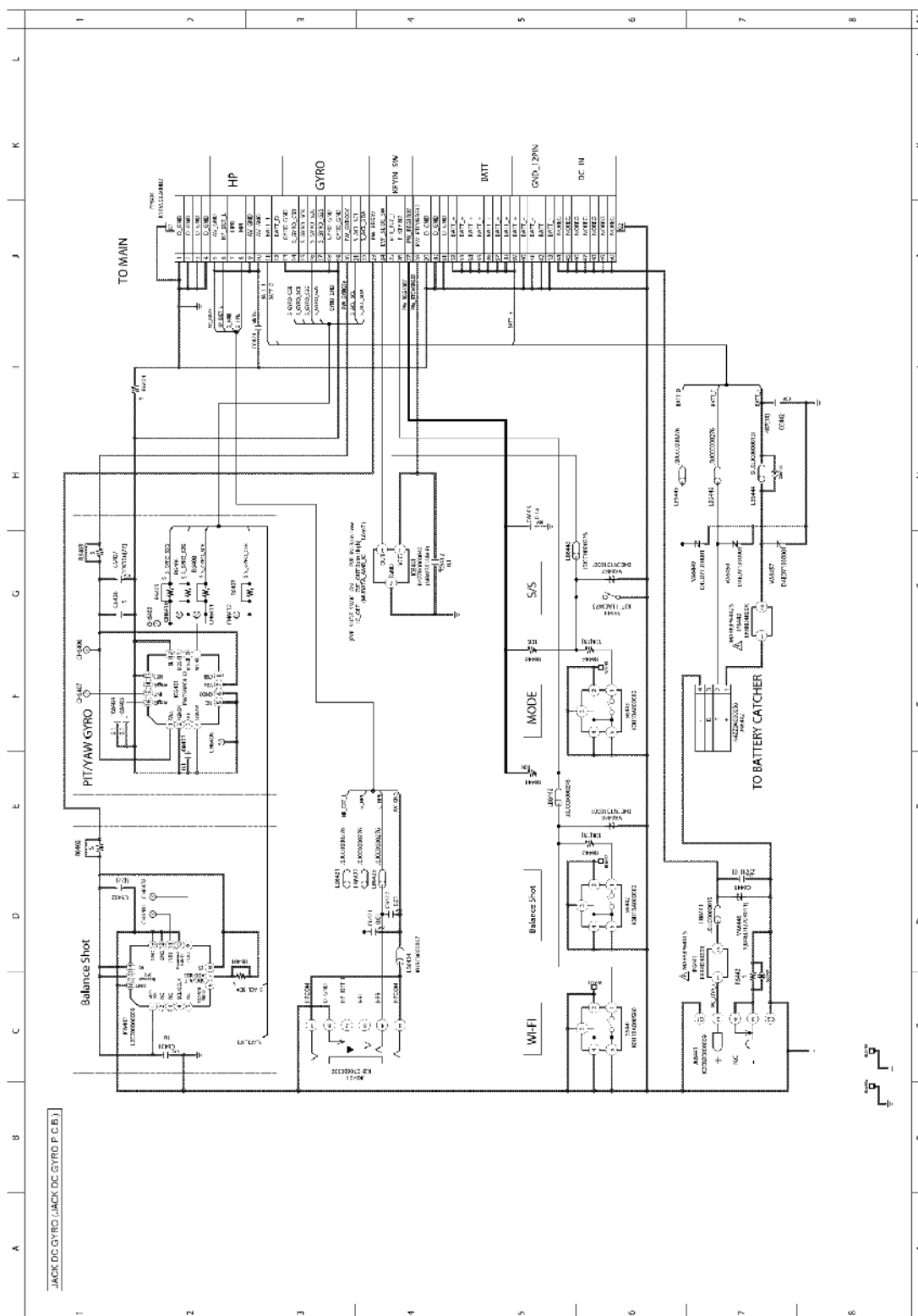


Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 EXT Mic (Main P.C.B.)


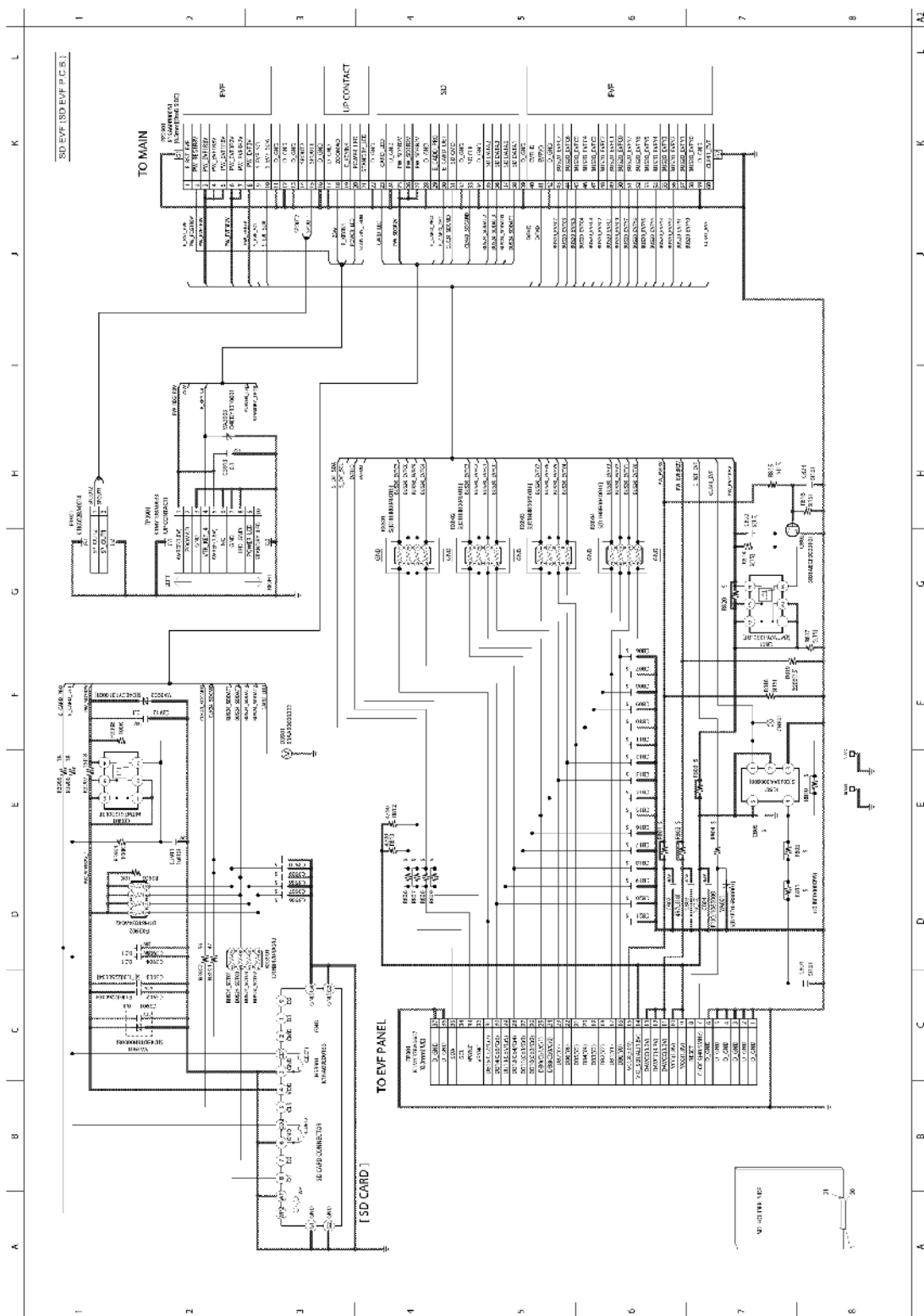
**Model No. : HC-
W XF990M/W XF990/W XF991/V XF990/V XF999 W XF990M/W XF990/W XF999 Sub
Camera connection (Main P.C.B.)**



JACK DC GYRO (JACK DC GYRO P.C.B.)



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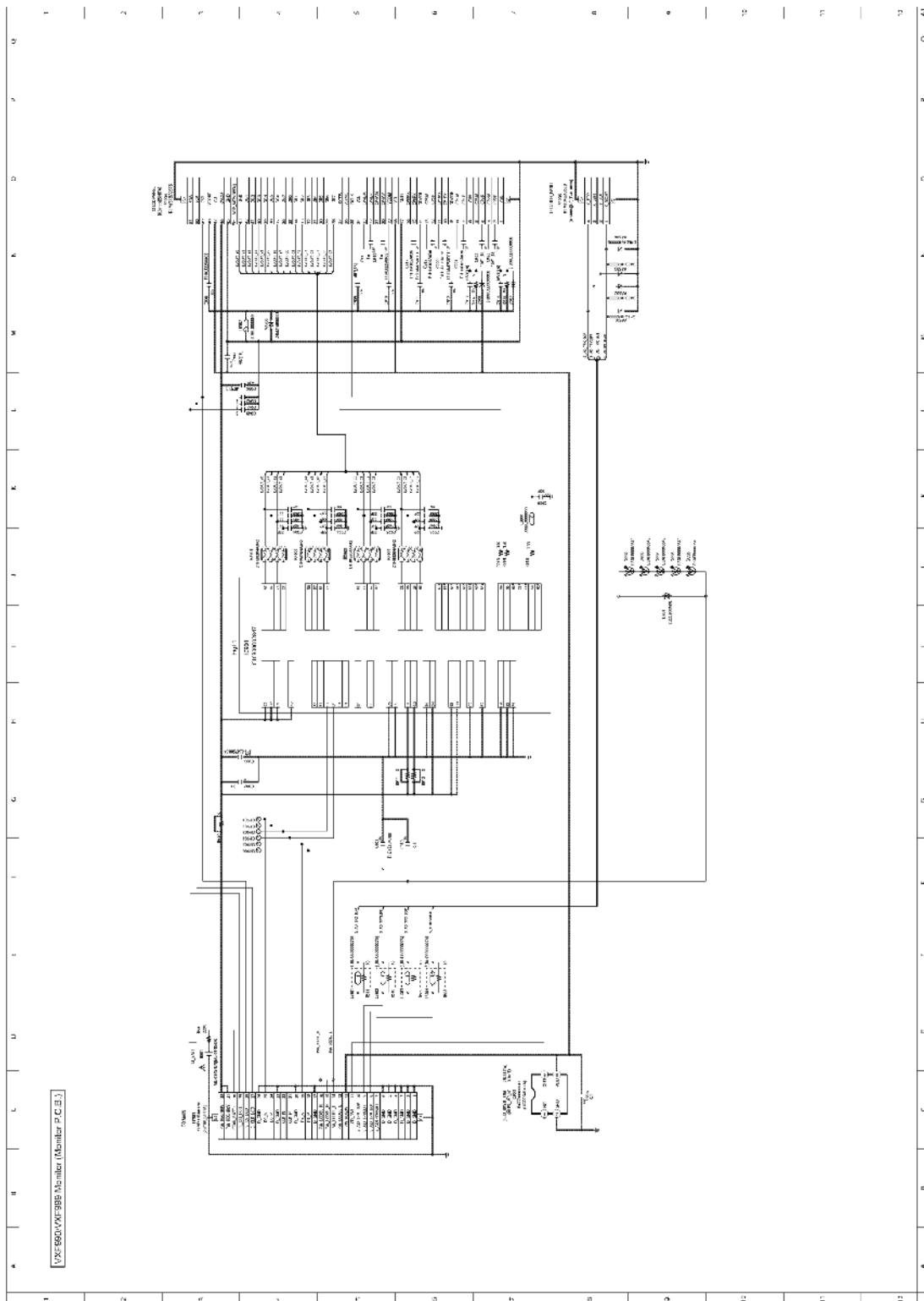


100Watt 5VDC Power Supply

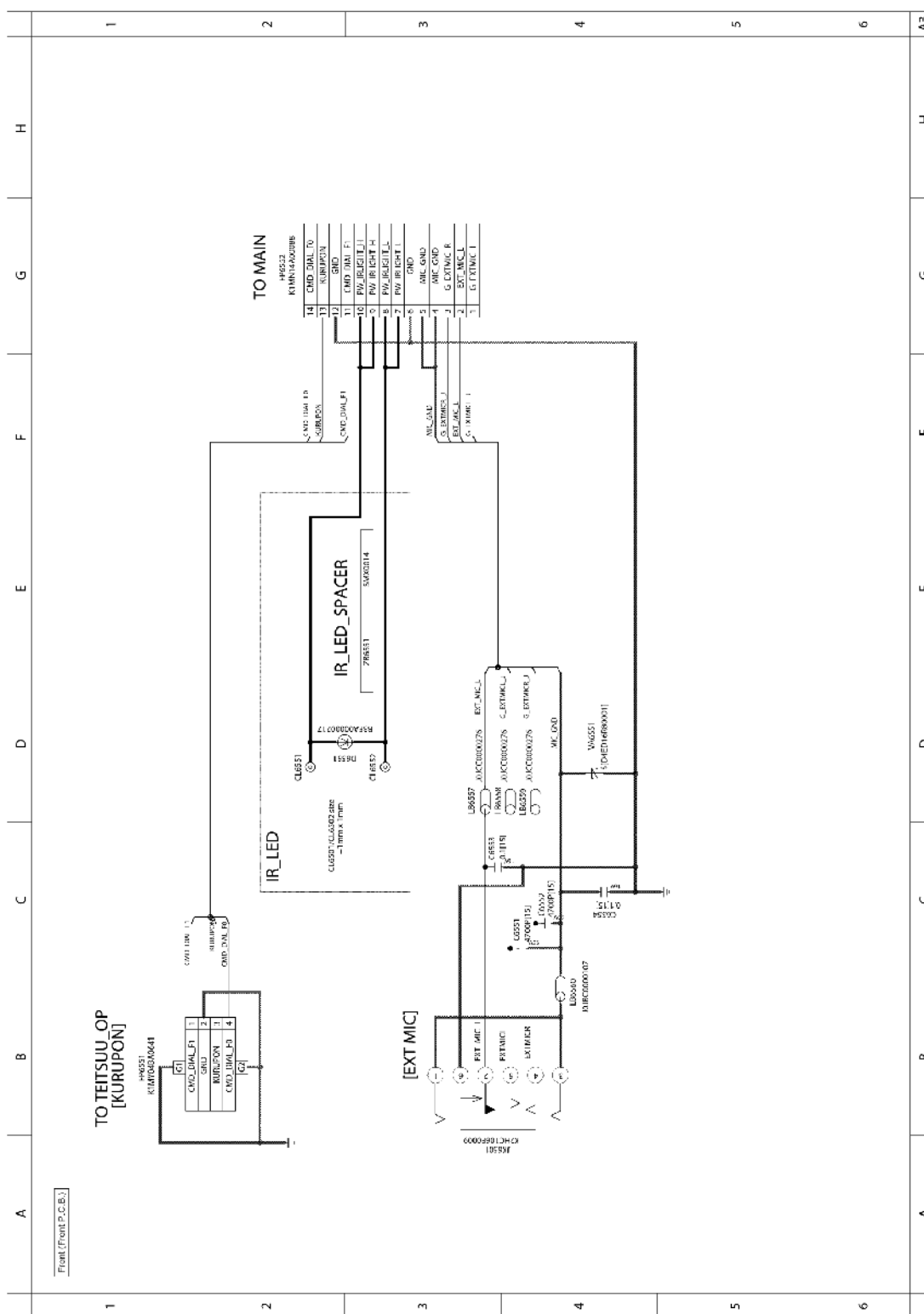
Component List:

- 1. 220VAC
- 2. 1000µF
- 3. 100W
- 4. 1N4007
- 5. 7805
- 6. 5VDC

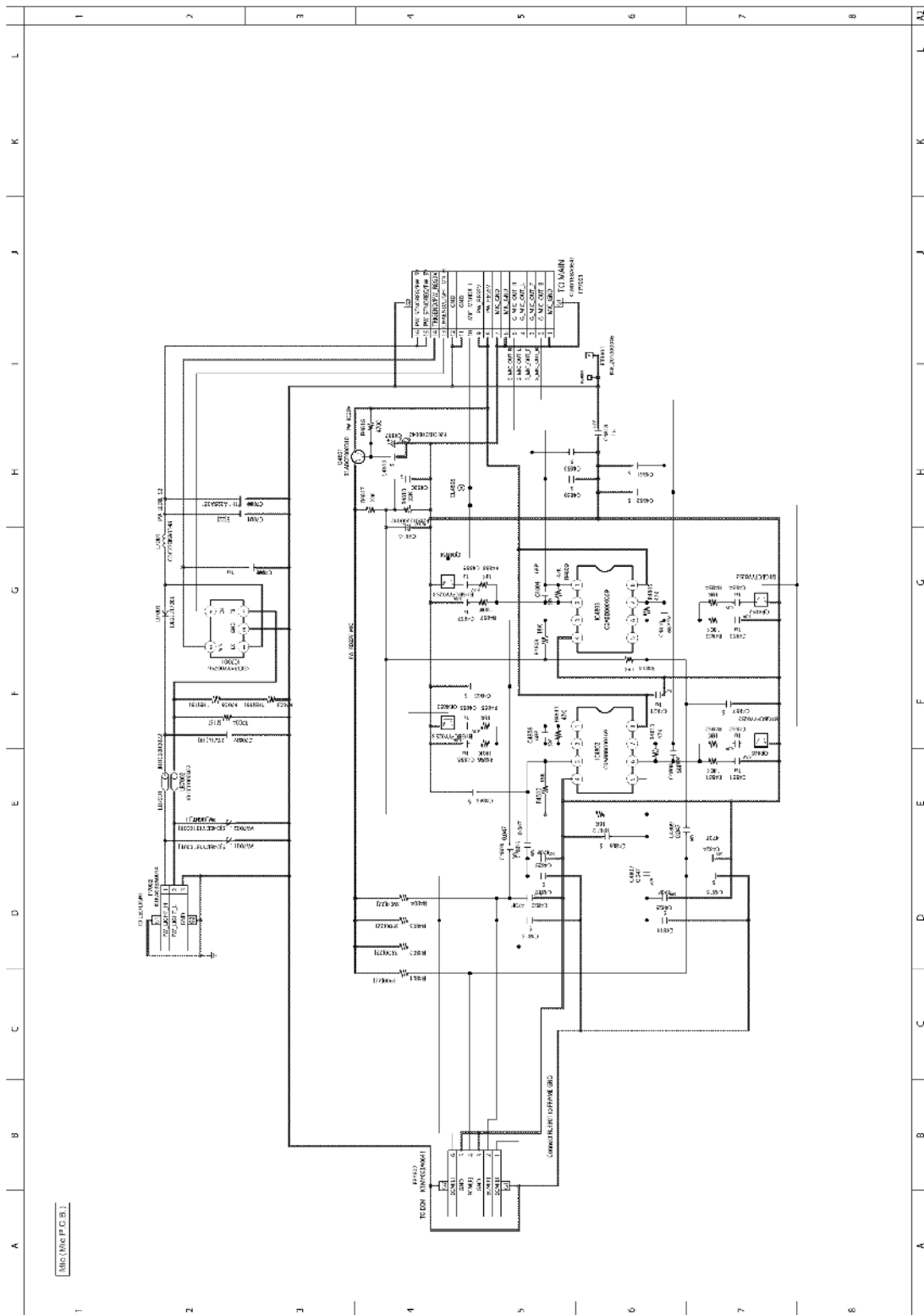
WVF5004WVF500 WVF500 Monitor (Monitor P.C.B.)

Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 VXF990/VXF999 Monitor (Monitor P.C.B.)

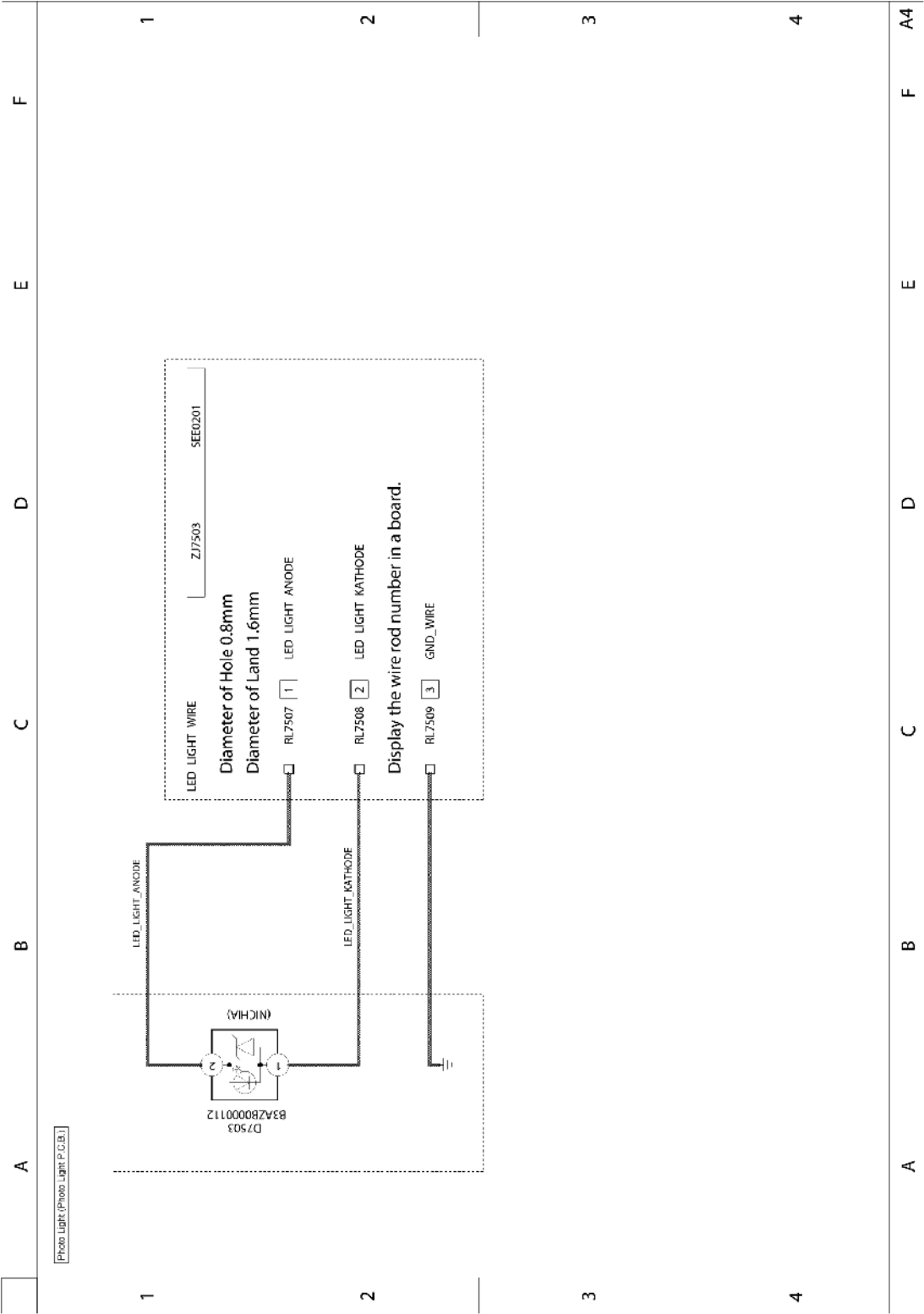
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Front (Front P.C.B.)



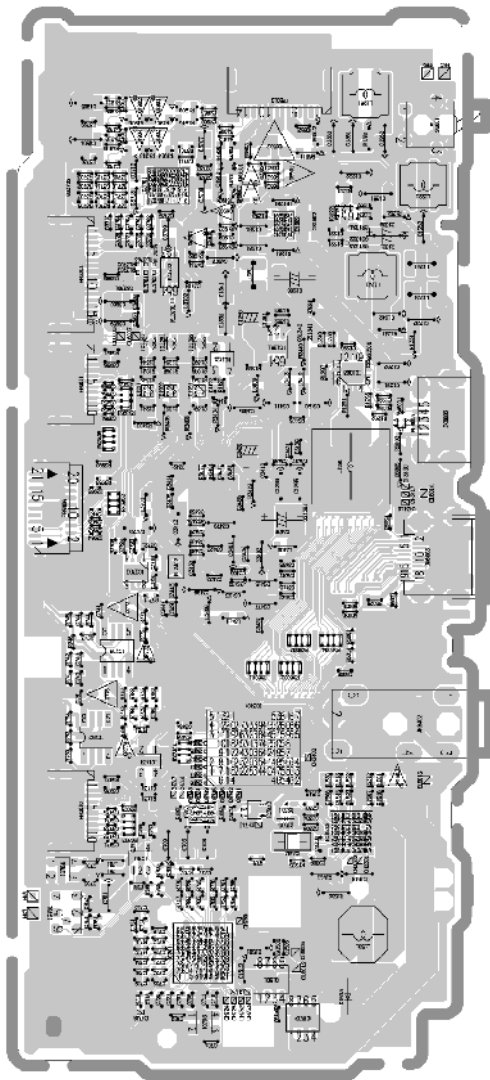
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Mic (Mic P.C.B.)



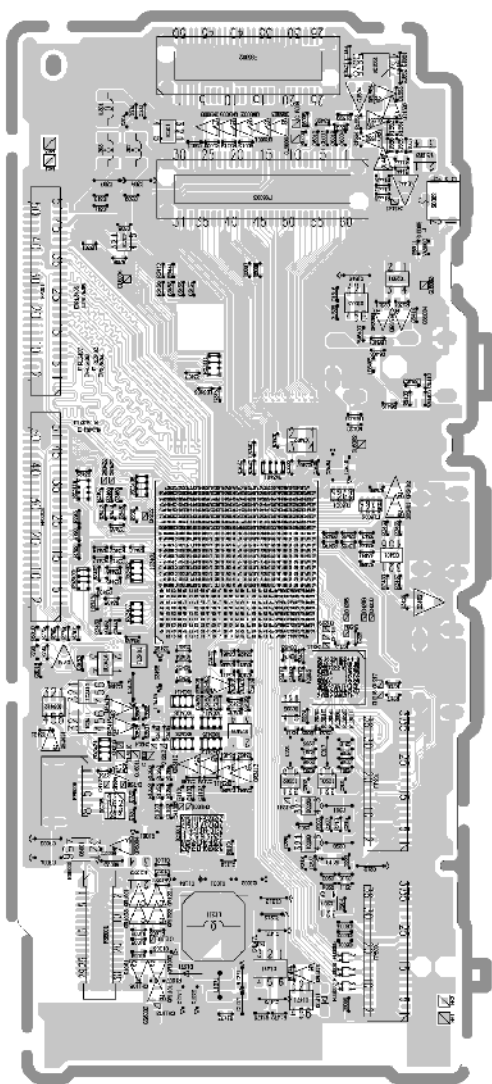
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Photo Light (Photo Light P.C.B.)



Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Main P.C.B.(Component Side)

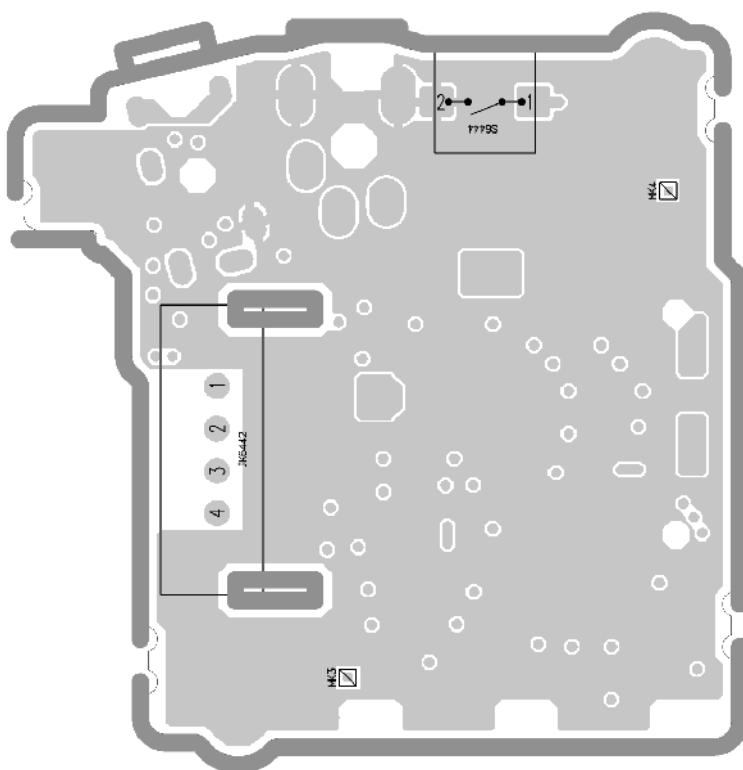


Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Main P.C.B.(Foil Side)



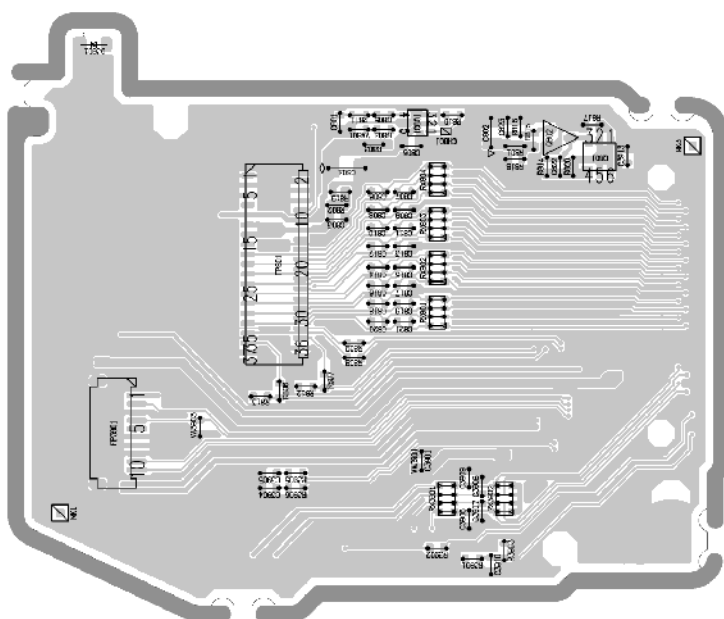
file://\royalfs\Service\Technical\Ms.dehghani\All SVC sent by CD\24HC-VXF990EGA... 12/18/2017

**Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 JACK DC GYRO P.C.B.
(Foil Side)**

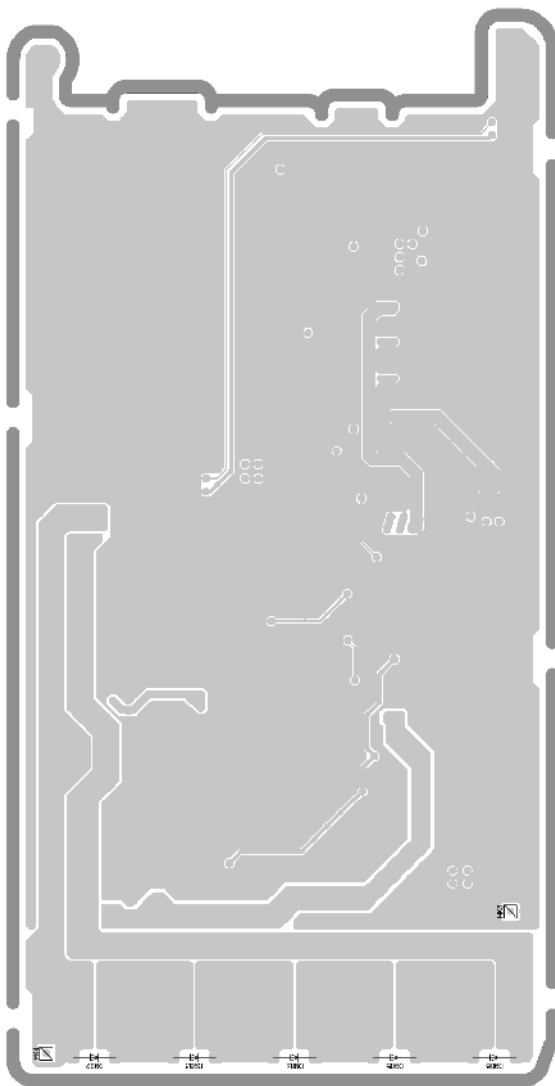


file:\\royal\fs\Service\Technical\Ms.dehghani\All SVC sent by CD\24\HC-VXF990EGA... 12/18/2017

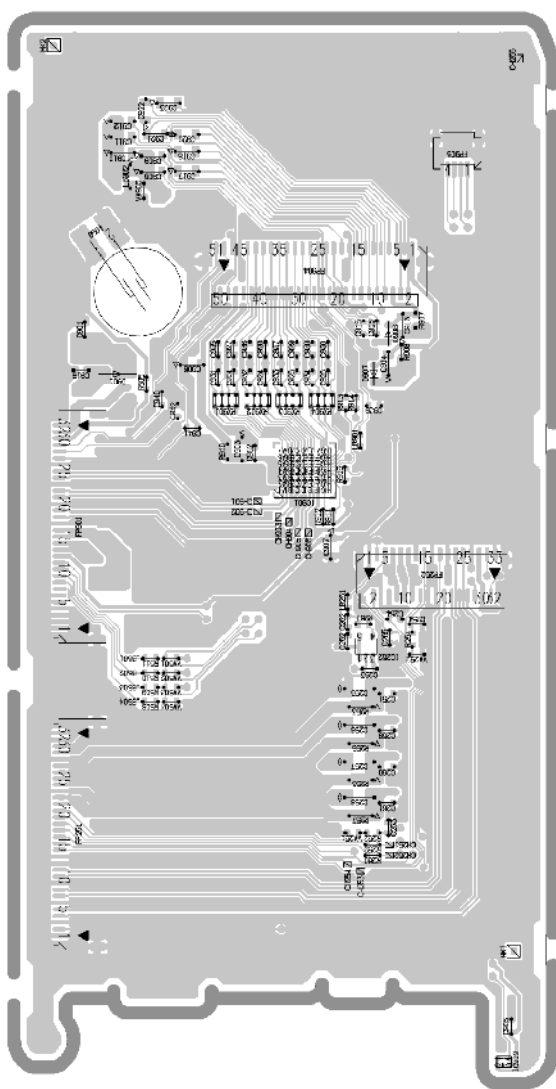
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 SD EVF P.C.B.(Foil Side)



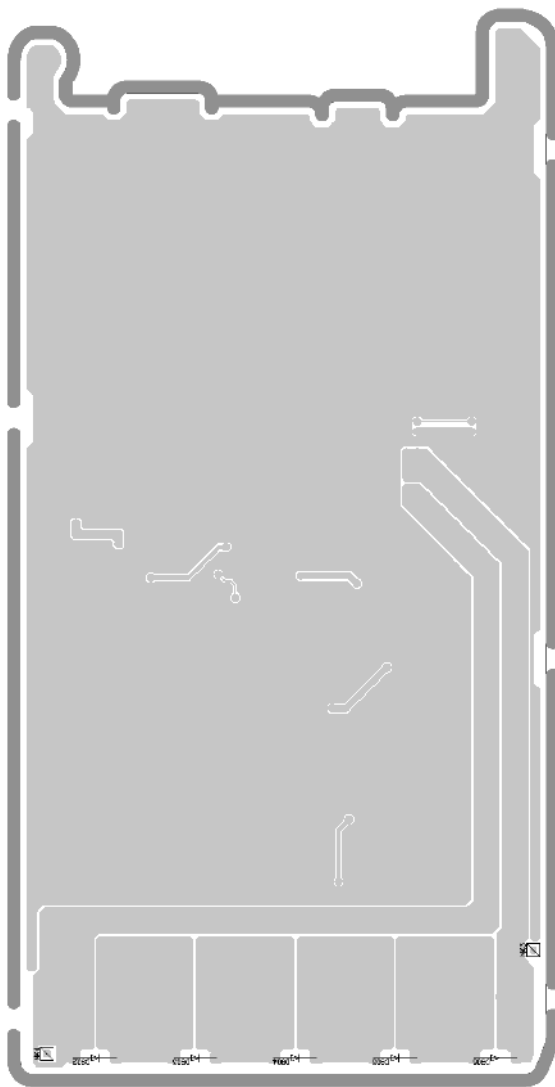
**Model No. : HC-
WXF990M/WXF990/WXF991/VXF990/VXF999 WXF990M/WXF990/WXF991 Monitor
P.C.B.(Component Side)**



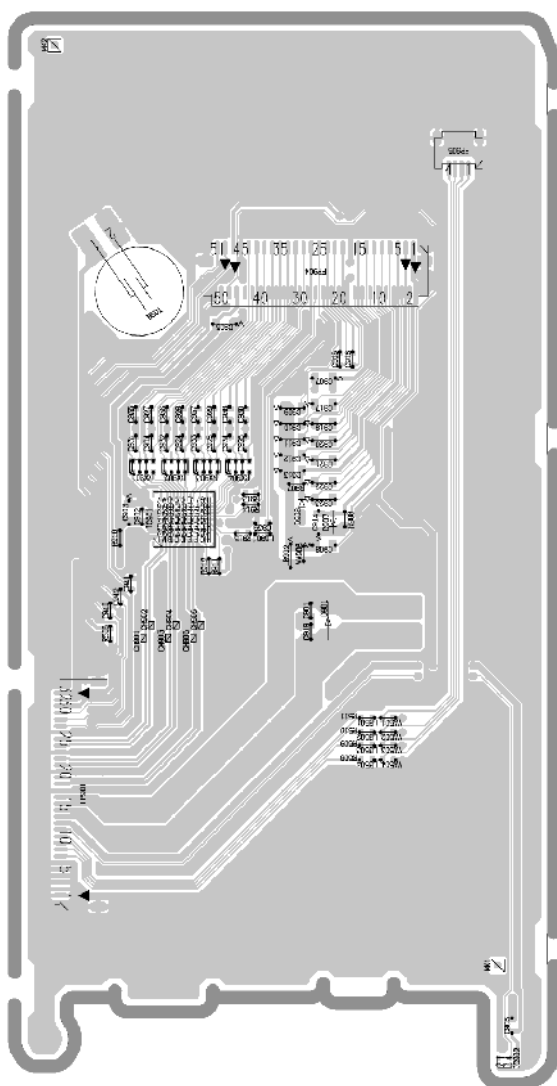
**Model No. : HC-
WXF990M/WXF990/WXF991/VXF990/VXF999 WXF990M/WXF990/WXF991 Monitor
P.C.B.(Foil Side)**



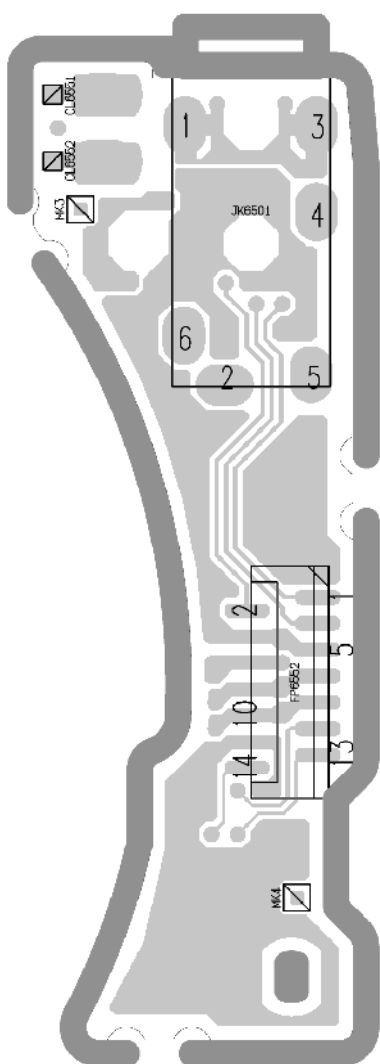
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 VXF990/VXF999 Monitor
P.C.B.(Component Side)



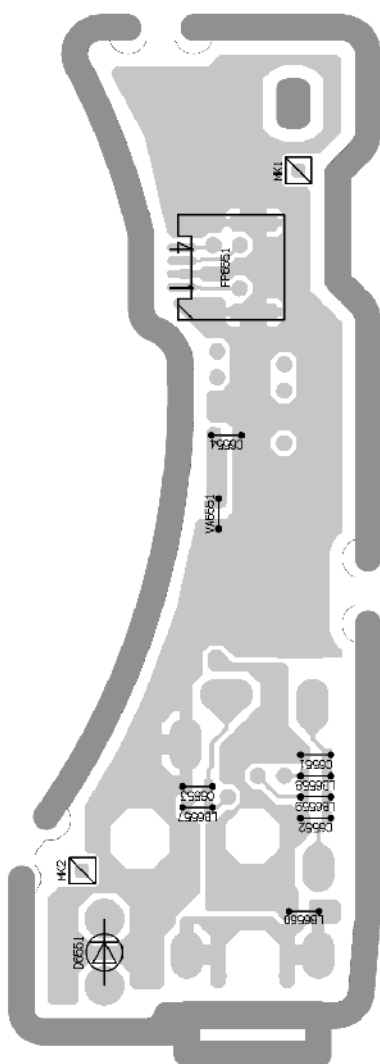
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 VXF990/VXF999 Monitor
P.C.B.(Foil Side)



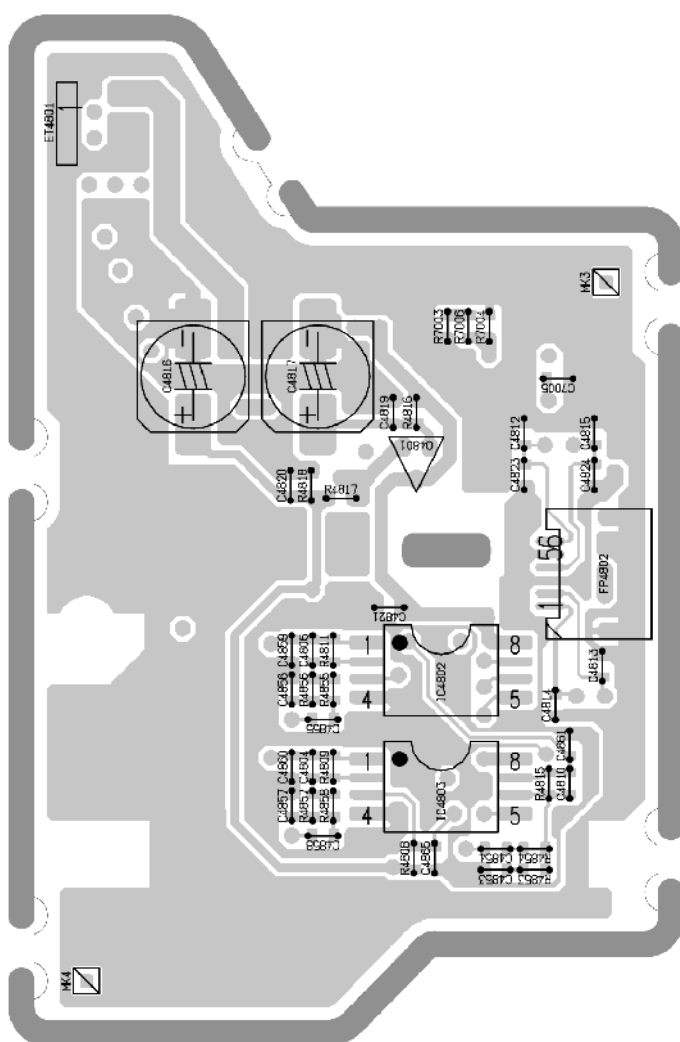
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Front P.C.B.(Component Side)



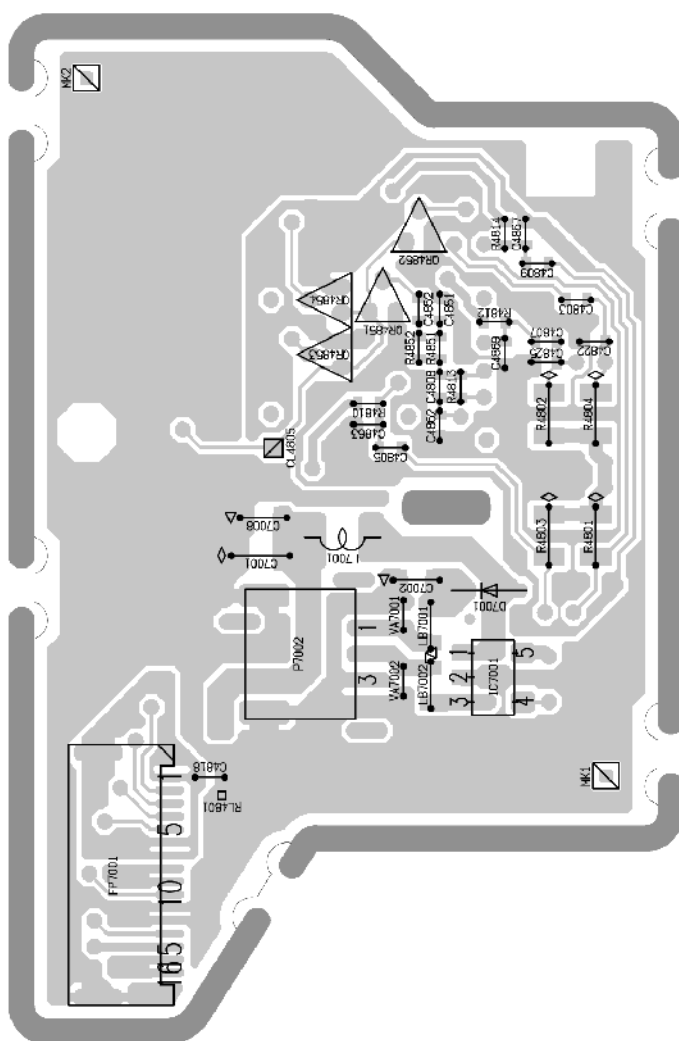
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Front P.C.B.(Foil Side)



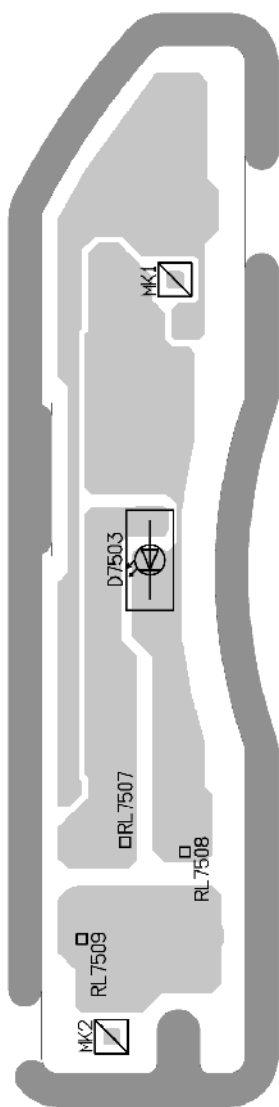
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Mic P.C.B.(Component Side)



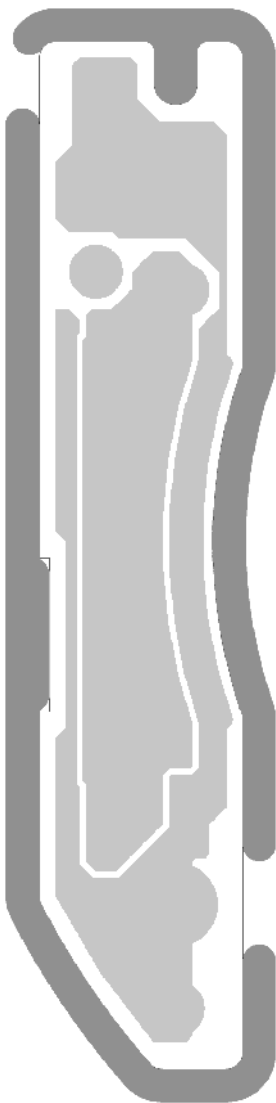
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Mic P.C.B.(Foil Side)



Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Photo Light P.C.B.
(Component Side)



Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Photo Light P.C.B.(Foil Side)



Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		B501	ML-614S/DN	BUTTON BATTERY	1	(VXF990/999 are checked on a P.C. B. figure)
		C201	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C202	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C203	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C204	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C205	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C206	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C207	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C208	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C211	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C212	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C215	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C216	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C217	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C219	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C221	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C222	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C224	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C225	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C226	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C227	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C228	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C229	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C230	F1G1H8R0A833	C.CAPACITOR CH 50V 8P	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C251	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C252	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C253	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C254	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C255	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C256	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C257	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C258	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C259	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C260	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C261	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C262	F1G1H100A833	C.CAPACITOR CH 50V 10P	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C263	F1G1H3R0A831	C.CAPACITOR CH 50V 3P	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C264	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C265	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		C303	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C304	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C305	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C306	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C307	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C309	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C310	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C311	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C703	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C704	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C705	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C707	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C708	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C711	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C713	F1G1H101A948	C.CAPACITOR CH 50V 100P	1	
		C714	F1G1H101A948	C.CAPACITOR CH 50V 100P	1	
		C715	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C716	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C719	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C720	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C721	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	

		C722	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		C723	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C724	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C725	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C726	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C727	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C732	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C741	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C742	F1G1H472B014	C.CAPACITOR CH 50V 4700P	1	
		C743	F1G1H472B014	C.CAPACITOR CH 50V 4700P	1	
		C751	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C753	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C754	F1G1H222A830	C.CAPACITOR CH 50V 2200P	1	
		C761	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C765	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C767	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C780	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C781	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C784	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C785	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C786	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C787	F1G1H471A946	C.CAPACITOR CH 50V 470P	1	
		C788	F1G1H471A946	C.CAPACITOR CH 50V 470P	1	
		C802	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
		C803	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C804	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	
		C901	F1G1E1040001	C.CAPACITOR CH 25V 0.1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C902	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C903	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	(VXF990/999 are checked on a P.C. B. figure)
		C904	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C905	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C906	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	(VXF990/999 are checked on a P.C. B. figure)
		C907	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	(VXF990/999 are checked on a P.C. B. figure)
		C908	F1H0J2250008	C.CAPACITOR CH 6.3V 2.2U	1	(VXF990/999 are checked on a P.C. B. figure)
		C909	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	(VXF990/999 are checked on a P.C. B. figure)
		C910	F1H0J2250008	C.CAPACITOR CH 6.3V 2.2U	1	(VXF990/999 are checked on a P.C. B. figure)
		C911	F1H1A475A083	C.CAPACITOR CH 10V 4.7U	1	(HC-WXF990,HC-WXF991,HC-WXF990M) (VXF990/999 are checked on a P.C. B. figure)
		C911	F1H1A4750001	C.CAPACITOR CH 10V 1U	1	(HC-VXF990,HC-VXF999) (VXF990/999 are checked on a P.C.B. figure)
		C912	F1H1A475A083	C.CAPACITOR CH 10V 4.7U	1	(HC-WXF990,HC-WXF991,HC-WXF990M) (VXF990/999 are checked on a P.C. B. figure)
		C912	F1H1A4750001	C.CAPACITOR CH 10V 1U	1	(HC-VXF990,HC-VXF999) (VXF990/999 are checked on a P.C.B. figure)
		C913	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C914	F1H1C105A167	C.CAPACITOR CH 16V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C915	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(VXF990/999 are checked on a P.C. B. figure)

Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		C916	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C917	F1H1A105A036	C.CAPACITOR CH 10V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C918	F1H1A105A036	C.CAPACITOR CH 10V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C919	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C920	F1H1A105A036	C.CAPACITOR CH 10V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C921	F1H1A105A036	C.CAPACITOR CH 10V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C922	F1H1C105A167	C.CAPACITOR CH 16V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C923	F1H1C105A167	C.CAPACITOR CH 16V 1U	1	(VXF990/999 are checked on a P.C. B. figure)
		C924	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C925	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C926	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C927	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C928	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C929	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C930	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C931	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C932	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C933	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C934	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C935	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C936	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C937	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C938	F1G1H220A834	C.CAPACITOR CH 50V 22P	1	(VXF990/999 are checked on a P.C. B. figure)
		C939	F1G1H150A834	C.CAPACITOR CH 50V 15P	1	(HC-WXF990,HC-WXF991,HC-WXF990M) (VXF990/999 are checked on a P.C. B. figure)
		C939	F1G1H100A833	C.CAPACITOR CH 50V 10P	1	(HC-VXF990,HC-VXF999) (VXF990/999 are checked on a P.C.B. figure)
		C1001	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1002	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1003	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
		C1071	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
		C1101	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1102	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1103	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1104	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1107	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1110	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1212	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	

Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		C1221	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1222	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1223	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C1224	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C1232	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1241	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1242	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1252	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1261	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1262	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1264	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1271	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
		C1272	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
		C1281	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1284	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C1286	F3F0J476A057	E.CAPACITOR CH 6V 47U	1	
		C1288	F3G0J1070012	E.CAPACITOR CH 6.3V 100U	1	
		C1291	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1292	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1293	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C1294	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C1295	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1296	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C1331	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C1344	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1361	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C1362	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C1381	F1G0J4740003	C.CAPACITOR CH 6.3V 0.47U	1	
		C1382	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1393	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1394	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1422	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1431	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1442	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C1471	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1472	F1J1A475A112	C.CAPACITOR CH 10V 4.7U	1	
		C1501	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1505	F1G1E1040001	C.CAPACITOR CH 25V 0.1U	1	
		C1507	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C1508	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C1511	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1512	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
		C1515	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C1516	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C1518	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1519	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C1551	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C1552	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C1553	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C1554	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C2301	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C2304	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C2305	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C2310	F1G1H8R0A833	C.CAPACITOR CH 50V 8P	1	
		C2311	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3401	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C3403	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C3404	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3405	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	
		C3406	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3407	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	

		C3408	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		C3409	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3412	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3413	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C3414	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3415	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C3416	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3417	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3420	F3F0G4760004	E.CAPACITOR CH 4V 47U	1	
		C3421	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3422	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3423	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
		C3424	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3425	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3426	F1G1E682A144	C.CAPACITOR CH 25V 6800P	1	
		C3427	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3428	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3429	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3430	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3431	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3432	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3433	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3434	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3435	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	
		C3437	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3438	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3439	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3443	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3447	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3449	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3450	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3451	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3452	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3453	F1G1H472B014	C.CAPACITOR CH 50V 4700P	1	
		C3454	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3455	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3456	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3457	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3458	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3459	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3460	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3461	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3462	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3463	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3464	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	
		C3465	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3466	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3467	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3468	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3469	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3474	F1G1H332A946	C.CAPACITOR CH 50V 3300P	1	
		C3476	F3G0J1070012	E.CAPACITOR CH 6.3V 100U	1	
		C3477	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C3479	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C3480	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3481	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3484	F1G1H332A946	C.CAPACITOR CH 50V 3300P	1	
		C3485	F1G1H332A946	C.CAPACITOR CH 50V 3300P	1	
		C3486	F1G1H332A946	C.CAPACITOR CH 50V 3300P	1	
		C3487	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3488	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3489	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	

		C3490	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		C3491	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3492	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3495	F1J0J1060009	C.CAPACITOR CH 6.3V 10U	1	
		C3496	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3701	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3702	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3703	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3704	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3705	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3706	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3707	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C3708	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C3709	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C3710	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3711	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3712	F1H0J2250008	C.CAPACITOR CH 6.3V 2.2U	1	
		C3713	F1H0J2250008	C.CAPACITOR CH 6.3V 2.2U	1	
		C3714	F1G0J2240003	C.CAPACITOR CH 6.3V 0.22U	1	
		C3715	F1G0J2240003	C.CAPACITOR CH 6.3V 0.22U	1	
		C3716	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3717	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3718	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3719	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3720	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3721	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3722	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3723	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C3724	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3725	F1G1H102A830	C.CAPACITOR CH 50V 1000P	1	
		C3726	F1G1H102A830	C.CAPACITOR CH 50V 1000P	1	
		C3727	F1G1H102A830	C.CAPACITOR CH 50V 1000P	1	
		C3728	F1G1H102A830	C.CAPACITOR CH 50V 1000P	1	
		C3729	F1G1H102A830	C.CAPACITOR CH 50V 1000P	1	
		C3730	F1G1H102A830	C.CAPACITOR CH 50V 1000P	1	
		C3901	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3902	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C3904	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3905	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C3911	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C3912	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3913	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3956	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990M)
		C3957	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3958	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C3976	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	(HC-WXF990M)
		C4803	F1G1H473B014	C.CAPACITOR CH 50V 0.047U	1	
		C4804	F1G1H680A834	C.CAPACITOR CH 50V 68P	1	
		C4805	F1G1H473B014	C.CAPACITOR CH 50V 0.047U	1	
		C4806	F1G1H680A834	C.CAPACITOR CH 50V 68P	1	
		C4807	F1G1H473B014	C.CAPACITOR CH 50V 0.047U	1	
		C4808	F1G1H680A834	C.CAPACITOR CH 50V 68P	1	
		C4809	F1G1H473B014	C.CAPACITOR CH 50V 0.047U	1	
		C4810	F1G1H680A834	C.CAPACITOR CH 50V 68P	1	
		C4816	F2G0J2200042	E.CAPACITOR CH 6.3V 22U	1	
		C4817	F2G0J2200042	E.CAPACITOR CH 6.3V 22U	1	
		C4818	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4821	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4822	F1G1H471A946	C.CAPACITOR CH 50V 470P	1	
		C4823	F1G1H471A946	C.CAPACITOR CH 50V 470P	1	
		C4824	F1G1H471A946	C.CAPACITOR CH 50V 470P	1	
		C4825	F1G1H471A946	C.CAPACITOR CH 50V 470P	1	

		C4851	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		C4852	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4853	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4854	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4855	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4856	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4857	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4858	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4903	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4904	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C4905	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C4907	F1J0J2260004	C.CAPACITOR CH 6.3V 22U	1	
		C4908	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4909	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C4913	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
		C4914	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C4915	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6001	F1G1E1040001	C.CAPACITOR CH 25V 0.1U	1	
		C6002	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6004	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6005	F1H1C105A167	C.CAPACITOR CH 16V 1U	1	
		C6007	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6011	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6012	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6018	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6019	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6096	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6401	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C6403	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6404	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6405	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6407	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C6408	F1G1H472B014	C.CAPACITOR CH 50V 4700P	1	
		C6410	F1G1H472B014	C.CAPACITOR CH 50V 4700P	1	
		C6412	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6421	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C6422	F1G1E103A144	C.CAPACITOR CH 25V 0.01U	1	
		C6424	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6441	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
		C6442	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
		C6443	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6501	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C6521	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6551	F1G1H472B014	C.CAPACITOR CH 50V 4700P	1	
		C6552	F1G1H472B014	C.CAPACITOR CH 50V 4700P	1	
		C6553	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C6554	F1G1C104A146	C.CAPACITOR CH 16V 0.1U	1	
		C7002	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
		C7003	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C7004	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
		C7005	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
		C7008	F1H1A225A051	C.CAPACITOR CH 10V 2.2U	1	
		D901	DZ2J200M0L	DIODE	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)
		D902	B3AFB0000645	LED	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)
		D903	B3AFB0000645	LED	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)
		D904	B3AFB0000645	LED	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)
		D905	B3AFB0000645	LED	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)

Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		D906	B3AFB0000645	LED	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)
		D1271	DB2J31700L	DIODE	1	E.S.D.
		D1471	DZ2J075M0L	DIODE	1	E.S.D.
		D1503	B0JCMC000019	DIODE	1	E.S.D.
		D1505	DB2S31100L	DIODE	1	E.S.D.
		D2301	DB2S31100L	DIODE	1	E.S.D.
		D3901	B3AAB0000322	LED	1	E.S.D.
		D6551	B3EA00000217	LED	1	E.S.D.
		D7001	DB2J31700L	DIODE	1	E.S.D.
		D7503	B3AZB0000112	LED	1	E.S.D.
		ET4801	K4CZ01000046	EARTH TERMINAL	1	
		FL3401	F1H0J105A037	C.CAPACITOR CH 6.3V 1U	1	
		FL3402	F1H0J105A037	C.CAPACITOR CH 6.3V 1U	1	
		FL6001	EXC28CH900U	FILTER	1	
		FL6002	EXC28CH900U	FILTER	1	
		FL6003	EXC14CE900U	FILTER	1	
		FL6005	EXC14CE900U	FILTER	1	
		FL6006	EXC14CE900U	FILTER	1	
		FL6007	EXC14CE900U	FILTER	1	
		FP201	K1MY37BA0667	CONNECTOR 37P	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		FP251	K1MY32BA0370	CONNECTOR 32P	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		FP252	K1MY33BA0605	CONNECTOR 33P	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		FP301	K1MY51AA0199	CONNECTOR 51P	1	
		FP801	K1MY37BA0667	CONNECTOR 37P	1	
		FP901	K1MY32BA0370	CONNECTOR 32P	1	(HC-WXF990,HC-WXF991,HC-WXF990M) (VXF990/999 are checked on a P.C. B. figure)
		FP904	K1MY51BA0575	CONNECTOR 51P	1	(HC-WXF990,HC-WXF991,HC-WXF990M) (VXF990/999 are checked on a P.C. B. figure)
		FP905	K1MY04BA0633	CONNECTOR 4P	1	(HC-WXF990,HC-WXF991,HC-WXF990M) (VXF990/999 are checked on a P.C. B. figure)
		FP3901	K1MY10BA0633	CONNECTOR 10P	1	
		FP4802	K1MY06BA0641	CONNECTOR 6P	1	
		FP6001	K1MY37BA0667	CONNECTOR 37P	1	
		FP6004	K1MY16BA0641	CONNECTOR 16P	1	
		FP6005	K1MY08BA0641	CONNECTOR 8P	1	
		FP6006	K1MY21BA0605	CONNECTOR 21P	1	
		FP6008	K1MY51AA0199	CONNECTOR 51P	1	
		FP6010	K1MY10BA0641	CONNECTOR 10P	1	(HC-WXF990M)
		FP6011	K1MY10BA0641	CONNECTOR 10P	1	(HC-WXF990M)
		FP6012	K1MY14BA0641	CONNECTOR 14P	1	
		FP6551	K1MY04BA0641	CONNECTOR 4P	1	
		FP6552	K1MN14A00088	CONNECTOR 14P	1	
		FP7001	K1MY16BA0641	CONNECTOR 16P	1	
		HS3901	K1NA09E00163	SD CARD SLOT	1	
		IC201	C0DBGYY04532	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		IC202	C0DBGYY04540	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		IC203	C0JBAZ003196	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		IC205	C0JBAA000608	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		IC206	C0DBGYY04550	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		IC207	C0DBGYY04554	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		IC208	C0DBGYY04659	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)

Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		IC252	C0JBAA000608	IC	1	E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		IC301	C0DBGFC00008	IC	1	E.S.D.
		IC302	C0JBAA000608	IC	1	E.S.D.
		IC701	C1AB00003719	IC	1	E.S.D.
		IC703	C0DBGYY00909	IC	1	E.S.D.
		IC704	C0DBGYY00936	IC	1	E.S.D.
		IC705	C1AB00003450	IC	1	E.S.D.
		IC706	C0GBC0000028	IC	1	E.S.D.
		IC751	EWTS9RCL1A	IC	1	E.S.D. [INBD]
		IC761	C0ABGA000035	IC	1	E.S.D.
		IC762	C0GBC0000028	IC	1	E.S.D.
		IC763	C1AB00003450	IC	1	E.S.D.
		IC901	C1CB00002847	IC	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)
		IC902	B4ZZ00000041	IC	1	E.S.D. (VXF990/999 are checked on a P.C.B. figure)
		IC1001	C1ZBZ0004885	IC	1	E.S.D.
		IC1002	C0DBAYY02518	IC	1	E.S.D.
		IC1221	C0DBZYY00724	IC	1	E.S.D.
		IC1222	C0EBY0002310	IC	1	E.S.D.
		IC1241	C0ZBZ0002264	IC	1	E.S.D.
		IC1261	C0DBGYY05584	IC	1	E.S.D.
		IC1262	C0ZBZ0002264	IC	1	E.S.D.
		IC1291	C0ZBZ0002264	IC	1	E.S.D.
		IC1341	C0DBGYY05590	IC	1	E.S.D.
		IC1381	C0DBGYY03698	IC	1	E.S.D.
		IC1392	C0DBGYY05582	IC	1	E.S.D.
		IC1421	C0DBGYY00936	IC	1	E.S.D.
		IC1431	C0DBGYY02146	IC	1	E.S.D.
		IC1471	C0DBZYY00793	IC	1	E.S.D.
		IC1503	C0DBDY000054	IC	1	E.S.D.
		IC1551	VUEALLPT082	IC	1	E.S.D. [INBD]
		IC1552	C0EBY0002322	IC	1	E.S.D.
		IC2301	C0EBY0002322	IC	1	E.S.D.
		IC3401	VSG1026	IC	1	E.S.D.
		IC3404	TC58NYG0G16A	IC	1	E.S.D.
		IC3406	C0EBY0002365	IC	1	E.S.D.
		IC3410	C0JBAF000785	IC	1	E.S.D.
		IC3411	C0JBAF000785	IC	1	E.S.D.
		IC3412	C0JBAF000785	IC	1	E.S.D.
		IC3413	C0JBAA000608	IC	1	E.S.D.
		IC3414	C0EBY0002355	IC	1	E.S.D.
		IC3701	C1AB00004179	IC	1	E.S.D.
		IC3702	C0ZBZ0001730	IC	1	E.S.D.
		IC3703	C1AB00004180	IC	1	E.S.D.
		IC4802	C0ABBB000369	IC	1	E.S.D.
		IC4803	C0ABBB000369	IC	1	E.S.D.
		IC6401	EWTS9PDL1A	IC	1	E.S.D. [INBD]
		IC6402	VUEALLPT053	IC	1	E.S.D. [INBD]
		IC6441	B4ZZ00000040	IC	1	E.S.D.
		IC7001	C0DBAYY00756	IC	1	E.S.D.
		IP6441	ERBRD4R00X	IC PROTECTOR	1	
		IP6442	ERBRD4R00X	IC PROTECTOR	1	
		JK6002	K2HZ105B0012	JACK	1	
		JK6003	K1FY119E0057	JACK	1	
		JK6402	K2HC106E0009	JACK	1	
		JK6421	K2HC106E0009	JACK	1	
		JK6441	K2EB2E000009	JACK	1	
		JK6442	K4ZZ04000056	JACK	1	
		JK6501	K2HC106E0009	JACK	1	

		L301	G1C100MA0072	CHIP INDUCTOR 10UH	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		L302	G1C100MA0072	CHIP INDUCTOR 10UH	1	
		L303	G1C100MA0072	CHIP INDUCTOR 10UH	1	
		L1211	G1C4R7ZA0390	CHIP INDUCTOR 4.7UH	1	
		L1221	G1C3R3MA0477	CHIP INDUCTOR 3.3UH	1	
		L1231	G1C3R3MA0498	CHIP INDUCTOR 3.3UH	1	
		L1241	G1C4R7MA0477	CHIP INDUCTOR 4.7UH	1	
		L1251	G1C4R7MA0498	CHIP INDUCTOR 4.7UH	1	
		L1261	G1C4R7MA0477	CHIP INDUCTOR 4.7UH	1	
		L1271	G1C4R7MA0498	CHIP INDUCTOR 4.7UH	1	
		L1281	G1C1R0MA0498	CHIP INDUCTOR 1.0UH	1	
		L1291	G1C1R0MA0909	CHIP INDUCTOR 1.0UH	1	
		L1501	G1C4R7ZA0240	CHIP INDUCTOR 4.7UH	1	
		L3406	G1C4R7MA0495	CHIP INDUCTOR 4.7UH	1	
		L3408	G1C4R7MA0408	CHIP INDUCTOR 4.7UH	1	
		L3409	G1C100MA0495	CHIP INDUCTOR 10UH	1	
		L3410	G1C100MA0495	CHIP INDUCTOR 10UH	1	
		L3411	G1C4R7MA0408	CHIP INDUCTOR 4.7UH	1	
		L3412	G1C4R7MA0495	CHIP INDUCTOR 4.7UH	1	
		L3415	G1C4R7MA0495	CHIP INDUCTOR 4.7UH	1	
		L3701	G1C4R7MA0408	CHIP INDUCTOR 4.7UH	1	
		L7001	G1C220KA0148	CHIP INDUCTOR 22UH	1	
		LB202	J0JBC0000115	FILTER	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		LB251	J0JBC0000099	FILTER	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		LB301	J0JBC0000099	FILTER	1	
		LB901	J0JBC0000099	FILTER	1	(VXF990/999 are checked on a P.C. B. figure)
		LB902	J0JHC0000078	FILTER	1	(VXF990/999 are checked on a P.C. B. figure)
		LB1281	J0JHC0000078	FILTER	1	
		LB3401	J0JBC0000099	FILTER	1	
		LB3402	J0JBC0000099	FILTER	1	(HC-WXF990M)
		LB3403	J0JBC0000099	FILTER	1	(HC-WXF990M)
		LB3404	J0JBC0000099	FILTER	1	
		LB6403	J0JCC0000276	FILTER	1	
		LB6404	J0JCC0000276	FILTER	1	
		LB6405	J0JCC0000276	FILTER	1	
		LB6406	J0JCC0000276	FILTER	1	
		LB6421	J0JCC0000276	FILTER	1	
		LB6422	J0JCC0000276	FILTER	1	
		LB6423	J0JCC0000276	FILTER	1	
		LB6424	J0JBC0000107	FILTER	1	
		LB6441	J0JJC0000015	FILTER	1	
		LB6442	J0JCC0000276	FILTER	1	
		LB6443	J0JCC0000276	FILTER	1	
		LB6445	J0JCC0000276	FILTER	1	
		LB6446	J0JCC0000276	FILTER	1	
		LB6557	J0JCC0000276	FILTER	1	
		LB6558	J0JCC0000276	FILTER	1	
		LB6559	J0JCC0000276	FILTER	1	
		LB6560	J0JBC0000107	FILTER	1	
		LB7001	J0JJC0000022	FILTER	1	
		LB7002	J0JJC0000022	FILTER	1	
		P3901	K1KA02BA0014	CONNECTOR 2P	1	
		P7002	K1KA03BA0014	CONNECTOR 3P	1	
		PP3901	K1KA60B00061	CONNECTOR 60P	1	
		PP6401	K1KY50BA0082	CONNECTOR 50P	1	
		PS6002	K1KB50AA0094	CONNECTOR 50P	1	
		PS6003	K1KA60A00156	CONNECTOR 60P	1	
		Q773	B1ADGE000014	TRANSISTOR	1	E.S.D.
		Q774	B1ABCF000310	TRANSISTOR	1	E.S.D.
		Q775	B1ADGE000014	TRANSISTOR	1	E.S.D.

		Q1001	B1ABCF000316	TRANSISTOR	1	E.S.D.
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		Q1441	B1ADGE000014	TRANSISTOR	1	E.S.D.
		Q1442	B1ABCF000316	TRANSISTOR	1	E.S.D.
		Q1471	MTM761230LBF	TRANSISTOR	1	E.S.D.
		Q1501	B1CHQD000012	TRANSISTOR	1	E.S.D.
		Q1502	MTM684110LBF	TRANSISTOR	1	E.S.D.
		Q1503	MTM761230LBF	TRANSISTOR	1	E.S.D.
		Q1504	B1CFJD000007	TRANSISTOR	1	E.S.D.
		Q1551	DSA300100L	TRANSISTOR	1	E.S.D.
		Q1552	B1ABCF000316	TRANSISTOR	1	E.S.D.
		Q3401	B1CFGD000003	TRANSISTOR	1	E.S.D.
		Q3402	B1CFJD000007	TRANSISTOR	1	E.S.D.
		Q3901	MTM761230LBF	TRANSISTOR	1	E.S.D.
		Q4801	B1ABCF000310	TRANSISTOR	1	E.S.D.
		Q4901	B1ABCF000316	TRANSISTOR	1	E.S.D.
		Q4902	DSA300100L	TRANSISTOR	1	E.S.D.
		Q4903	B1ABCF000316	TRANSISTOR	1	E.S.D.
		Q4904	DSA300100L	TRANSISTOR	1	E.S.D.
		Q4907	B1ABCF000316	TRANSISTOR	1	E.S.D.
		Q4908	B1ABCF000316	TRANSISTOR	1	E.S.D.
		Q6001	MTM761230LBF	TRANSISTOR	1	E.S.D.
		Q6501	B1ADGE000014	TRANSISTOR	1	E.S.D.
		Q6502	B1ABGE000015	TRANSISTOR	1	E.S.D.
		QR751	B1GDCFYY0154	TRANSISTOR-RESISTOR	1	E.S.D.
		QR773	B1GBCFYY0221	TRANSISTOR-RESISTOR	1	E.S.D.
		QR774	B1GBCFYY0221	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1001	B1GDCFYY0152	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1002	B1GDCFYY0152	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1003	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1101	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1221	B1GDCFYY0152	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1222	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1471	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1501	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1502	B1GDCFYY0207	TRANSISTOR-RESISTOR	1	E.S.D.
		QR1503	B1GDCFYY0207	TRANSISTOR-RESISTOR	1	E.S.D.
		QR2308	B1GDCFYY0207	TRANSISTOR-RESISTOR	1	E.S.D.
		QR2389	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3401	B1GBCFYY0224	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3402	B1GDCFYY0207	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3403	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3410	B1GBCFYY0234	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3411	B1GDCFYY0189	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3412	B1GBCFYY0234	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3413	B1GDCFYY0189	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3414	B1GDCFYY0207	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3415	B1GDCFYY0151	TRANSISTOR-RESISTOR	1	E.S.D.
		QR3416	B1GDCFYY0151	TRANSISTOR-RESISTOR	1	E.S.D.
		QR4851	B1GBCFYY0253	TRANSISTOR-RESISTOR	1	E.S.D.
		QR4852	B1GBCFYY0253	TRANSISTOR-RESISTOR	1	E.S.D.
		QR4853	B1GBCFYY0253	TRANSISTOR-RESISTOR	1	E.S.D.
		QR4854	B1GBCFYY0253	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6001	B1GBCFYY0217	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6002	B1GDCFYY0151	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6003	B1GDCFYY0152	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6004	B1GBCFYY0284	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6005	B1GDCFYY0154	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6006	B1GDCFYY0151	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6501	B1GDCFYY0158	TRANSISTOR-RESISTOR	1	E.S.D.
		QR6502	B1GBCFYY0229	TRANSISTOR-RESISTOR	1	E.S.D.
		R201	D0GA272JA023	M.RESISTOR CH 1/10W 2.7K	1	(HC-WXF990, HC-WXF991, HC-WXF990M)
		R202	D0GA272JA023	M.RESISTOR CH 1/10W 2.7K	1	(HC-WXF990, HC-WXF991, HC-WXF990M)

		R203	D0GA272JA023	M.RESISTOR CH 1/10W 2.7K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		R204	D0GA272JA023	M.RESISTOR CH 1/10W 2.7K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R205	D0GAR00J0005	M.RESISTOR CH 1/10W 0	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R207	D0GAR00J0005	M.RESISTOR CH 1/10W 0	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R210	D0GAR00J0005	M.RESISTOR CH 1/10W 0	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R211	D0GAR00J0005	M.RESISTOR CH 1/10W 0	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R213	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R214	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R216	D0GA222JA023	M.RESISTOR CH 1/10W 2.2K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R217	D0GA222JA023	M.RESISTOR CH 1/10W 2.2K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R218	D0GA272JA023	M.RESISTOR CH 1/10W 2.7K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R219	D0GBR00JA008	M.RESISTOR CH 1/16W 0	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R220	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R252	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R254	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R261	D0GA820JA023	M.RESISTOR CH 1/10W 82	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		R304	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R305	D0GA390JA023	M.RESISTOR CH 1/16W 39	1	
		R505	D0GA222JA023	M.RESISTOR CH 1/10W 2.2K	1	(VXF990/999 are checked on a P.C. B. figure)
		R508	D0GA100JA023	M.RESISTOR CH 1/10W 10	1	(VXF990/999 are checked on a P.C. B. figure)
		R509	D0GA100JA023	M.RESISTOR CH 1/10W 10	1	(VXF990/999 are checked on a P.C. B. figure)
		R510	D0GA100JA023	M.RESISTOR CH 1/10W 10	1	(VXF990/999 are checked on a P.C. B. figure)
		R511	D0GA100JA023	M.RESISTOR CH 1/10W 10	1	(VXF990/999 are checked on a P.C. B. figure)
		R712	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R713	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R714	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R715	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R716	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R717	D0GA682JA023	M.RESISTOR CH 1/10W 6.8K	1	
		R729	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R731	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	
		R732	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R733	D0GA124JA023	M.RESISTOR CH 1/10W 120K	1	
		R741	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R742	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R743	D1BA1003A022	M.RESISTOR CH 1/16W 100K	1	
		R744	D1BA1203A022	M.RESISTOR CH 1/16W 120K	1	
		R745	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R746	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R750	D0GAR00J0005	M.RESISTOR CH 1/10W 0	1	
		R751	D0GA181JA023	M.RESISTOR CH 1/10W 180	1	
		R753	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R754	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R761	D0GA223JA023	M.RESISTOR CH 1/10W 22K	1	
		R765	D1BA2702A022	M.RESISTOR CH 1/16W 27K	1	
		R766	D1BA1502A022	M.RESISTOR CH 1/16W 15K	1	
		R767	D0GA222JA023	M.RESISTOR CH 1/10W 2.2K	1	
		R768	D1BA3302A022	M.RESISTOR CH 1/16W 33K	1	
		R771	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R772	D0GA821JA023	M.RESISTOR CH 1/10W 820	1	
		R773	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R775	D0GA221JA023	M.RESISTOR CH 1/10W 220	1	
		R776	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R778	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R779	D0GA221JA023	M.RESISTOR CH 1/10W 220	1	
		R780	D0GA224JA023	M.RESISTOR CH 1/10W 220K	1	
		R781	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	

		R782	DOGA102JA039	M.RESISTOR CH 1/16W 1K	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		R783	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R784	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R785	D0GA221JA023	M.RESISTOR CH 1/10W 220	1	
		R786	D0GA332JA023	M.RESISTOR CH 1/10W 3.3K	1	
		R788	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R789	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R790	D0GA391JA023	M.RESISTOR CH 1/10W 390	1	
		R792	D0GA391JA023	M.RESISTOR CH 1/10W 390	1	
		R793	D0GA221JA023	M.RESISTOR CH 1/10W 220	1	
		R795	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R799	D0GA821JA023	M.RESISTOR CH 1/10W 820	1	
		R812	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R813	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R819	D0GA222JA023	M.RESISTOR CH 1/10W 2.2K	1	
		R913	D0GA151JA023	M.RESISTOR CH 1/10W 150	1	(VXF990/999 are checked on a P.C. B. figure)
		R914	D0GA151JA023	M.RESISTOR CH 1/10W 150	1	(VXF990/999 are checked on a P.C. B. figure)
		R915	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	(VXF990/999 are checked on a P.C. B. figure)
		R1001	D1JBR084A023	FUSING RESISTOR 0.084	1	
		R1003	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R1004	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R1005	D0GA154JA023	M.RESISTOR CH 1/10W 150K	1	
		R1006	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R1101	D0GA120JA023	M.RESISTOR CH 1/10W 12	1	
		R1107	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R1221	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R1222	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R1223	D0GA224JA023	M.RESISTOR CH 1/10W 220K	1	
		R1241	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R1252	D1BA2703A022	M.RESISTOR CH 1/16W 270K	1	
		R1253	D1BA1802A022	M.RESISTOR CH 1/16W 18K	1	
		R1254	D1BA2203A022	M.RESISTOR CH 1/16W 220K	1	
		R1262	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R1263	D1BA1501A022	M.RESISTOR CH 1/16W 1.5K	1	
		R1264	D1BA2202A022	M.RESISTOR CH 1/16W 22K	1	
		R1271	D1JBR179A023	FUSING RESISTOR 0.179	1	
		R1289	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R1292	D1BA5102A022	M.RESISTOR CH 1/16W 51K	1	
		R1293	D1BA6201A022	M.RESISTOR CH 1/16W 6.2K	1	
		R1294	D1BA2203A022	M.RESISTOR CH 1/16W 220K	1	
		R1296	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R1297	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R1382	D0GA222JA023	M.RESISTOR CH 1/10W 2.2K	1	
		R1426	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R1441	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R1444	D0GA222JA023	M.RESISTOR CH 1/10W 2.2K	1	
		R1445	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R1446	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R1471	D0GA163JA023	M.RESISTOR CH 1/10W 16K	1	
		R1472	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R1473	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R1474	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R1501	D0GA105JA023	M.RESISTOR CH 1/10W 1M	1	
		R1513	D1BA1503A022	M.RESISTOR CH 1/16W 150K	1	
		R1515	D1BA1203A022	M.RESISTOR CH 1/16W 120K	1	
		R1516	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R1522	D1BA1203A022	M.RESISTOR CH 1/16W 120K	1	
		R1523	D1BA1803A022	M.RESISTOR CH 1/16W 180K	1	
		R1525	D1BA2202A022	M.RESISTOR CH 1/16W 22K	1	

		R1526	D1BDR100A111	M.RESISTOR CH 1/3W 100	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		R1529	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	
		R1531	D0GA100JA023	M.RESISTOR CH 1/10W 10	1	
		R1535	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R1551	D0GA331JA023	M.RESISTOR CH 1/10W 330	1	
		R1553	D0GA334JA023	M.RESISTOR CH 1/10W 330K	1	
		R1554	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R1555	D0GA224JA023	M.RESISTOR CH 1/10W 220K	1	
		R1556	D0GA334JA023	M.RESISTOR CH 1/10W 330K	1	
		R1557	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R2304	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R2312	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R3400	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3401	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3402	D0GA681JA023	M.RESISTOR CH 1/10W 680	1	
		R3406	D0GA121JA023	M.RESISTOR CH 1/10W 120	1	
		R3407	D0GA560JA023	M.RESISTOR CH 1/10W 56	1	(HC-WXF990M)
		R3409	D0GA560JA023	M.RESISTOR CH 1/10W 56	1	
		R3410	D0GA152JA023	M.RESISTOR CH 1/10W 1.5K	1	
		R3411	D1BA3901A022	M.RESISTOR CH 1/16W 3.9K	1	
		R3413	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3414	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3415	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	(HC-WXF990, HC-WXF991, HC-WXF990M)
		R3416	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	(HC-WXF990, HC-WXF991, HC-WXF990M)
		R3417	D0GA122JA023	M.RESISTOR CH 1/10W 1.2K	1	
		R3418	D0GA122JA023	M.RESISTOR CH 1/10W 1.2K	1	
		R3419	D0GA681JA023	M.RESISTOR CH 1/10W 680	1	
		R3421	D0GA105JA023	M.RESISTOR CH 1/10W 1M	1	
		R3427	D1BA2400A022	M.RESISTOR CH 1/16W 240	1	
		R3428	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3429	D0GA273JA023	M.RESISTOR CH 1/10W 27K	1	
		R3430	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3431	D1BA2400A022	M.RESISTOR CH 1/16W 240	1	
		R3432	D1BA4701A022	M.RESISTOR CH 1/16W 4.7K	1	
		R3433	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R3436	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R3437	D0GA182JA023	M.RESISTOR CH 1/10W 1.8K	1	
		R3438	D0GA182JA023	M.RESISTOR CH 1/10W 1.8K	1	
		R3439	D1BA2400A022	M.RESISTOR CH 1/16W 240	1	
		R3440	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R3441	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R3442	D0GA560JA023	M.RESISTOR CH 1/10W 56	1	
		R3443	D0GA470JA023	M.RESISTOR CH 1/10W 47	1	
		R3444	D1BA2400A022	M.RESISTOR CH 1/16W 240	1	
		R3445	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	(HC-WXF990M)
		R3446	D0GA560JA023	M.RESISTOR CH 1/10W 56	1	(HC-WXF990M)
		R3448	D1BA6201A022	M.RESISTOR CH 1/16W 6.2K	1	
		R3450	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3451	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3452	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	(HC-WXF990M)
		R3453	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3454	D1BA1801A022	M.RESISTOR CH 1/16W 1.8K	1	
		R3458	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3461	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R3462	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3463	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R3466	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R3467	D1BA1802A022	M.RESISTOR CH 1/16W 18K	1	
		R3468	D1BA1002A022	M.RESISTOR CH 1/16W 10K	1	
		R3470	D1BA2000A022	M.RESISTOR CH 1/16W 200	1	
		R3472	D1BA6801A022	M.RESISTOR CH 1/16W 6.8K	1	
		R3476	D1BA2000A022	M.RESISTOR CH 1/16W 200	1	

		R3477	D1BA5601A022	M.RESISTOR CH 1/16W 5.6K	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		R3486	D0GA270JA023	M.RESISTOR CH 1/10W 27	1	
		R3487	D0GA270JA023	M.RESISTOR CH 1/10W 27	1	
		R3506	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3507	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3508	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3701	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3702	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	
		R3703	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	
		R3704	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3705	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3706	D0GA223JA023	M.RESISTOR CH 1/10W 22K	1	
		R3707	D0GA223JA023	M.RESISTOR CH 1/10W 22K	1	
		R3708	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3709	D0GA330JA023	M.RESISTOR CH 1/10W 33	1	
		R3710	D0GA330JA023	M.RESISTOR CH 1/10W 33	1	
		R3711	D1BA68R0A022	M.RESISTOR CH 1/16W 68	1	
		R3901	D0GA470JA023	M.RESISTOR CH 1/10W 47	1	
		R3902	D0GA560JA023	M.RESISTOR CH 1/10W 56	1	
		R3903	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R3904	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R3905	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3906	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R3907	D0GB150JA065	M.RESISTOR CH 1/10W 15	1	
		R3908	D0GA104JA039	M.RESISTOR CH 1/16W 100K	1	
		R3953	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R3956	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	(HC-WXF990M)
		R3976	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	(HC-WXF990M)
		R3980	D0GAR00J0005	M.RESISTOR CH 1/10W 0	1	
		R3981	D0GAR00J0005	M.RESISTOR CH 1/10W 0	1	
		R4801	D0GD392JA052	M.RESISTOR CH 1/8W 3.9K	1	
		R4802	D0GD392JA052	M.RESISTOR CH 1/8W 3.9K	1	
		R4803	D0GD392JA052	M.RESISTOR CH 1/8W 3.9K	1	
		R4804	D0GD392JA052	M.RESISTOR CH 1/8W 3.9K	1	
		R4808	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4809	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R4810	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4811	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R4812	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4813	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R4814	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4815	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R4816	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R4817	D0GA223JA023	M.RESISTOR CH 1/10W 22K	1	
		R4818	D0GA333JA023	M.RESISTOR CH 1/10W 33K	1	
		R4851	D0GA184JA023	M.RESISTOR CH 1/10W 180K	1	
		R4852	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4853	D0GA184JA023	M.RESISTOR CH 1/10W 180K	1	
		R4854	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4855	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4856	D0GA184JA023	M.RESISTOR CH 1/10W 180K	1	
		R4857	D0GA184JA023	M.RESISTOR CH 1/10W 180K	1	
		R4858	D0GA183JA023	M.RESISTOR CH 1/10W 18K	1	
		R4901	D0HB331ZA002	M.RESISTOR CH 1/10W 330	1	
		R4902	D0GA472JA023	M.RESISTOR CH 1/10W 4.7K	1	
		R4904	D0HB562ZA002	M.RESISTOR CH 1/10W 5.6K	1	
		R4905	D0GA471JA023	M.RESISTOR CH 1/10W 470	1	
		R4906	D0HB103ZA002	M.RESISTOR CH 1/16W 10K	1	
		R4907	D0HB154ZA002	M.RESISTOR CH 1/16W 150K	1	
		R4908	D0HB563ZA002	M.RESISTOR CH 1/10W 56K	1	
		R4909	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R4910	D0GA562JA023	M.RESISTOR CH 1/10W 5.6K	1	

		R4911	DOGA821JA023	M.RESISTOR CH 1/10W 820	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

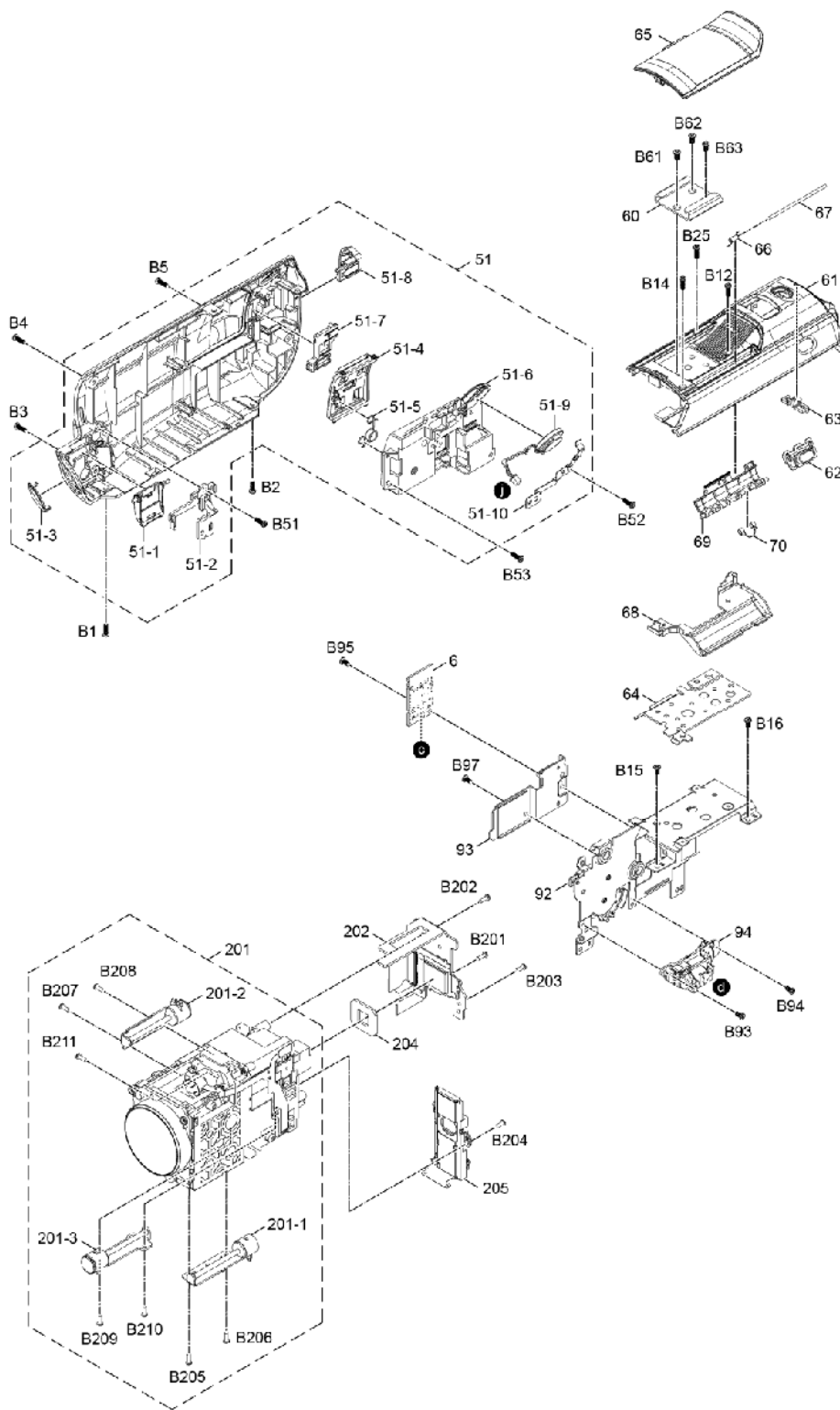
Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		R4912	D0GA471JA023	M.RESISTOR CH 1/10W 470	1	
		R4913	D0HB103ZA002	M.RESISTOR CH 1/16W 10K	1	
		R4914	D0HB154ZA002	M.RESISTOR CH 1/16W 150K	1	
		R4915	D0HB563ZA002	M.RESISTOR CH 1/10W 56K	1	
		R4916	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R4917	D0GA562JA023	M.RESISTOR CH 1/10W 5.6K	1	
		R4918	D0GA821JA023	M.RESISTOR CH 1/10W 820	1	
		R4920	D0HB562ZA002	M.RESISTOR CH 1/10W 5.6K	1	
		R4922	D0GA223JA023	M.RESISTOR CH 1/10W 22K	1	
		R4923	D0GA683JA023	M.RESISTOR CH 1/10W 68K	1	
		R4924	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R6003	D1JBR045A055	FUSING RESISTOR 0.045	1	
		R6011	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R6012	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R6019	D0GA820JA023	M.RESISTOR CH 1/10W 82	1	
		R6020	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R6022	D0GA473JA039	M.RESISTOR CH 1/16W 47K	1	
		R6023	D1JBR058A023	FUSING RESISTOR 0.058	1	
		R6420	D0GA102JA039	M.RESISTOR CH 1/16W 1K	1	
		R6422	D0GA101JA039	M.RESISTOR CH 1/16W 100	1	
		R6441	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R6443	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R6444	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R6445	D0GA103JA039	M.RESISTOR CH 1/16W 10K	1	
		R6501	D1BA8200A022	M.RESISTOR CH 1/16W 820	1	
		R6502	D1BA1200A022	M.RESISTOR CH 1/16W 120	1	
		R6503	D1BA1500A022	M.RESISTOR CH 1/16W 150	1	
		R6504	D1BA8200A022	M.RESISTOR CH 1/16W 820	1	
		R6511	D1BB3R90A073	M.RESISTOR CH 1/10W 3.9	1	
		R6512	D1BB3R90A073	M.RESISTOR CH 1/10W 3.9	1	
		R7003	D0GA1R5JA023	M.RESISTOR CH 1/16W 1.5	1	
		R7006	D0GA1R5JA023	M.RESISTOR CH 1/16W 1.5	1	
		RX901	D1H88204A042	RESISTOR NETWORKS	1	(VXF990/999 are checked on a P.C. B. figure)
		RX902	D1H88204A042	RESISTOR NETWORKS	1	(VXF990/999 are checked on a P.C. B. figure)
		RX903	D1H88204A042	RESISTOR NETWORKS	1	(VXF990/999 are checked on a P.C. B. figure)
		RX904	D1H88204A042	RESISTOR NETWORKS	1	(VXF990/999 are checked on a P.C. B. figure)
		RX3401	D1H84704A042	RESISTOR NETWORKS	1	
		RX3402	D1H85604A042	RESISTOR NETWORKS	1	(HC-WXF990M)
		RX3404	D1H81034A042	RESISTOR NETWORKS	1	
		RX3405	D1H81034A042	RESISTOR NETWORKS	1	
		RX3407	D1H85604A042	RESISTOR NETWORKS	1	
		RX3408	D1H84734A042	RESISTOR NETWORKS	1	
		RX3409	D1H84734A042	RESISTOR NETWORKS	1	
		RX3411	D1H85604A042	RESISTOR NETWORKS	1	(HC-WXF990M)
		RX3414	D1H84734A042	RESISTOR NETWORKS	1	
		RX3415	D1H81034A042	RESISTOR NETWORKS	1	
		RX3417	D1H81034A042	RESISTOR NETWORKS	1	
		RX3418	D1H84724A042	RESISTOR NETWORKS	1	
		RX3419	D1H81034A042	RESISTOR NETWORKS	1	
		RX3420	D1H81034A042	RESISTOR NETWORKS	1	
		RX3421	D1H81034A042	RESISTOR NETWORKS	1	
		RX3901	D1H84704A042	RESISTOR NETWORKS	1	
		RX3902	D1H81034A042	RESISTOR NETWORKS	1	
		RX3951	D1H81034A042	RESISTOR NETWORKS	1	(HC-WXF990M)
		RX3952	D1H81034A042	RESISTOR NETWORKS	1	
		RX3971	D1H81034A042	RESISTOR NETWORKS	1	(HC-WXF990M)
		S6001	ESE18L12BXFD	SWITCH	1	

		S6002	K0H1BA000580	SWITCH	1	
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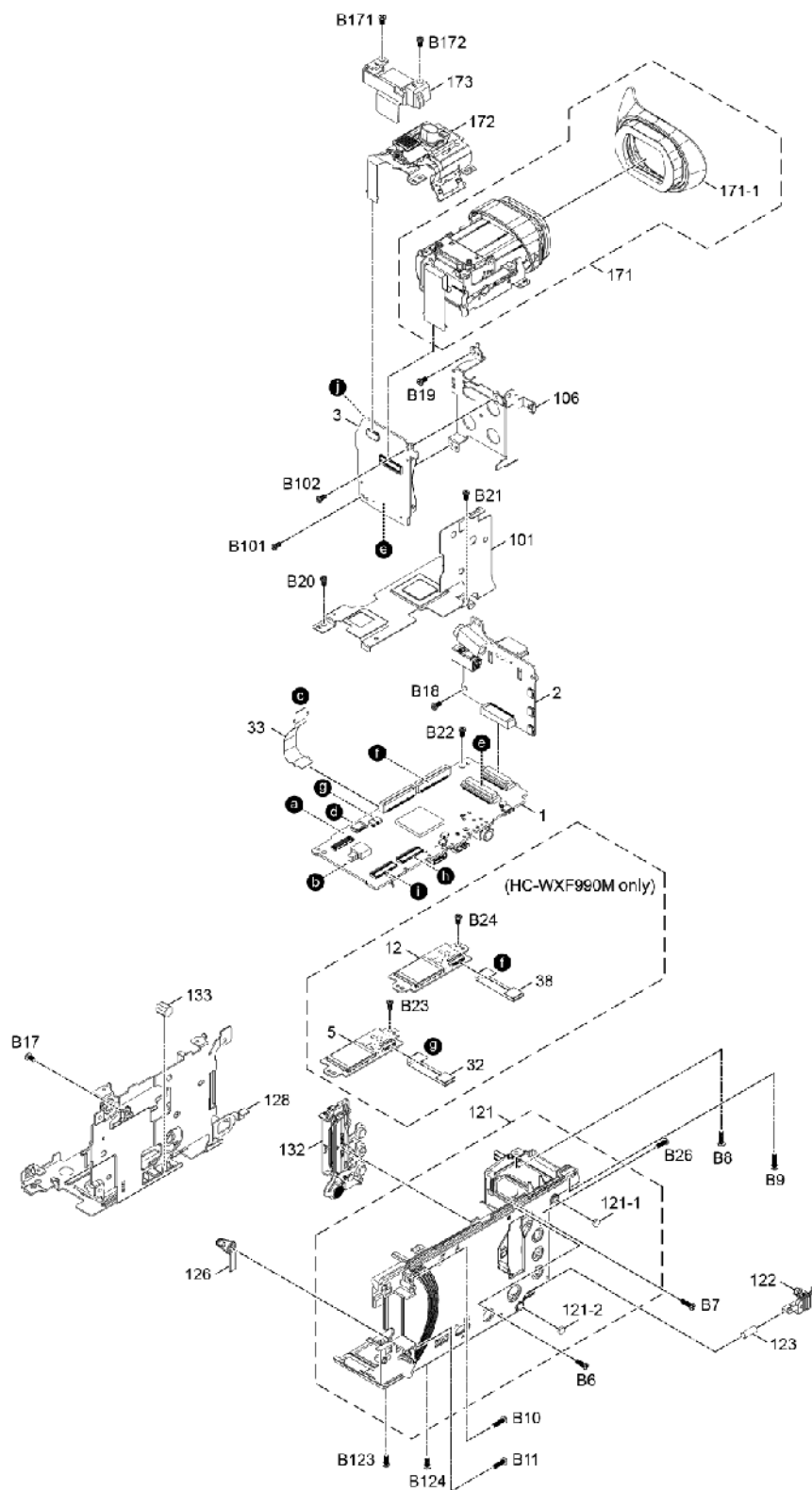
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		S6441	K0H1BA000580	SWITCH	1	
		S6442	K0H1BA000580	SWITCH	1	
		S6443	K0H1BA000580	SWITCH	1	
		S6444	K0F111A00475	SWITCH	1	
		TH3401	D4CC11030013	THERMISTORS	1	
		VA251	D4ED16R80001	VARISTORS	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		VA252	D4ED16R80001	VARISTORS	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		VA501	D4ED18R00008	VARISTORS	1	(VXF990/999 are checked on a P.C. B. figure)
		VA502	D4ED18R00008	VARISTORS	1	(VXF990/999 are checked on a P.C. B. figure)
		VA503	D4ED18R00008	VARISTORS	1	(VXF990/999 are checked on a P.C. B. figure)
		VA504	D4ED18R00008	VARISTORS	1	(VXF990/999 are checked on a P.C. B. figure)
		VA906	D4ED16R80001	VARISTORS	1	(VXF990/999 are checked on a P.C. B. figure)
		VA3903	D4EDY1310001	VARISTORS	1	
		VA6406	D4EDY1310001	VARISTORS	1	
		VA6446	D4EDY1310001	VARISTORS	1	
		VA6447	D4EDY1310001	VARISTORS	1	
		VA6449	D4EDY1310001	VARISTORS	1	
		VA6450	D4EDY1310001	VARISTORS	1	
		VA6457	D4EDY1310001	VARISTORS	1	
		X2303	H0J327200230	CRYSTAL OSCILLATOR	1	
		X3402	H1A7205B0007	CRYSTAL OSCILLATOR	1	
		ZB6551	SMX0014	LED SPACER	1	
		ZJ7503	SEE0201	PHOTO LIGHT WIRE	1	

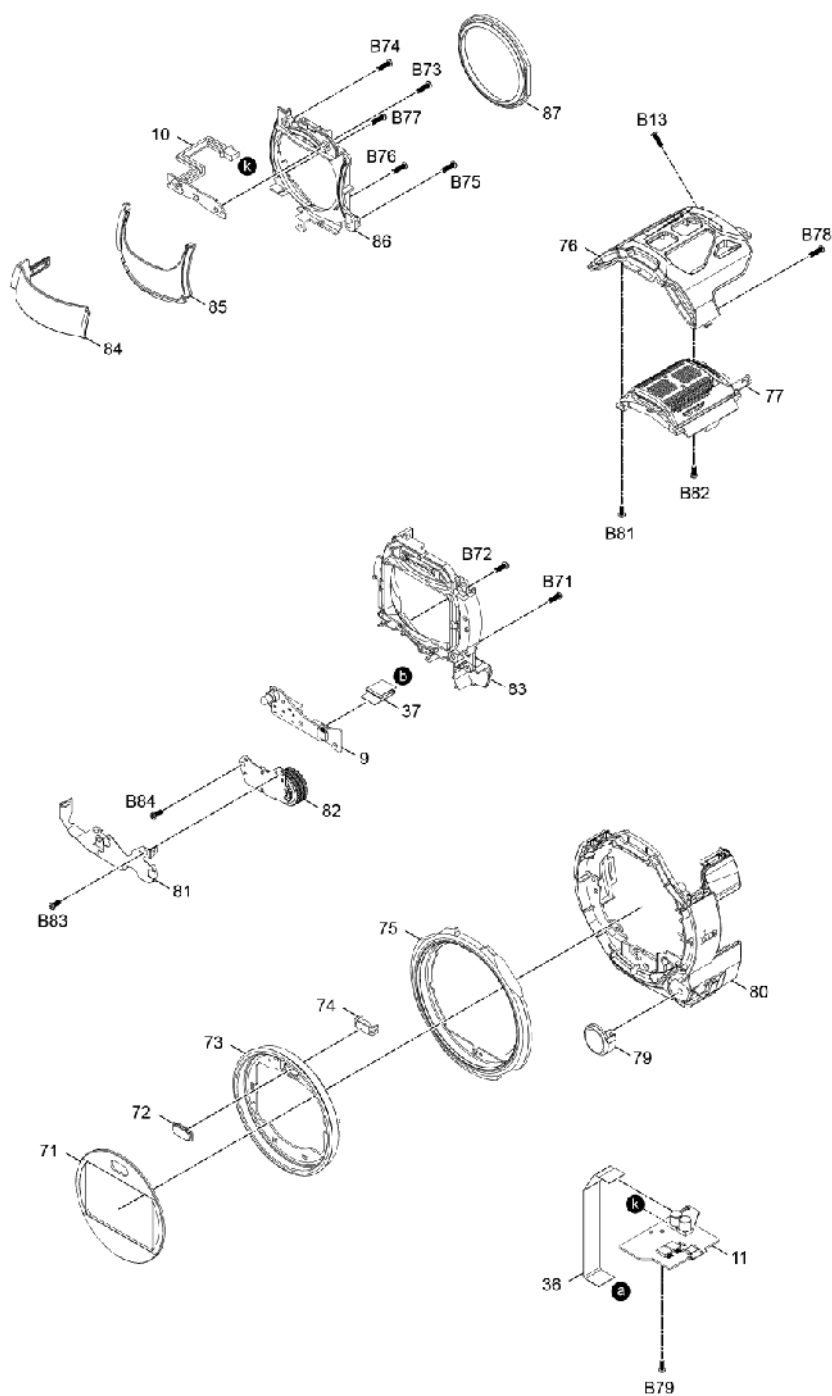
**Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Frame and Casing
Section (1)**



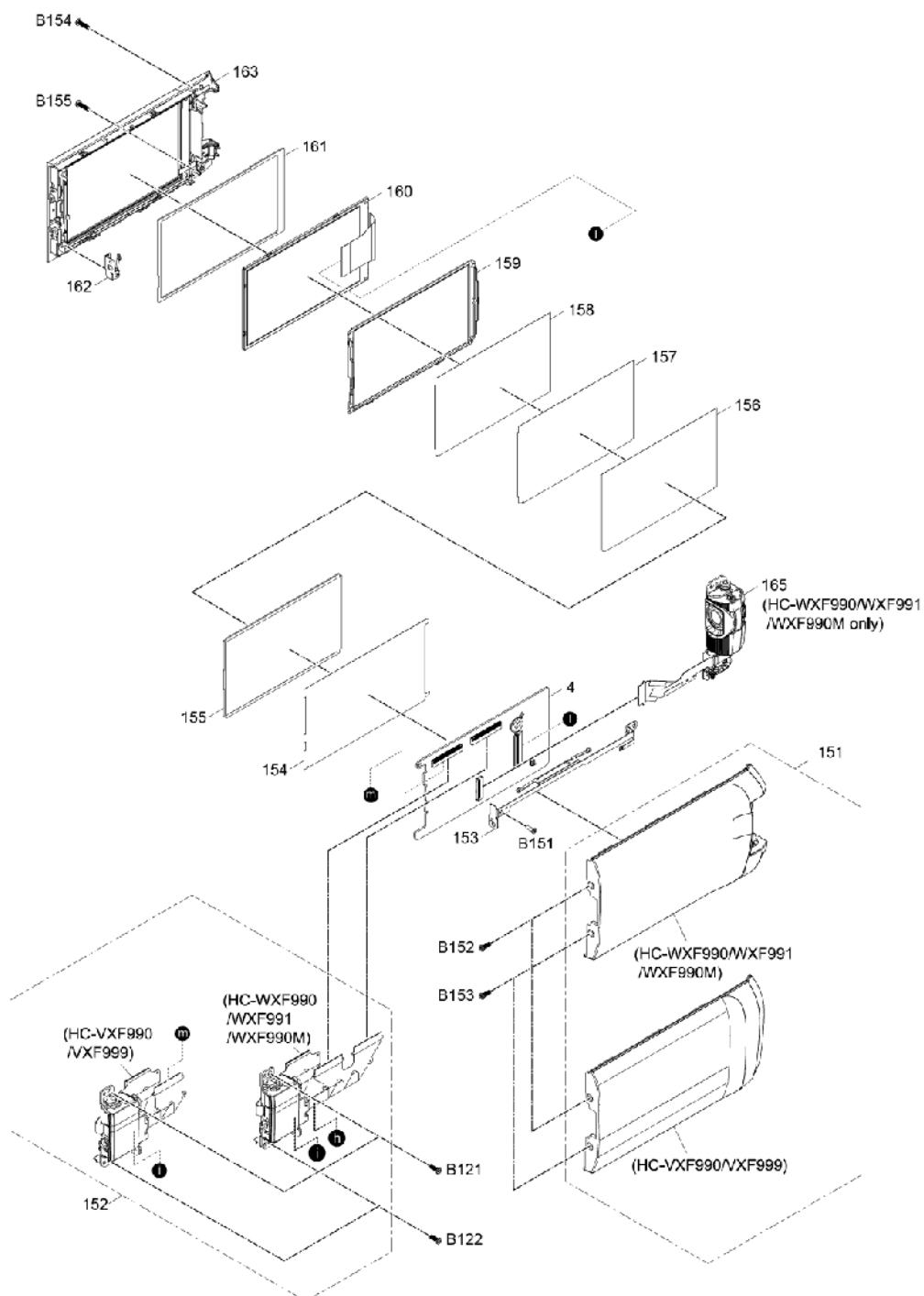
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Frame and Casing
Section (2)



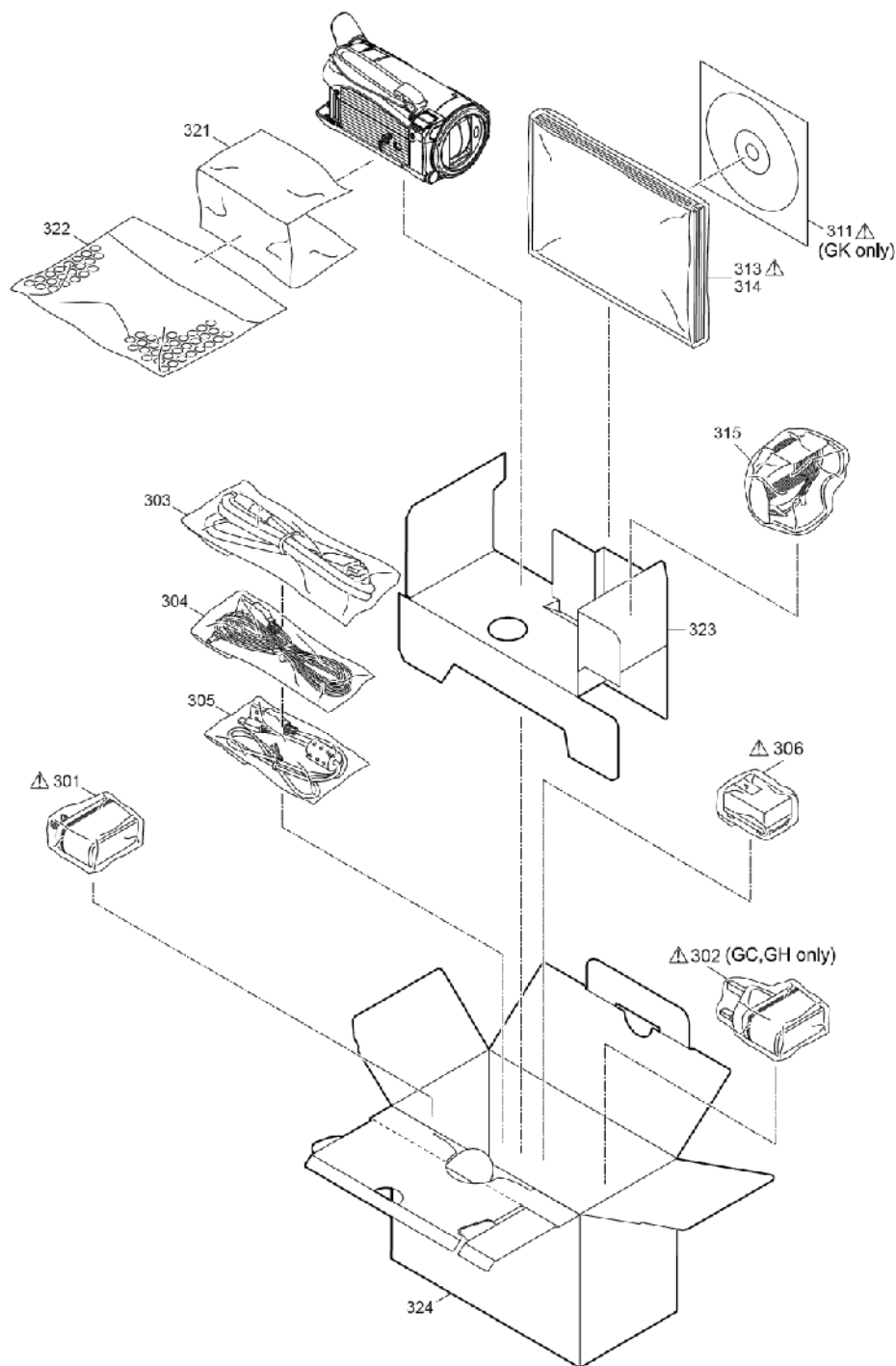
Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Frame and Casing
Section (3)



Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 LCD Section



Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Packing Parts and Accessories Section



Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		1	SEP0654AA	MAIN P.C.B.	1	(RTL) E.S.D. (HC-WXF990M)
		1	SEP0654AB	MAIN P.C.B.	1	(RTL) E.S.D. (HC-WXF990,HC-WXF991)
		1	SEP0654AC	MAIN P.C.B.	1	(RTL) E.S.D. (HC-VXF990,HC-VXF999)
		2	SEP0656AA	JACK DC GYRO P.C.B.	1	(RTL) E.S.D.
		3	SEP0655AA	SD EVF P.C.B.	1	(RTL) E.S.D.
		4	SEP0007AA	MONITOR P.C.B.	1	(RTL) E.S.D. (HC-VXF990,HC-VXF999)
		4	SEP0280AA	MONITOR P.C.B.	1	(RTL) E.S.D. (HC-WXF990,HC-WXF991,HC-WXF990M)
		5	VEP03J60AA	ESD P.C.B. UNIT	1	E.S.D. (HC-WXF990M)
		6	VEP06G78N	Wi-Fi P.C.B.	1	E.S.D. (except GK)
		6	VEP06G78P	Wi-Fi P.C.B.	1	E.S.D. GK
		9	SEP0657AA	FRONT P.C.B.	1	(RTL) E.S.D.
		10	SEP0659AA	PHOTO LIGHT P.C.B.	1	(RTL) E.S.D.
		11	SEP0658AA	MIC P.C.B.	1	(RTL) E.S.D.
		12	VEP03J60AA	ESD P.C.B. UNIT	1	E.S.D. (HC-WXF990M)
		32	STJ0008	ESD FFC	1	(HC-WXF990M)
		33	VWJ2365	Wi-Fi FFC	1	
		36	STJ0167	MIC FFC	1	
		37	STJ0168	FRONT FFC	1	
		38	STJ0008	ESD FFC	1	(HC-WXF990M)
		51	SYK1345	SIDE CASE-L UNIT	1	
		51-1	SKF0108K	MIC JACK COVER	1	
		51-2	SGQ0663	MIC JACK COVER PIECE	1	
		51-3	SGQ0022	IR PIECE	1	
		51-4	SYF0077	DC JACK COVER UNIT	1	
		51-5	SMB0173	JACK COVER SPRING	1	
		51-6	SGQ0664	JACK COVER PIECE	1	
		51-7	SGQ0665	SS LEVER	1	
		51-8	SGU0110	SS BUTTON	1	
		51-9	LOAA01A00184	SPEAKER	1	
		51-10	SGG0024	SPEAKER ANGLE	1	
		60	VMP8492	SHOE ANGLE	1	
		61	SKK0345K	TOP CASE	1	
		62	SGU0276	MODE SELECT BUTTON	1	
		63	SGL0035	POWER PANEL LIGHT	1	
		64	SGG0025	TOP FRAME	1	
		65	SKF0110K	SHOE COVER	1	
		66	SMB0174	COVER OPEN SPRING	1	
		67	SMS0225	SHOE COVER SHAFT	1	
		68	SGQ0666	SHOE BASE	1	
		69	SGQ0667	SHOE LINK	1	
		70	SMB0175	SHOE LINK SPRING	1	
		71	SGQ0288	HOOD PIECE	1	
		72	VGL1381	LED LIGHT COVER	1	
		73	SGQ0020	HOOD MASK	1	
		74	VDL2652	LED LIGHT LENS	1	
		75	SGK0020K	FRONT RING	1	
		76	SKK0343K	MIC NET COVER	1	
		77	SYK0987	MIC CASE UNIT	1	
		79	SGK0104K	MF ORNAMENT	1	
		80	SKK0341K	FRONT ORNAMENT	1	
		81	SMA0014	FR EARTH ANGLE	1	
		82	KORE00300034	KURUPON UNIT	1	
		83	SKK0072K	FRONT CASE	1	
		84	SGQ0023	BARRIER F	1	
		85	SGQ0024	BARRIER R	1	
		86	SGQ0025	FRONT BASE	1	
		87	SMG0003	LENS DAMPER RUBBER	1	

		92	SYQ0638	LENS FRAME UNIT	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		93	SYD0015	Wi-Fi FRAME UNIT	1	
		94	N9ZZ00000450	BARRIER MOTOR UNIT	1	
		101	SYD0013	HEAT RADIATION PLATE UNIT	1	
		106	SGG0020	SD FRAME	1	
		121	SYK1220	SIDE CASE R(1) UNIT	1	
		121-1	VMG1822-A	LCD CUSHION	1	
		121-2	VMG1822-A	LCD CUSHION	1	
		122	SGU0009	BATT. LOCK BUTTON	1	
		123	VMB4482	BATT. LOCK SPRING	1	
		126	SGQ0014	LCD LEVER	1	
		128	SYQ0592	BR FRAME UNIT	1	
		132	SYQ0595	SD DOOR UNIT	1	
		133	VGQ9672	GASKET	1	
		151	SYK1343	LCD CASE (T) UNIT	1	(HC-WXF990M)
		151	SYK1350	LCD CASE (T) UNIT	1	(HC-WXF990)
		151	SYK1352	LCD CASE (T) UNIT	1	(HC-VXF990)
		151	SYK1354	LCD CASE (T) UNIT	1	(HC-VXF999)
		151	SYK1376	LCD CASE (T) UNIT	1	(HC-WXF991)
		152	SYQ0624	LCD HINGE UNIT	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		152	SYQ0626	LCD HINGE UNIT	1	(HC-VXF990,HC-VXF999)
		153	SGF0011	LCD FRAME A	1	
		154	VGL1449	REFLECTION SHEET	1	
		155	VKW3518	LIGHT GUIDE PLATE	1	
		156	VGL1384	DIFFUSION SHEET	1	
		157	VGL1460	PRISM SHEET B	1	
		158	SGQ0313	PRISM SHEET A	1	
		159	SGQ0002	LGP HOLDER	1	
		160	L5BDDYY00073	LCD	1	
		161	SGQ0001	TP SPACER	1	
		162	SGF0002	LCD FRAME B	1	
		163	SYK0411	LCD CASE (B) UNIT	1	(HC-VXF990,HC-VXF999) *With a touch panel
		163	SYK0986	LCD CASE (B) UNIT	1	(HC-WXF990,HC-WXF991,HC-WXF990M) *With a touch panel
		165	SYK1324	SUB CAMERA UNIT	1	(HC-WXF990,HC-WXF991,HC-WXF990M)
		171	SYK1381	EVF UNIT	1	
		171-1	SMG0088	EYE CUP	1	
		172	K0RE00400009	TOP OPERATION	1	
		173	SGQ0676	FPC HOLD PIECE	1	
		201	SXW0161	LENS UNIT	1	
		201-1	L6HAYYYB0011	2ND STEPPING MOTOR	1	
		201-2	L6HAYYYC0056	3RD STEPPING MOTOR	1	
		201-3	L6HAYYYB0012	4TH STEPPING MOTOR	1	
		202	SXQ0251	MOS UNIT	1	
		204	SMT0022	MOS CUSHION	1	
		205	SXQ0002	IR KUDOU UNIT	1	
		B1	XQN16+B5FJK	SCREW	1	
		B2	XQN16+B5FJK	SCREW	1	
		B3	XQN16+B5FJK	SCREW	1	
		B4	XQN16+B5FJK	SCREW	1	
		B5	XQN16+B5FJK	SCREW	1	
		B6	XQN16+B5FJK	SCREW	1	
		B7	XQN16+BJ6FJK	SCREW	1	
		B8	XQN16+BJ6FJK	SCREW	1	
		B9	XQN16+BJ6FJK	SCREW	1	
		B10	XQN16+BJ6FJK	SCREW	1	
		B11	XQN16+BJ6FJK	SCREW	1	
		B12	XQN16+B5FJK	SCREW	1	
		B13	XQN16+B5FJK	SCREW	1	
		B14	XQN16+B5FJK	SCREW	1	
		B15	XQN16+B3FN	SCREW	1	

		B16	XQN16+B3FN	SCREW	1	
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Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		B17	XQN16+B3FN	SCREW	1	
		B18	VHD1919	SCREW	1	
		B19	XQN16+B3FN	SCREW	1	
		B20	VHD1919	SCREW	1	
		B21	VHD1919	SCREW	1	
		B22	VHD1919	SCREW	1	
		B23	VHD1919	SCREW	1	(HC-WXF990M)
		B24	VHD1919	SCREW	1	(HC-WXF990M)
		B25	XQN16+B5FJK	SCREW	1	
		B26	XQN16+B5FJK	SCREW	1	
		B51	XQN16+BJ5FN	SCREW	1	
		B52	XQN16+BJ5FN	SCREW	1	
		B53	XQN16+BJ5FN	SCREW	1	
		B61	XQS2+A35FN	SCREW	1	
		B62	XQS2+A35FN	SCREW	1	
		B63	XQS2+A35FN	SCREW	1	
		B71	XQN16+BJ5FJK	SCREW	1	
		B72	XQN16+BJ5FJK	SCREW	1	
		B73	XQN16+BJ6FN	SCREW	1	
		B74	XQN16+BJ6FN	SCREW	1	
		B75	XQN16+BJ6FN	SCREW	1	
		B76	XQN16+BJ6FN	SCREW	1	
		B77	XQN16+BJ6FN	SCREW	1	
		B78	XQN16+BJ6FN	SCREW	1	
		B79	XQN16+BJ5FJK	SCREW	1	
		B81	XQN16+BJ4FN	SCREW	1	
		B82	XQN16+BJ4FN	SCREW	1	
		B83	XQN16+BJ4FN	SCREW	1	
		B84	XQN16+BJ4FN	SCREW	1	
		B93	VHD1919	SCREW	1	
		B94	VHD1919	SCREW	1	
		B95	XQN16+B3FN	SCREW	1	
		B97	XQN16+B3FN	SCREW	1	
		B101	VHD1919	SCREW	1	
		B102	VHD1919	SCREW	1	
		B121	VHD1411	SCREW	1	
		B122	VHD1411	SCREW	1	
		B123	XQN16+B4FJK	SCREW	1	
		B124	XQN16+B4FJK	SCREW	1	
		B151	XQN14+BJ4FN	SCREW	1	
		B152	VHD1688	SCREW	1	
		B153	VHD1688	SCREW	1	
		B154	XQN16+BJ6FJK	SCREW	1	
		B155	XQN16+BJ6FJK	SCREW	1	
		B171	XQN16+B3FN	SCREW	1	
		B172	XQN16+B3FN	SCREW	1	
		B201	VHD2072	SCREW	1	
		B202	VHD2072	SCREW	1	
		B203	VHD2072	SCREW	1	
		B204	VHD2072	SCREW	1	
		B205	VHD2072	SCREW	1	
		B206	VHD2072	SCREW	1	
		B207	VHD2072	SCREW	1	
		B208	VHD2072	SCREW	1	
		B209	VHD2072	SCREW	1	
		B210	VHD2072	SCREW	1	
		B211	VHD2072	SCREW	1	
		301	VSK0815FA	AC ADAPTOR	1	PP, PU
		301	VSK0815H	AC ADAPTOR	1	GK
		301	VSK0815K	AC ADAPTOR	1	EG, EE, EF, GC

		301	VSK0815L	AC ADAPTOR	1	EB
		301	VSK0815MA	AC ADAPTOR	1	GN

Model No. : HC-WXF990M/WXF990/WXF991/VXF990/VXF999 Parts List

Change	Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
		301	VSK0815Q	AC ADAPTOR	1	GW
		302	VSK0815N	AC ADAPTOR	1	GC,GH
		303	K1HY19YY0038	MICRO HDMI CABLE	1	
		304	K2GHYYS00002	DC CABLE	1	
		305	K1HY04YY0106	USB CABLE	1	
		306	-----	BATTERY PACK	1	(except PP, GK)
		306	-----	BATTERY PACK	1	GK
		306	-----	BATTERY PACK	1	PP
		311	SFM0120	CD-ROM(O/I)	1	GK
		313	SQT1152	BASIC OPERATING INSTRUCTIONS (EN/F R)	1	PP
		313	SQT1153	BASIC OPERATING INSTRUCTIONS (SP)	1	PU
		313	SQT1154	BASIC OPERATING INSTRUCTIONS (GE/T K/IT)	1	VXF990EG,VXF999EG
		313	SQT1155	BASIC OPERATING INSTRUCTIONS (FR/D U)	1	VXF990EG,VXF999EG,EF
		313	SQT1156	BASIC OPERATING INSTRUCTIONS (SP/P R)	1	VXF990EG
		313	SQT1157	BASIC OPERATING INSTRUCTIONS (SW/D A/FI)	1	VXF990EG
		313	SQT1158	BASIC OPERATING INSTRUCTIONS (EN)	1	EB,EP
		313	SQT1159	BASIC OPERATING INSTRUCTIONS (PO/C Z/HU)	1	EP
		313	SQT1160	BASIC OPERATING INSTRUCTIONS (EN)	1	GC,GW,GH,GN
		313	SQT1161	BASIC OPERATING INSTRUCTIONS (AR)	1	GC
		313	SQT1162	BASIC OPERATING INSTRUCTIONS (RU/U R)	1	EE
		313	SQT1163	BASIC OPERATING INSTRUCTIONS (CO)	1	GH
		313	SQT1164	BASIC OPERATING INSTRUCTIONS (CN)	1	GK
		314	VPF1545	BAG, POLYETHYLENE	1	
		315	SYK0602	LENS HOOD U	1	
		321	LSMF0623	PROTECT SHEET	1	
		322	VPF1560	PROTECT BAG	1	
		323	SPN0189	PAD	1	
		324	SPG0594	PACKING CASE	1	VXF990EG,VXF990EB,VXF990EE,VXF990EF,VXF990EP
		324	SPG0595	PACKING CASE	1	VXF999EG
		324	SPG0596	PACKING CASE	1	WXF990PU,WXF990GW
		324	SPG0598	PACKING CASE	1	WXF990GC
		324	SPG0599	PACKING CASE	1	WXF991PP
		324	SPG0601	PACKING CASE	1	WXF990MGH,WXF990MGN
		324	SYQ0668	PACKING CASE UNIT	1	WXF990GK
		324	SYQ0669	PACKING CASE UNIT	1	WXF990MGK