

# Service Manual

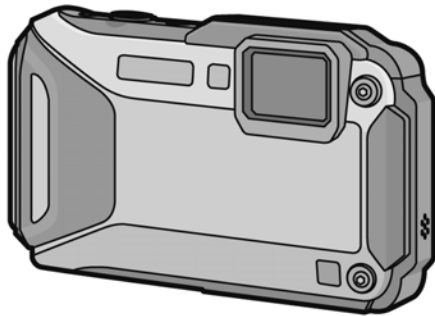
Digital Camera

Model No. **DMC-FT6GA**  
**DMC-FT6GN**  
**DMC-TS6P**



Colour

- (A).....Blue Type
- (R).....Red Type
- (D).....Orange Type
- (Z).....Camouflage Type (Except GA)



Please use this manual together with the service manual for  
 Model No.DMC-FT5EG/EP/EF/EB/EE/GC/GA/GN/EA,DMC-TS5P/PC/PU/GH/GT/GD :  
 Order No.DSC1304010CE.

## ⚠ 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 Introduction

- The purpose of issuing this Service Manual is that to introduce the following newly added models.  
DMC-FT6GA/GN,DMC-TS6P.
- This Service Manual contains technical information which will help service personnel to understand and service the Digital Camera ; DMC-FT6GA/GN,DMC-TS6P.
- Since this Service Manual does not cover the same part which is already described in the Original Service Manual for DMC-FT6,TS6 series series, when servicing, refer to the descriptions in the Service Manual for DMC-FT5EG/EP/EF/EB/EE/GC/GA/GN/EA,DMC-TS5P/PC/PU/GH/GT/GD Order No.DSC1304010CE.

## 2 Service Navigation

### 2.1. How to Define the Model Suffix (NTSC or PAL model)

There are seven kinds of DMC-FT6/TS6, regardless of the colours.


- a) DMC-TS6P
- b) DMC-FT6GN
- c) DMC-FT6GA

What is the difference is that the "INITIAL SETTINGS" data which is stored in Flash ROM mounted on Main P.C.B.


#### 2.1.1. Defining methods

To define the model suffix to be serviced, refer to the nameplate which is putted on the bottom side of the Unit.


**a) DMC-TS6P**  
The nameplate for these models show the following Safety registration mark.



**b) DMC-FT6GN**  
The nameplate for this model show the following Safety registration mark.



**c) DMC-FT6GA**  
The nameplate for these models do not show any above safety registration mark.



Safety registration mark

**Note:**

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

The Maintenance software (DIAS) is available at "software download" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN system".

## 2.1.2. INITIAL SETTINGS

After replacing the Main P.C.B., be sure to perform the initial settings after achieving the adjustment by ordering the following procedure in accordance with model suffix of the unit.

### 1. IMPORTANT NOTICE:

Before proceeding Initial settings, be sure to read the following CAUTIONS.

#### CAUTION 1:(INITIAL SETTINGS)

---AFTER REPLACING THE MAIN P.C.B. ---

\*.The model suffix can be chosen JUST ONE TIME.  
(Model suffix : DMC-FT6; "GA/GN", DMC-TS6; "P")

\*.Once one of the model suffix has been chosen, the model suffix lists will not be displayed, thus, it can not be changed.

#### CAUTION 2:(Stored picture image data in the unit)

This unit employs "Built-in Memory" for picture image data recording.(Approx.10MB)  
After proceeding "INITIAL SETTINGS", the picture image data stored in the unit is erased.

### 2. PROCEDURES:

- Precautions: Read the above "CAUTION 1" and "CAUTION 2", carefully
- Preparation:
  1. Attach the Battery to the unit.
  2. Set to PROGRAM AE mode by operating the mode button.

#### Note:

If the picture mode is other than PROGRAM AE mode, it does not display the initial settings menu.

#### • Step 1. The temporary cancellation of "INITIAL SETTINGS":

While keep pressing "UP of Cursor button" and MOTION PICTURE button simultaneously, turn the Power on.

#### • Step 2. The cancellation of "INITIAL SETTINGS":

Press the PLAYBACK button.

Press "UP of Cursor button" and MOTION PICTURE button simultaneously, then turn the Power off.

#### • Step 3. Turn the Power on:

Turn the Power on.

#### • Step 4. Display the "INITIAL SETTINGS" menu:

While keep pressing MENU/SET and "RIGHT of Cursor button" simultaneously, turn the Power off.

The "INITIAL SETTINGS" menu is displayed.

There are two kinds of "INITIAL SETTINGS" menu form as follows:

#### [CASE 1. After replacing Main P.C.B.]

When Main P.C.B. has just been replaced, the following model suffix list is displayed as follows. (Four pages in total)

The figure shows four screenshots of the 'INITIAL SETTINGS' menu, each with a page number in the top right corner (1/4, 2/4, 3/4, 4/4). Each screen has a yellow highlight on the selected option and navigation buttons at the bottom: 'Select' (left arrow) and 'Set End' (right arrow).

- Page 1/4:** Shows 'NONE(JAPAN) 00' selected. Other options include 'P 01 TS6', 'PU 03', 'GD 04', and 'GC 05'. Labels on the left indicate '(No "Japan domestic" model)', 'DMC-TS6P', '(No "PU" model)', '(No "GD" model)', and '(No "GC" model)'.
- Page 2/4:** Shows 'GT 06 TS6' selected. Other options include 'GK 07', 'EE 0A', 'GN 0B', and 'PC 0C'. Labels on the right indicate '(No "GT" model)', '(No "GK" model)', '(No "EE" model)', 'DMC-FT6GN', and '(No "PC" model)'.
- Page 3/4:** Shows 'PR 0D FT6' selected. Other options include 'OJ 0E', 'SG 0F', 'LB 10', and 'OH 12'. Labels on the left indicate '(No "PR" model)', '(No "GJ" model)', '(No "SG" model)', '(No "LB" model)', and '(No "GH" model)'.
- Page 4/4:** Shows 'GM 1A FT6' selected. Other options include 'GA 1B', 'PB 1C', 'JPC 1D', and 'EA 1E'. Labels on the right indicate '(No "GM" model)', 'DMC-FT6GA', '(No "PB" model)', '(No "JPC" model)', and '(No "EA" model)'.

#### [CASE 2. Other than "After replacing Main P.C.B."]

The screenshot shows the 'INITIAL SETTINGS' menu with 'P 01 TS6' selected. Navigation buttons 'Select' and 'Set End' are visible at the bottom.

• **Step 5. Choose the model suffix in "INITIAL SETTINGS": (Refer to "CAUTION 1")**

**[Caution: After replacing Main P.C.B.]**

The model suffix can be chosen, JUST ONE TIME.

Once one of the model suffix have been chosen, the model suffix lists will not be displayed, thus, it can be changed.

Therefore, select the area carefully.

Select the area with pressing "UP / DOWN of Cursor buttons".

• **Step 6. Set the model suffix at "INITIAL SETTINGS":**

Press the "RIGHT" of Cursor buttons".

The only set area is displayed. Press the "RIGHT" of Cursor buttons" after confirmation.

(The unit is powered off automatically.)



• **Step 7. CONFIRMATION:**

Confirm the display of "PLEASE SET THE CLOCK" in concerned language when the unit is turned on again.

When the unit is connected to PC with USB cable, it is detected as removable media.

1) As for your reference, major default setting condition is as shown in the following table.

Default setting (After "INITIAL SETTINGS")

	MODEL	VIDEO OUTPUT	LANGUAGE	DATE	REMARKS
a)	DMC-FT6GA	PAL	English	Date/Month/Year	
b)	DMC-FT6GN	PAL	English	Date/Month/Year	
c)	DMC-TS6P	NTSC	English	Month/Date/Year	

### 3 Specifications

The following specification is for DMC-TS6P.

Some specifications may differ depending on model suffix.

#### Digital Camera:

Information for your safety

<b>Power Source:</b>	DC 5.1 V
<b>Power Consumption:</b>	1.5 W (When recording) 1.1 W (When playing back)

<b>Camera effective pixels</b>	16,100,000 pixels	
<b>Image sensor</b>	1/2.33" MOS sensor, total pixel number 17,500,000 pixels, Primary color filter	
<b>Lens</b>	Optical 4.6× zoom, f=4.9 mm to 22.8 mm (35 mm film camera equivalent: 28 mm to 128 mm)/F3.3 (Wide) to F5.9 (Tele)	
<b>Image stabilizer</b>	Optical method	
<b>Focus range</b>	Normal	30 cm (0.98 feet) to ∞
	Macro/ Intelligent auto/ Motion Picture	5 cm (0.16 feet) (Wide)/30 cm (0.98 feet) (Tele) to ∞
	Scene Mode	There may be differences in the above settings.
<b>Shutter system</b>	Electronic shutter+Mechanical shutter	
<b>Minimum Illumination</b>	Approx. 12 lx (when i-low light is used, the shutter speed is 1/30th of a second)	
<b>Shutter speed</b>	4 seconds to 1/1300th of a second [Starry Sky] Mode: 15 seconds, 30 seconds	
<b>Exposure</b>	Program AE (P)/Manual Exposure (M)	
<b>Metering mode</b>	Multiple	

<b>LCD monitor</b>	3.0" TFT LCD (4:3) (Approx. 460,000 dots) (field of view ratio about 100%)
<b>Microphones</b>	Stereo
<b>Speaker</b>	Monaural
<b>Recording media</b>	Built-in Memory (Approx. 10 MB)/SD Memory Card/ SDHC Memory Card/SDXC Memory Card
<b>Recording file format</b>	
<b>Still Picture</b>	JPEG (based on "Design rule for Camera File system", based on "Exif 2.3" standard, DPOF corresponding)/MPO
<b>Motion pictures</b>	AVCHD/MP4
<b>Audio compression format</b>	AVCHD: Dolby <sup>®</sup> Digital (2 ch) MP4: AAC (2 ch)
<b>Interface</b>	
<b>Digital</b>	"USB 2.0" (High Speed)
<b>Analog video</b>	NTSC
<b>Audio</b>	Audio line output (monaural)
<b>Terminal</b>	
<b>[AV OUT/DIGITAL]</b>	Dedicated jack (8 pin)
<b>[HDMI]</b>	MicroHDMI TypeD
<b>Dimensions</b> (excluding the projecting parts)	Approx. 109.2 mm (W)×67.4 mm (H)×28.9 mm (D) [4.30"(W)×2.65"(H)×1.14"(D)]
<b>Mass (weight)</b>	Approx. 214 g/0.471 lb (with card and battery) Approx. 188 g/0.414 lb (excluding card and battery)
<b>Operating temperature</b>	– 10 °C* to 40 °C (14 °F* to 104 °F) * The performance of the battery (number of recordable pictures/operating time) may decrease temporarily when using in a temperature between – 10 °C and 0 °C (14 °F and 32 °F) (cold places such as ski resorts or places at high altitude).
<b>Operating humidity</b>	10%RH to 80%RH
<b>Language select</b>	[ENGLISH]/[ESPAÑOL]

<b>Bearing sensor</b>	16 bearing detection (with angular position correction function by the 3 axes acceleration sensor, with automatic declination correction, and with automatic offset adjustment function)
<b>Atmospheric pressure/altitude sensor</b>	
<b>Atmospheric pressure</b>	Measurement range 300 hPa to 1100 hPa, with 24 hour memory function in 1 hPa unit (every 1.5 hours)
<b>Altitude</b>	Convert atmospheric pressure to altitude using ISA [International Standard Atmosphere], accuracy: -5 m (-16 feet) to +5 m (16 feet)
<b>Depth</b>	Displays in 3 levels [displays 0 m (0 feet) to 13 m (43 feet) in 3 levels]
<b>Waterproof performance</b>	Equivalent to IEC 60529 "IPX8". [Usable for 60 minutes in 13 m (43 feet) water depth]
<b>Crash resistance performance</b>	<p>The test method of the camera is in compliance with "MIL-STD 810F Method 516.5-Shock"*.</p> <p>* "MIL-STD 810F Method 516.5-Shock" is the test method standard of the U.S. Defense Department, which specifies performing drop tests from a height of 122 cm (4 feet), at 26 orientations (8 corners, 12 ridges, 6 faces) using 5 sets of devices, and passing the 26 orientation drops within 5 devices. (If failure occurs during the test, a new set is used to pass the drop orientation test within a total of 5 devices)</p> <ul style="list-style-type: none"> <li>• Panasonic's test method is based on the above "MIL-STD 810F Method 516.5-Shock". However, the drop height was changed from 122 cm (4 feet) to 200 cm (6.6 feet) dropping onto 3 cm (0.1 feet) thick plywood. This drop test was passed. (Disregarding appearance change such as loss of paint or distortion of the part where drop impact is applied.)</li> </ul> <p><b>There is no guarantee of not breaking or malfunctioning under all conditions.</b></p>
<b>Withstand Load Performance</b>	100 kgf/220.5 lbf (According to the test conditions specified by Panasonic)
<b>Dustproof performance</b>	Equivalent to IEC 60529 "IP6X".

### Wireless transmitter

<b>Compliance standard</b>	IEEE 802.11b/g/n (standard wireless LAN protocol)
<b>Frequency range used (central frequency)</b>	2412 MHz to 2462 MHz (1 to 11ch)
<b>Encryption method</b>	Wi-Fi compliant WPA <sup>TM</sup> /WPA2 <sup>TM</sup>
<b>Access method</b>	Infrastructure mode

### Battery Charger (Panasonic VSK0800):

Information for your safety


<b>Input:</b>	~ 110 V to 240 V, 50/60 Hz, 0.2 A
<b>Output:</b>	=== 4.2 V, 0.65 A
<b>Operating temperature:</b>	0 °C* to 40 °C (32 °F* to 104 °F) * The battery cannot be recharged in a temperature less than 0 °C (32 °F). (The [CHARGE] indicator blinks when the battery cannot be recharged.)

### Battery Pack (lithium-ion) (Panasonic DMW-BCM13PP):

Information for your safety

<b>Voltage/capacity:</b>	3.6 V/1250 mAh
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## 4 Replacement Parts List

- 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.
  5. Supply of CD-ROM, in accordance with license protection, is allowable as replacement parts only for customers who accidentally damaged or lost their own.

**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 PAVCX.**

### 4.1. Electrical Component

**COMPARISON CHART :**

#### 4.1.1. DMC-FT6GA

The following tables show the difference between original Model "DMC-FT5GA" and new model "DMC-FT6GA".

Safety	Ref No.	Original Part No. (DMC-FT5GA)	New Part No. (DMC-FT6GA)	Part Name & Descriptions	Pcs	Remarks
	FP9002	K1MY41BA0575	K1MY41BA0667	CONNECTOR 41P	1	
	FP9003	K1MY51BA0575	K1MY51BA0667	CONNECTOR 51P	1	
	FP9007	K1MY51BA0575	K1MY51BA0667	CONNECTOR 51P	1	
	FP9008	K1MY19BA0235	K1MY19BA0667	CONNECTOR 19P	1	
	IC6001	VSG1017	VSG1023	IC	1	E.S.D.
	IC6005	RS10423	RS10786	IC	1	E.S.D.

#### 4.1.2. DMC-FT6GN

The following tables show the difference between original Model "DMC-FT5GN" and new model "DMC-FT6GN".

Safety	Ref No.	Original Part No. (DMC-FT5GN)	New Part No. (DMC-FT6GN)	Part Name & Descriptions	Pcs	Remarks
	FP9002	K1MY41BA0575	K1MY41BA0667	CONNECTOR 41P	1	
	FP9003	K1MY51BA0575	K1MY51BA0667	CONNECTOR 51P	1	
	FP9007	K1MY51BA0575	K1MY51BA0667	CONNECTOR 51P	1	
	FP9008	K1MY19BA0235	K1MY19BA0667	CONNECTOR 19P	1	
	IC6001	VSG1017	VSG1023	IC	1	E.S.D.
	IC6005	RS10423	RS10786	IC	1	E.S.D.

#### 4.1.3. DMC-TS6P

The following tables show the difference between original Model "DMC-TS5P" and new model "DMC-TS6P".

Safety	Ref No.	Original Part No. (DMC-TS5P)	New Part No. (DMC-TS6P)	Part Name & Descriptions	Pcs	Remarks
	FP9002	K1MY41BA0575	K1MY41BA0667	CONNECTOR 41P	1	
	FP9003	K1MY51BA0575	K1MY51BA0667	CONNECTOR 51P	1	
	FP9007	K1MY51BA0575	K1MY51BA0667	CONNECTOR 51P	1	
	FP9008	K1MY19BA0235	K1MY19BA0667	CONNECTOR 19P	1	
	IC6001	VSG1017	VSG1023	IC	1	E.S.D.
	IC6005	RS10423	RS10786	IC	1	E.S.D.

## 4.2. Frame and Casing Section

### COMPARISON CHART:

#### 4.2.1. DMC-FT6GA

The following tables show the difference between original Model "DMC-FT5GA" and new model "DMC-FT6GA".

Safety	Ref No.	Original Part No. (DMC-FT5GA)	New Part No. (DMC-FT6GA)	Part Name & Descriptions	Pcs	Remarks
	22	VYK6M01	SYK1074	FRONT CASE UNIT	1	(-A)
	22	VYK6M00	SYK1073	FRONT CASE UNIT	1	(-D)
	22	-----	SYK1075	FRONT CASE UNIT	1	(-R)
	24	VEP56172A	VEP56172D	MAIN P.C.B.	1	E.S.D.
	35	VYK6D48	SYK1009	TOP CASE UNIT	1	
	35	VYK6G43	SYK1009	TOP CASE UNIT	1	
	38	L0AA01A00130	L0AA01A00174	SPEAKER	1	
	42	-----	SYK1007	REAR ALMI CASE UNIT	1	(-R)
	42	-----	SYK1008	REAR ALMI CASE UNIT	1	(-Z)
	95	-----	VMA1A19	BL HOLDER	1	

#### 4.2.2. DMC-FT6GN

The following tables show the difference between original Model "DMC-FT5GN" and new model "DMC-FT6GN".

Safety	Ref No.	Original Part No. (DMC-FT5GN)	New Part No. (DMC-FT6GN)	Part Name & Descriptions	Pcs	Remarks
	22	VYK6M01	SYK1074	FRONT CASE UNIT	1	(-A)
	22	VYK6M00	SYK1073	FRONT CASE UNIT	1	(-D)
	22	-----	SYK1075	FRONT CASE UNIT	1	(-R)
	22	-----	SYK1076	FRONT CASE UNIT	1	(-Z)
	24	VEP56172A	VEP56172D	MAIN P.C.B.	1	E.S.D.
	35	VYK6D48	SYK1009	TOP CASE UNIT	1	
	35	VYK6G43	SYK1009	TOP CASE UNIT	1	
	38	L0AA01A00130	L0AA01A00174	SPEAKER	1	
	42	-----	SYK1007	REAR ALMI CASE UNIT	1	(-R)
	42	-----	SYK1008	REAR ALMI CASE UNIT	1	(-Z)
	95	-----	VMA1A19	BL HOLDER	1	

#### 4.2.3. DMC-TS6P

The following tables show the difference between original Model "DMC-TS5P" and new model "DMC-TS6P".

Safety	Ref No.	Original Part No. (DMC-TS5P)	New Part No. (DMC-TS6P)	Part Name & Descriptions	Pcs	Remarks
	22	VYK6M01	SYK1074	FRONT CASE UNIT	1	(-A)
	22	VYK6M00	SYK1073	FRONT CASE UNIT	1	(-D)
	22	-----	SYK1075	FRONT CASE UNIT	1	(-R)
	22	-----	SYK1076	FRONT CASE UNIT	1	(-Z)
	24	VEP56172A	VEP56172D	MAIN P.C.B.	1	E.S.D.
	35	VYK6D48	SYK1009	TOP CASE UNIT	1	
	35	VYK6G43	SYK1009	TOP CASE UNIT	1	
	38	L0AA01A00130	L0AA01A00174	SPEAKER	1	
	42	-----	SYK1007	REAR ALMI CASE UNIT	1	(-R)
	42	-----	SYK1008	REAR ALMI CASE UNIT	1	(-Z)
	95	-----	VMA1A19	BL HOLDER	1	

### 4.3. Packing and Accessories Section

Safety	Ref No.	Part No.	Part Name & Descriptions	Pcs	Remarks
	200	RPFW0057	CAMERA BAG	1	
	201	VQL2Z72	COLOR LABEL	1	(-D)
	201	VQL3B09	COLOR LABEL	1	(-R)
	201	SQL0192	COLOR LABEL	1	(-Z)
△	203	VSK0801	BATTERY CHARGER	1	GA,GN
△	203	VSK0800	BATTERY CHARGER	1	P
△	204	-----	BATTERY PACK	1	(NOT SUPPLIED)
	205	K1HY08YY0031	USB CABLE	1	
△	206	K2CQ2YY00082	AC CORD W/PLUG	1	GA
△	206	K2CJ2YY00052	AC CORD W/PLUG	1	GN
△	206	K2CA2CA00025	AC CORD W/PLUG	1	P
	207	VFC4297	HAND STRAP	1	
△	208	SFM0088	CD-ROM(SOFT/INSTRUCTION BOOK)	1	See "Notes" GA,GN
△	208	SFM0087	CD-ROM(SOFT/INSTRUCTION BOOK)	1	See "Notes" P
	209	SPK0082	PACKING CASE	1	GA,GN
	209	SPK0081	PACKING CASE	1	P
	210	VPF1539	POLYETHYLENE BAG	1	GA
	210	VPF1547	POLYETHYLENE BAG	1	GN,P
△	211	SQT0838	BASIC O/I (ENGLISH/CHINESE(TRADITIONAL))	1	GA
△	211	SQT0839	BASIC O/I (VIETNAMESE)	1	GA
△	211	SQT0840	BASIC O/I (ENGLISH)	1	GN
△	211	SQT0837	BASIC O/I (ENGLISH/SPANISH)	1	P
	212	VPF1529	PROTECTION BAG	1	
	213	VMG2093	SILICONE JACKET	1	GN
	214	VQL3B08	SILICON JACKET LABEL	1	GN

# 5 Exploded View

[ Packing Parts and Accessories Section ]

