90000454

For Maintenance Purpose Only

TeamPad 500

Operations Guide

Rev 1.0

FUJITSU

To Safely Use This Product

About this Manual:

This manual contains important information for safely using this product. Thoroughly read this manual before using the product. In particular, thoroughly read until fully understanding the “Notes on Safety” in this manual before using this product. Refer to this manual when necessary, so keep this manual in an easy-to-refer to place.

FUJITSU makes every effort to prevent users and observers from being injured and to prevent property from suffering from damage. To ensure no harm to you, observers, or the equipment itself, be sure to use the product according to the instructions in this manual.

First Edition March 2001

FCC WARNING:

Changes of modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient of relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

REVISION RECORD

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Contents

Chapter 1 Outline

This chapter provides general information about the TeamPad 500 Series hand-held computers (HHCs), including their exterior views and specifications.

1.1 HHC Types and Options

In addition to being completely compatible with the industry-standard Windows-CE machines, the TeamPad 500 Series HHCs will support options such as memory cards (those controlling modems and LANs) and bar code scanners.

The HHCs run Windows-CE as an operating system. In addition, specialized application software is available to meet specific and general needs.

The TeamPad 500 Series HHCs are grouped into the following eight types:

- FHT532A1: 24-key, monochrome LCD, without a printer, without a SS radio antenna
- FHT532R1: 24-key, monochrome LCD, without a printer, with a SS radio antenna
- FHT542A1: 24-key, monochrome LCD, with a printer, without a SS radio antenna
- FHT542R1: 24-key, monochrome LCD, with a printer, with a SS radio antenna

The HHCs are connectable to the following units:

- FHTLA551W: Communication interface unit
  Unit for connecting HHC to a modem or main system. The main battery in HHC can be charged.
  (RS-232C I/F:SD/RD/RS/CS
- FHTLA552W: Communication interface unit
  Unit for connecting HHC to a modem or main system. The main battery in HHC can be charged.
  (RS-232C I/F:SD/RD/CS/ER/DR/CS
  FHTCH551 : Holder
  In-vehicle unit for converting data from the HHC optical element into the RS-232C interface (SD, RD only)

1.2 Exterior Views

The HHCs are powered from an internal lithium-ion battery pack (which is recharged the same time the HHC is placed in the CIU/holder). They come with 32 MB of RAM installed (not including an optional memory card). This generous amount of RAM, plus the CPU, allows the HHCs to be used as personal computers.

RAM data is protected by internal lithium back-up batteries. Each HHC can communicate with a host computer or another HHC by way of its RS-232C interface or PC card interface or IrDA interface. HHCs connected to a printer (line / thermal) can print out data directly.

Connecting an optional scanner to a HHC will enables it to scan and record bar-code images.

Figure 1.2.1 shows FHT522A1 HHC with a printer.

Figure 1.2.2 shows FHT522A1 HHC without a printer.

Figure 1.2.1 TeamPad 500 Series HHC with a printer

Figure 1.2.2 TeamPad 500 Series HHC without a printer

1.3 Specifications

This section summarizes the specifications of the TeamPad 500 Series HHCs.

Table 1.1 TeamPad 500 Series HHC specifications (1/2)

ITEM		without Printer	with Printer
Control	CPU	64bit RISC CPU	
	Memory	RAM: 32MB ROM: 32MB	
	OS	Windows-CE V2.12	
Display	Size	240 ×320 pixels	
	Character and line	Alphanumeric: 21ch × 15 line (Standard font: 9 × 16 dot) (Test font) Graphic font: 21ch × 15 line (Standard font: 9 × 16 dot)	
	Character	Alphanumeric	
	LCD Light	LED Light	
	Controller	QVGA(SED1376-EPSON)	
Keyboard	Tactile	24 keys	
	Pen, Touch panel	Pen and touch panel	
Interface		IrDA 1.1 I/F Max.4Mbps	
		RS-232C I/F Max. 115.2 kbps (SD/RD/RS/CS/ER/DR/VDD/SG/CD)	
PCMCIA		TYPE 2 × 1 slot (only FHT5**A1)	
Printer	Method	N/A	Line thermal (512 dot, 0.125 mm pitch)
	Speed		24 L/s (1p, 8 × 16 pixels "H"-12 char/line)
	Character/line		ANK: 32 char (12 × 24)
	Character		ANK/JIS level-1/-2
	Paper		70 mm thermal paper 1P-roll, 2P-single
	Others		Semi-auto-load, Detect printing position

Table 1.1 TeamPad 500 Series HHC specifications (2/2)

ITEM		Without Printer	with Printer
Power	Main battery	Lithium-ion battery pack (7.2 V/1200 mAh)	
	Back-up battery	Lithium rechargeable batteries (3.0 V/90 mAh)	
	Operating time *Note2 (with a new battery)	+20°C 15h 0°C 8h	+20°C 15h 0°C 6h or below (At 3000 lines printed)
	Storage time (with a new battery)	(1) 10 days (25ºC, with full-charged Main battery) (2) 10 hours (25ºC, without Main battery)	
	Charging time	Approximately 2.5 hours	
Operating temperature/humidity		-5ºC to +50ºC Up to 85%RH	-5ºC to +50ºC Up to 85%RH
Storage temperature/humidity		-20ºC to +60ºC Up to 95%RH	
Size	Measurement	85 × 210 × 28.5 mm	
	Weight	Approximately 420 g (.93 lb)	Approximately 470g (1.04 lb)
Environment		Splashing at 3-5mm/min 5 ft. drop to concrete	Splashing at 3-5 mm (with Printer cover) 4 ft. drop to concrete
Miscellaneous		ESD 15 kV RF: Lucent modem (SS) [PCMCIA Card]	
		Option : CIU (RS-232C:SD/RD/RS/CS/ER/DR/CD/RI/SG) : Holder : Pack Charger (A lithium-ion battery charger) : Charger (It is used for charging TP500 direct)	
Approvals		FCC Part 15 class B	

*Note2) Assumption of battery consumption

: Main CPU operating rate (10% Run, 90% Idle)

: light off

Chapter 2 Operations

This chapter provides operating instructions for the TeamPad 500 Series hand-held computers (HHCs).

Figure 2.1 shows the keyboard and display (LCD) of a HHC. The HHC is powered from the internal lithium-ion battery pack.

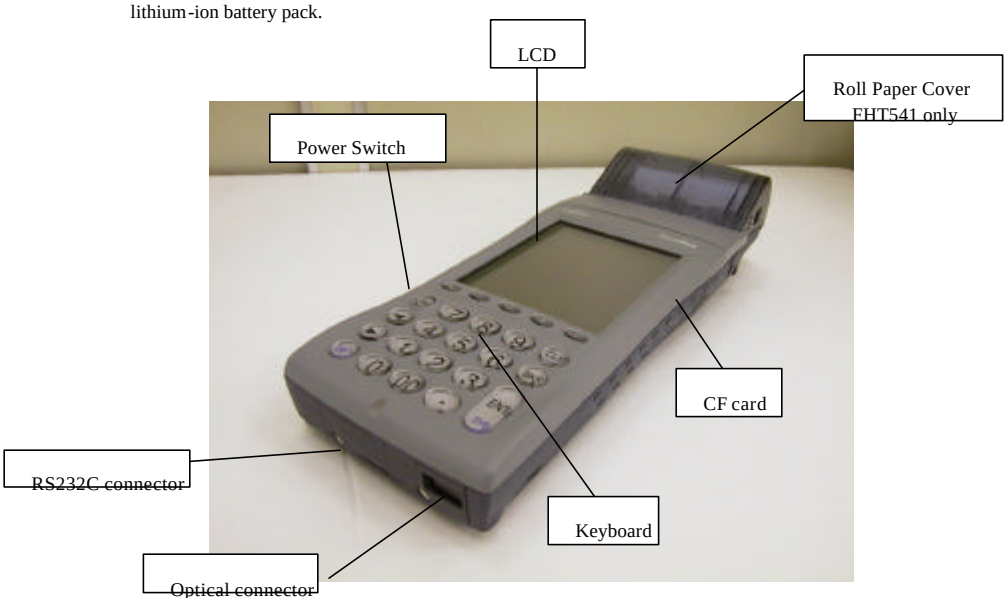


Figure 2.1 HHC keyboard and display

2.1 Holding the HHC

The HHCs are furnished with a hand strap on their back so you can hold them securely during use. Hold the HHC as shown in Figure 2.1.1.

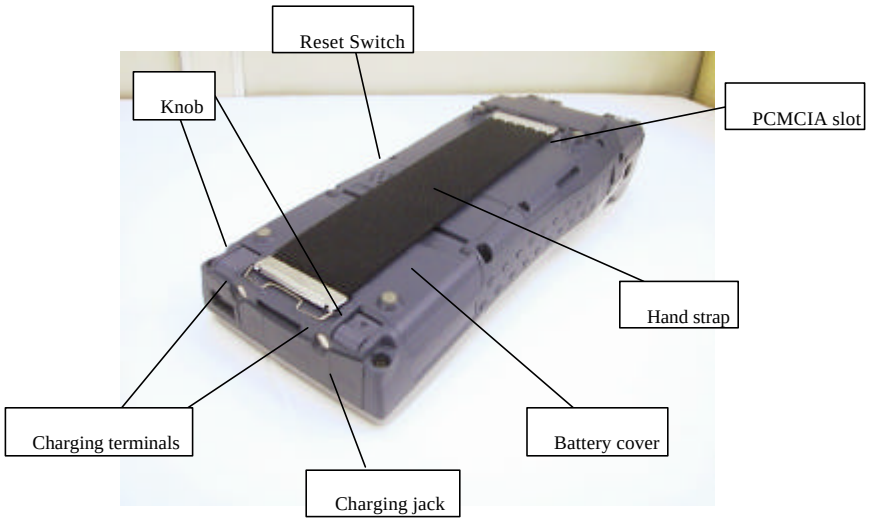


Figure 2.1.1 Holding the HHC

2.2 Turning On and Off the HHC Power

To turn on the HHC, press the [PWR] key. (Press time approximately 2 seconds)

To turn it off, press the [PWR] key.

2.3 Adjusting LCD Contrast

F8([SFT] + [F3]) key: Increases contrast.

F9([SFT] + [F4]) key: Decreases contrast.

To adjust the LCD contrast, press the above keys until the desired contrast is attained.

2.4 Turning On and Off the LCD Backlight

F7([SFT] + [F2]): turn on and off

To turn on the LCD light (yellow), press the [SFT] + [F2] key. Press again to turn off the LCD light.

The auto-light off feature can be accessed and modified through the programming. To turn on the LCD light again, press the [SFT] + [F2] key again.

2.5 Key Functions

As stated in Chapter 1, the HHC keyboard contains a set of 24 keys. This section shows their key labels and explains the functions of major keys.

2.5.1 Key Labels

Figure 2.5.1 shows the labels of those keys that are functional when the [SFT] key is pressed and those that are functional when it is not pressed.

(1) Normal state

F1	F2	F3	F4	F5

PWR	7	8	9	CLR
◀	4	5	6	BKS
▶	1	2	3	ENT
SFT	0	00	.	

(2) When the [SFT] key is pressed

F6(*)	F7	F8	F9	F10

				-
SFT				SYS

* F6 key is operable only on HHCs equipped with a printer.

Figure 2.5.1 Key labels

2.5.2 Functions of major keys

The table below describes typical functions of major keys.

[Examples]

Key	Function
F1 (Function 1)	(Note)
F2 (Function 2)	(Note)
F3 (Function 3)	(Note)
F4 (Function 4)	(Note)
F5 (Function 5)	(Note)
F6 (Function 6)	Feeds paper (only on HHCs equipped with a printer).
F7 (Function 7)	Turns on or off the LCD-light.
F8 (Function 8)	Increases contrast.
F9 (Function 9)	Decreases contrast.
F10 (Function 10)	Displays the Screen Key-Board
SYS (SYStem)	Starts tools, such as one for adjusting the buzzer volume, and adjusting the Touch Panel.
PWR (PoWeR on/off)	Turns on/off the HHC.
CLR (CLeaR)	(Note)
BKS (BacK Space)	Erases the last character of the text on display.
ENTer	Validates an entry.
SFT (ShiFT)	Switches between alphabetic and numeric characters.
-	Displays the current line.
	Displays the previous line.
	Displays the next line.
◀	Moves the cursor to left (by one position).
▶	Moves the cursor to right (by one position).
0 to 9	Enter numeric characters

Note:

These keys may depend in part on applications for their functions.

2.5.3 Roll paper cover (with a printer)

This section describes how to handle the roll paper cover and how to replace the roll paper.

2.5.3.1 Handling the roll paper cover

This section describes how to attach the roll paper cover and how to remove the roll paper cover.

- Attaching the roll paper cover

(1) Open the roll paper cover.

(2) As shown in the Figure 2.5.3.1, align the groove A on the top of the HHC with the groove B on the roll paper cover. Then, slide the roll paper cover in the direction of the arrow until it is firmly in place.

(3) Close the printer cover.

- Removing the roll paper cover

  Perform the attaching procedure in reverse order.

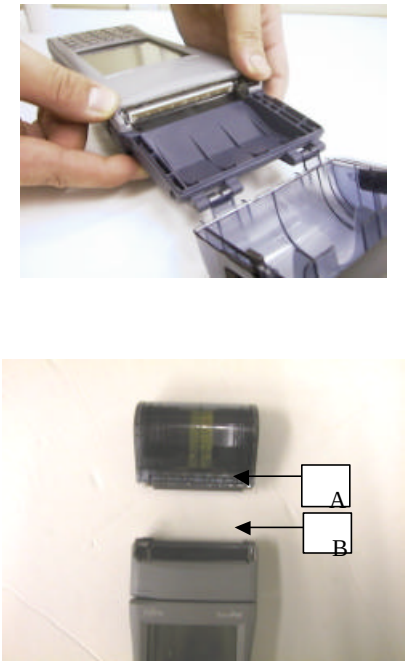


Figure 2.5.3.1 Roll paper cover

2.5.3.2 Replacing the roll paper

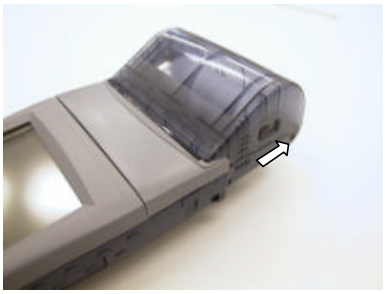
This section describes how to replace the roll paper.

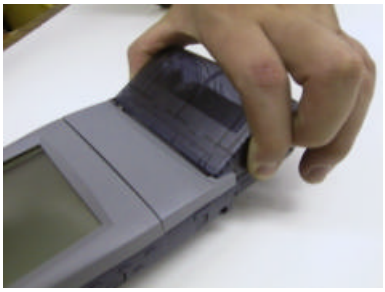
(1) Slide the side lock in the direction of the arrow.

(2) Open the roll paper cover. (Figure 2.5.3.2 (a))

(3) Insert the roll paper into the opening. (Figure 2.5.3.2 (b))

(a)





(b)

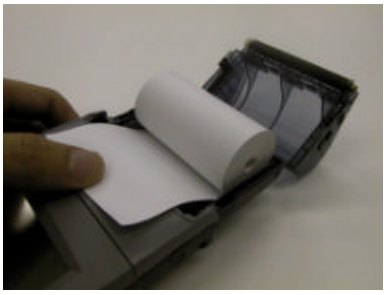


Figure 2.5.3.2 Replacing the roll paper

2.5.4 Replacing the printer

This section describes how to replace the printer unit.

Notes: After the printer operates, wait a while. Then, replace the printer unit.

The motor or printer head may overheat and may cause burn.

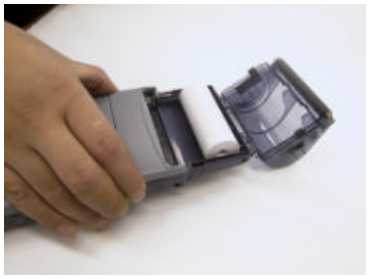
The following describes how to remove and attach the printer unit.

− Removing the printer unit

(1) Open the printer unit. (Figure 2.5.4 (a))

(2) Use the screwdriver to remove the screw of the printer unit holder. (Figure 2.5.4 (b))

(a)



(b)

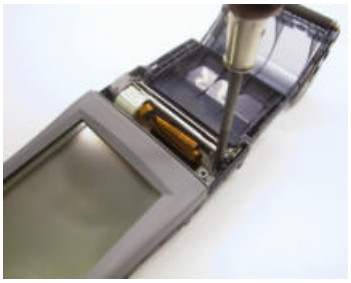


Figure 2.5.4.1 Removing the printer unit (1/3)

(4) Lift the printer unit to remove it from the cabinet. (Figure 2.5.4.1 (c))

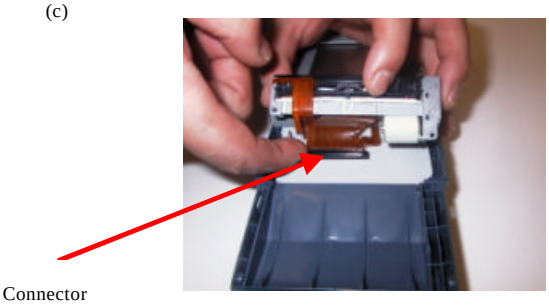
(5) Disengage the connector latches and remove the flexible cable from connector.

Notes:

Carefully remove the cable. Otherwise, connector may break.

(6) The printer unit is removed.

(c)



Connector

Figure 2.5.4.1 Removing the printer unit

– Attaching the printer unit

Perform the removing procedure in reverse order.

(1) Firmly insert the cables that correspond to connector. (Figure 2.5.4.2 (a))

(2) Set the connector latch with your finger toward the direction of arrow.

(3) Mount the printer unit in the HHC unit. (Figure 2.5.4.2 (b))

(4) Tighten two screws to fix the printer unit. (Figure 2.5.4.2 (c))

(5) Close the printer cover.

(a)

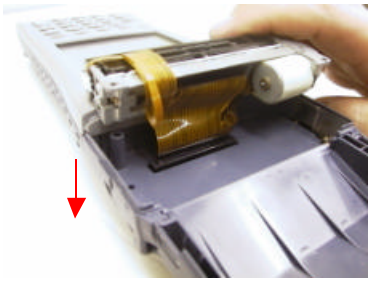


Figure 2.5.4.2 Attaching the printer unit (1/2)

(b)

(c)

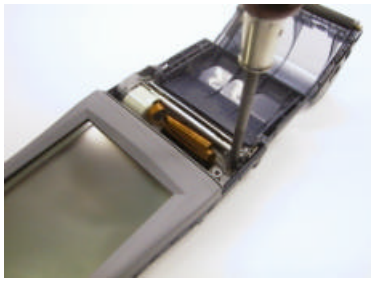


Figure 2.5.4.2 Attaching the printer unit (2/2)

2.6 Handling the Battery

When HHCs are being used in the stand-alone mode, they are powered from the internal lithium-ion battery pack. As the battery begins to run low on power, the message "Battery Alarm" will appear on the screen, telling you that the battery needs recharging.

The battery has an estimated service life of about 500 recharge and discharge cycles. Depending on the usage, the battery may expire less than 500 cycles.

Only use the proper lithium-ion battery specified below:

Manufacturer: Fujitsu Ltd.
Drawing number: CA54200-0095

2.6.1 Recharging the battery

While HHCs are placed in the CIU/holder, their internal lithium-ion battery pack begins recharging automatically. The battery, once discharged, requires about three hours to recharge completely.

The battery pack also takes about three hours to recharge when using the charger supplied with the HHC. For specific recharging instructions, refer to the relevant documentation.

2.6.2 Replacing the battery pack

The lithium-ion battery pack is expendable. Depending on the usage, the battery may expire less than 500 cycles. For disposal of the replaced battery, see the [Warning] in Section 2.7.

To replace the battery, follow these steps:

(1) Turn over the HHC.

(2) Pull the hand strap in the direction of the arrow to release its clip from the lower cover claw (see (a)).

(a)

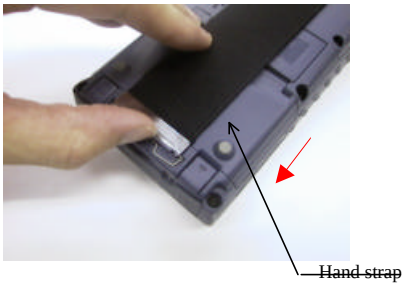
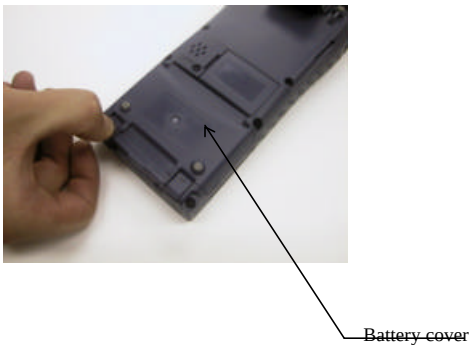


Figure 2.6.2 Replacing the lithium-ion battery pack (1/3)

(3) Release the left side lock of the battery cover. (see (b)).

(b)



(4) Slide the right side lock of the battery cover, lift the battery cover (see (c)).

(c)

Figure 2.6.2 Replacing the lithium-ion battery pack (2/3)

(6) Slide the battery upward (opposite to the ∇ mark on the battery) (see (d)).

(d)

Figure 2.6.2 Replacing the lithium-ion battery pack (3/3)

(7) Load a new battery, close the battery cover, and replace the hand strap in original position.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE. REMPLACER UNIQUEMENT A VEC UNE BATTERIE DU MÊME TYPE OU D'UN TYPE RECOMMANDÉ PAR LE CONSTRUCTEUR. METTRE AU RÉBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT.

2.7 Lithium Back-up Batteries (Auxiliary Batteries)

The HHCs are equipped with lithium back-up batteries to safeguard internal memory (RAM). The RAM is normally powered from the internal lithium-ion battery pack. These are automatically backed up by the auxiliary batteries which act to protect stored data when the lithium-ion battery pack has discharged.

The service life of the lithium backup battery varies depending on conditions such as temperature and usage of the HHC. Under optimal use, the lithium backup battery is functional until it is charged and discharged approximately 500 times. If the HHC is primarily used with the lithium-ion battery pack removed for some applications, the lithium backup battery deteriorates, losing capacity due to repeated charging and discharging. To prevent the deterioration of lithium backup batteries, take the following precautions:

(1) If the message "low main Battery" is displayed or the battery status display function indicates low charge, immediately use the CIU or the charger to charge the lithium-ion battery or replace it with a fully charged one.

(2) Make sure that the HHC is always loaded with the lithium-ion battery pack. Do not leave the HHC for a long time without the lithium-ion battery pack loaded.

The standard time for replacing the lithium backup battery is about two years if the above precautions are taken.

If the message "low sub Battery" is displayed a short time after the lithium backup battery is fully charged, the lithium backup battery needs to be replaced soon.

Because the lithium-ion battery pack needs to be unloaded when the lithium backup battery is replaced, the programs and data stored in memory are lost.

To prevent the programs and data from being lost, be sure to connect the HHC to the charger or save the contents of memory to IC memory cards or other backup media before replacing the lithium backup battery.

⚠ WARNING

Batteries may explode if not installed correctly. Replace with batteries of the same type or equivalent as recommended by the manufacturer. Dispose of used batteries as per the manufacturer's instructions.

Only use the proper lithium auxiliary battery specified below:
Manufacturer: Fujitsu Kiden Ltd.
Drawing number: KD54003-0010

To replace the lithium back-up batteries, follow the steps below.

Tips on replacement

These HHCs require you to unload the lithium-ion battery pack before you can replace the lithium back-up batteries. When it is necessary to back up RAM, save its data to a storage medium, such as a PCMCIA card, before proceeding with replacement work or carry out replacement work with the charger connected to the HHC.

(1) Turn over the HHC.

(2) Lift the outer lid of the battery cover with a coin or similar object and release the lid from the lower cover (see (a)).

(3) Take out the batteries and disconnect the cable from the connector.

(a)

(b)

Figure 2.7 Replacing the lithium back-up batteries (auxiliary batteries)

Note:

When disconnecting the cable, hold it by both connectors. Do not pull directly on the wire.

(4) Load new batteries by reversing the removal steps.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE. REMPLACER UNIQUEMENT A VEC UNE BATTERIE DU MÊME TYPE OU D'UN TYPE RECOMMANDÉ PAR LE CONSTRUCTEUR. METTRE AU RÉBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT.

2.8 RS-232C Interface

The HHCs have an RS-232C connector, through which data can be directed to a host computer. This transmission, however, requires the use of an RS-232C cable.

2.9 Memory Cards (Option)

PCMCIA-compatible Type II cards can be inserted in the HHCs. To insert and remove memory cards, follow these steps:

(1) To open the card cover, slide the lock in the direction of the arrow.

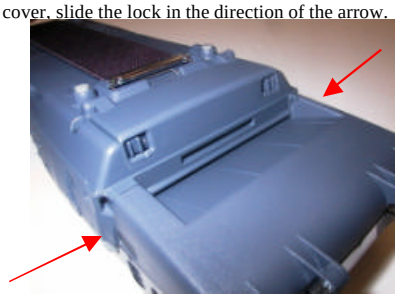


Figure 2.9 Inserting and removing memory cards (1/4)

(2) Turn back the HHC, and insert the card in the card slot, the side marked with the arrow mark (△) facing up. Push the card into position gently until its end is even with the corresponding EJECT button.

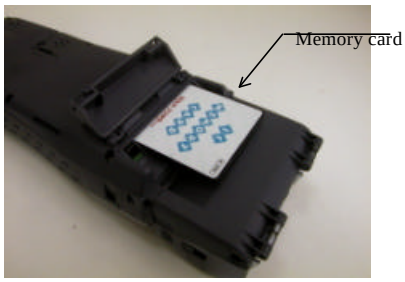


Figure 2.9 Inserting and removing memory cards (2/4)

(3) When removing a card, open the card cover and then press the corresponding EJECT button.

(4) When the card comes out of the front, gently finish pulling it out with your hands.

2.10 Cleaning

(1) Main Unit Cover

Wipe the cover with a cloth dampened with alcohol (ethyl alcohol), a cloth dampened with an aqueous solution of neutral detergent and wrung tightly, or a dry cloth.
If you use a cloth dampened with an aqueous solution of neutral detergent, be sure to wring it tightly; otherwise, the solution may enter the unit, causing problems.
Do not use volatile matter such as thinner and benzene, which may cause discoloration or fading.

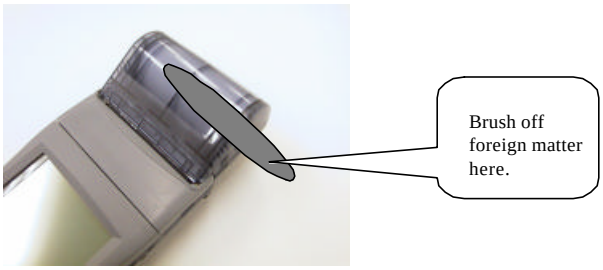
Display

Wipe the display with a cloth dampened with alcohol (ethyl alcohol), a cloth dampened with water and wrung tightly, or a fine cloth that could be used to clean eyeglasses.

Printer (When built in)

- Cleaning before role paper replacement

Before opening the role paper cover, brush off foreign matter, such as dust and sand.



If dust or sand enters the gears in the printer, a printing failure or operational failure may occur.

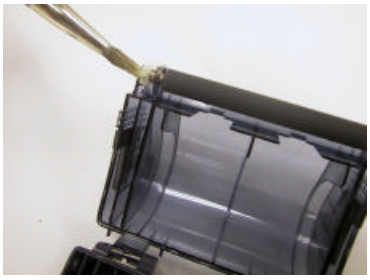
- Periodic cleaning of printer

Power off the handy terminal.

(1) Platen (To be cleaned once a week)

Open the role paper cover.

Brush off foreign matter, such as dust and sand, from the gears with a soft nylon brush.



Use gauze dampened with volatile alcohol (such as ethyl alcohol) to wipe the rubber roller while rotating the platen.

(2) Printer (To be cleaned once a week)

Remove the printer.

Completely clean the printer with a soft nylon brush. Especially, brush off foreign matter, such as dust and sand, from the gears.

If small residue cannot be removed, blow it off with an airbrush.

Clean the heating part of the head carefully with a cotton swab dampened with ethyl alcohol.

Note: Do not use sandpaper, which may damage the heating part, and do not exert too much pressure on the thermal head.

Use a wet cloth with alcohol (ethyl alcohol) or a light cleaning solution which is squeezed tightly, or just use a dry cloth. Do not allow any liquids to enter the device in order to prevent damage occurring to the device when you use cleaning liquid and do not use volatile materials such as thinner or benzene because such materials may cause corrosion or remove color from the frame.

2.11 Notes

This section describes the notes on operating TeamPad 500 HHC.

2.11.1 Installation (Initialization)

When turning on the HHC power for the first time, load a fully charged battery.