

DENSO

BHT-600BW

Barcode Handy Terminal

Operator's Guide

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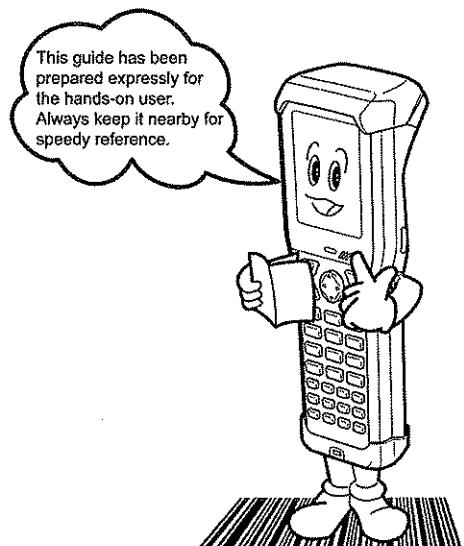
Using the BHT

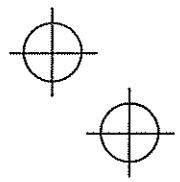
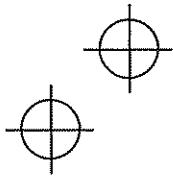
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Troubleshooting





Thank you for using the BHT-600BW DENSO WAVE Barcode Handy Terminal.

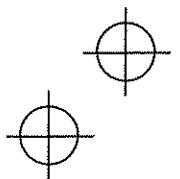
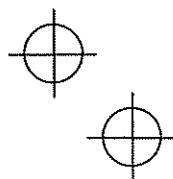
Please read this manual thoroughly prior to operation to ensure full use of the product's functionality, and store safely in a convenient location for quick reference even after reading.

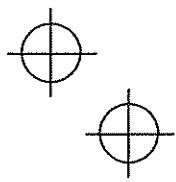
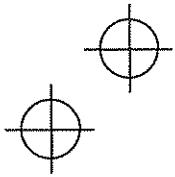
This manual contains only the basic details required for operation.

Please refer to the User's Manual for further details on general operation.

The User's Manual can be downloaded free of charge from the DENSO WAVE Web site (QBnet).

The latest precision manufacturing technology yields LCD panels with an effective resolution of 99.99% or higher. The downside, however, is that up to 0.01% of the pixels can remain permanently dark or lit on today's state-of-the-art panels. Furthermore, please be aware that individual differences may occur in the screen color and brightness due to the characteristics of the white LEDs used in the LCD display backlight.





■ About this Manual

- Due to improvements and so on, the content of this manual may be subject to change without prior notice.
- The reproduction or duplication of the whole or part of this manual is strictly prohibited without prior consent.
- Please contact DENSO WAVE if this manual is lost.
- Every attempt has been made to ensure that the content of this manual is thorough and up to date, however, we kindly ask that any questionable content, mistakes, or omissions be reported to DENSO WAVE.

Related Manuals

The following manuals can all be downloaded free of charge from the DENSO WAVE Web site (QBnet).

- **BHT-600BW User's Manual**

Instructions for using the handy terminal (BHT-600BW) and optical communication unit (CU-600)

- **BHT-BASIC Application Development Manual (For Beginners)**

Description of commonly used functions intended for those developing applications with BHT-BASIC for the first time.

- **BHT-BASIC Programmer's Manual (For BHT-600 Series)**

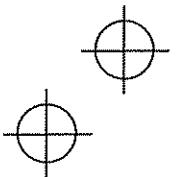
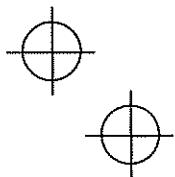
Description for developing application programs of the handy terminal in BHT-BASIC

This manual is contained on the BHT-BASIC Compiler CD-ROM.

- **BHT-BASIC 4.0 Transfer Utility User's Guide**

Description about software that transmits data and programs between the handy terminal and computer

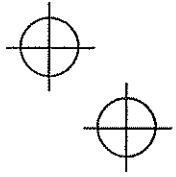
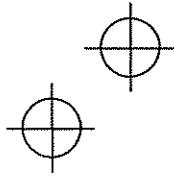
This guide comes with the BHT-BASIC 4.0 Transfer Utility.





■ Liability Limitations

- DENSO WAVE INCORPORATED does not assume any product liability (including damages for lost profits, interruption of operations, or the loss of business-related information) arising out of, or in connection with, the use of, or inability to use the BHT system software or related manuals.
- DENSO WAVE INCORPORATED ("DENSO WAVE") takes reasonable precautions to ensure its products do not infringe upon any patents or other intellectual property rights of other(s), however, DENSO WAVE cannot be responsible for any patent or other intellectual property right infringement(s) or violation(s) arising from any of the following.
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 - (2) The use of DENSO WAVE's products in a manner for which they were not intended nor designed.
 - (3) The modification of DENSO WAVE's products by parties other than DENSO WAVE.
- If it is judged by DENSO WAVE INCORPORATED that malfunction of the product is due to the product having been dropped or subjected to impact, repairs will be made at a reasonable charge even within the warranty period.



■ Customer Registration

To allow us to provide our customers with comprehensive service and support, we request that all customers complete a Member Registration Form. Registered members will be offered the following privileges.

- The latest upgrade information
- Free exhibition and event information for new products
- Free Web-information service "QBnet."

QBnet Service Contents

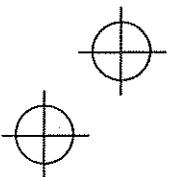
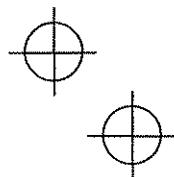
Information searching service (FAQ)	Offers detailed information on each product.
Download service	Offers downloads of repair modules for the latest BHT Series systems or software, and sample programs.
E-mail inquiries	Product related queries can be sent in by e-mail.

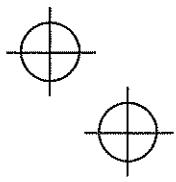
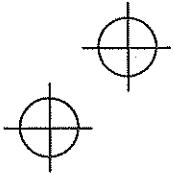
* Please note that these privileges may be subject to change without prior notice.

How to Register

Access the URL below and follow the instructions provided.

<http://www.denso-wave.com/en/adcd/support/>





SAFETY PRECAUTIONS

Be sure to observe all these safety precautions.

Strict observance of these warning and caution indications are a MUST for preventing accidents which could result in bodily injury and substantial property damage. Make sure you fully understand all definitions of these terms and related symbols given below, before you proceed on to the text itself.

WARNING

Alerts you to those conditions which could cause serious bodily injury or death if the instructions are not followed correctly.

CAUTION

Alerts you to those conditions which could cause minor bodily injury or substantial property damage if the instructions are not followed correctly.

Meaning of Symbols



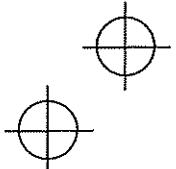
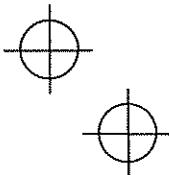
A triangle (\triangle) with a picture inside alerts you to a warning of danger. Here you see the warning for electrical shock.

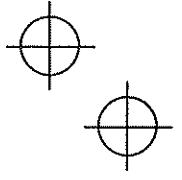
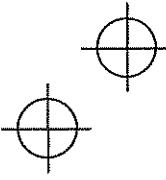


A diagonal line through a circle (\bigcirc) alerts you to something you should not do; it may or may not have a picture inside. Here you see a screwdriver inside the circle, meaning that you should not disassemble.



A black circle (\bullet) with a picture inside alerts you to something you MUST do. This example shows that you MUST unplug the power cord.





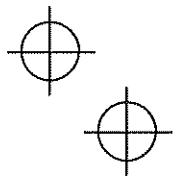
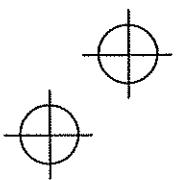
⚠ WARNING

To System Designers:

	<ul style="list-style-type: none">When introducing BHTs in those systems that could affect human lives (e.g., medicines management system), develop applications carefully through redundancy and safety design which avoids the feasibility of affecting human lives even if a data error occurs.
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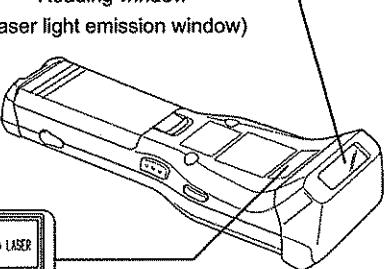
Handling the battery cartridge

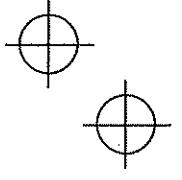
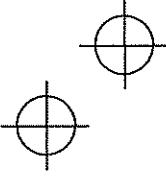
	<ul style="list-style-type: none">Never disassemble or heat the rechargeable battery cartridge, nor put it into fire or water; doing so could cause battery-rupture or leakage of battery fluid, resulting in a fire or bodily injury.Do not carry or store the battery cartridge together with metallic ballpoint pens, necklaces, coins, hairpins, etc. Doing so could short-circuit the terminal pins, causing the batteries to rupture or the battery fluid to leak, resulting in a fire or bodily injury.Never put the battery cartridge into a microwave oven or high-pressure container. Doing so could cause the batteries to break, generate heat, rupture or burn.Avoid dropping the battery cartridge or letting it undergo any shock or impact. Doing so could cause the batteries to break, generate heat, rupture or burn.Never charge the rechargeable battery cartridge where any inflammable gases may be emitted; doing so could cause fire.
	<ul style="list-style-type: none">Only use the dedicated charger for charging the rechargeable battery cartridge. Using a different type of charger could cause battery-rupture or leakage of battery fluid and result in a fire, bodily injury, or serious damage to property.



! WARNING

Handling the BHT

	<ul style="list-style-type: none">The BHT uses a laser light for indicating the scanning range. The intensity of the laser light might be too low to inflict bodily injury. However, do not look into the laser light. <p>The BHT complies with IEC 60825-1:1993+A2:2001 and 21 CFR 1040.10, 1040.11 except for deviations pursuant to laser notice No. 50, dated July 26, 2001.</p> <p>In accordance with Clause 5, IEC 60825-1, the following information is provided to the user:</p> <p>Reading window (Laser light emission window)</p>  <p>LASER LIGHT DO NOT STARE INTO BEAM CLASS 2 LASER PRODUCT</p>  <p>Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.</p>
	<ul style="list-style-type: none">Never put the BHT into a microwave oven or high-pressure container. Doing so could cause the BHT to break, generate heat, rupture or burn.



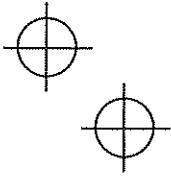
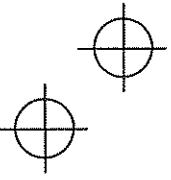
! CAUTION

Handling the battery cartridge

	<ul style="list-style-type: none">Never charge a wet or damp rechargeable battery cartridge. Doing so could cause the batteries to break, generate heat, rupture or burn.
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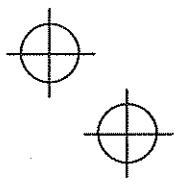
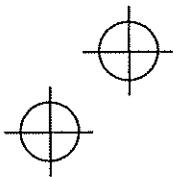
Handling the BHT

	<ul style="list-style-type: none">If smoke, abnormal odors or noises come from the BHT, immediately turn off the power, pull out the battery cartridge, and contact your nearest dealer. Failure to do so could cause smoke or fire.If foreign material or water gets into the BHT, immediately turn off the power, pull out the battery cartridge, and contact your nearest dealer. Failure to do so could cause smoke or fire.If you drop the BHT so as to damage its housing, immediately turn off the power, pull out the battery cartridge, and contact your nearest dealer. Failure to do so could cause smoke or fire.Do not use batteries or power sources other than the specified ones; doing so could generate heat or cause malfunction.
 Never disassembly	<ul style="list-style-type: none">Never disassemble or modify the BHT; doing so could result in an accident such as break or fire.
	<ul style="list-style-type: none">Never put the BHT in places where there are excessively high temperatures, such as inside closed-up automobiles, or in places exposed to direct sunlight. Doing so could affect the housing or parts, resulting in a fire.Avoid using the BHT in extremely humid or dusty areas, or where there are drastic temperature changes. Moisture or dust will get into the BHT, resulting in malfunction, fire or electrical shock.In environments where static electricity can build into significant charges (e.g., if you wipe off the plastic plate with a dry cloth), do not operate the BHT. Doing so will result in malfunction or machine failure.



⚠ CAUTION

	<ul style="list-style-type: none">When connecting or disconnecting the direct-connect interface cable to/from the BHT, do not plug or unplug it at an angle and do not pull the cable strongly. Doing so will result in a machine failure.
	<ul style="list-style-type: none">If the BHT has been stored in a hot (50°C to 60°C, 122°F to 140°F) and humid place, allow it to sit at room temperature and humidity for at least one day before use. Using the BHT with its inside being hot will fail to scan or result in a machine failure.



FCC and IC Regulations

This device complies with Part 15 of the FCC Rules, Canada ICES-003, RSS-210 and RSS-Gen of IC Rules.

Operation is subject to the following two conditions :

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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

NOTE : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

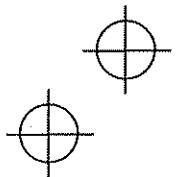
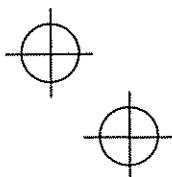
FCC Radiation Exposure Statement

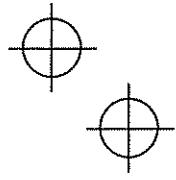
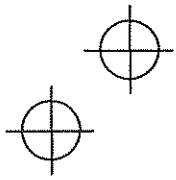
This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

FCC/ IC Radiation Exposure Statement

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. This Barcode Handy Terminal (BHT-600BW) that is installed NJT-517 (FCC ID: D7LNJT517/ IC: 1551C-NJT517) has been tested and found to comply with FCC/ IC radiation exposure limits set forth for an uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules.

X



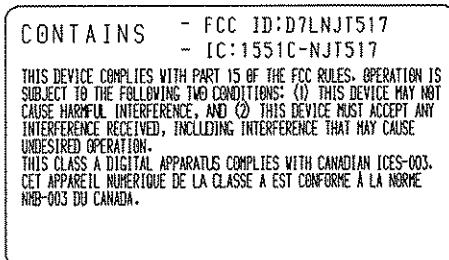


ICES-003 Regulation

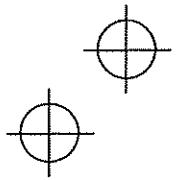
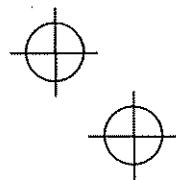
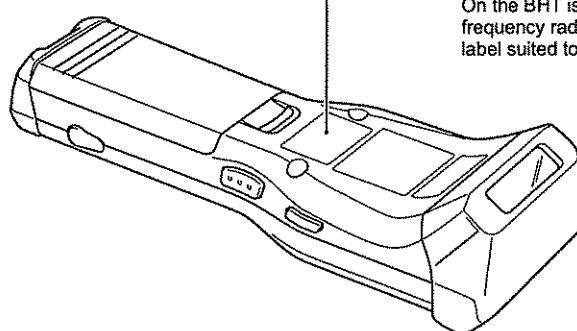
This Class A digital apparatus complies with Canadian ICES-003.

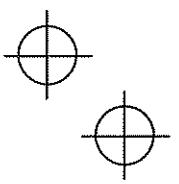
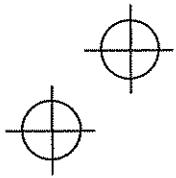
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Labeling



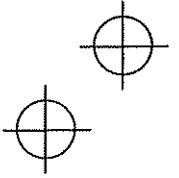
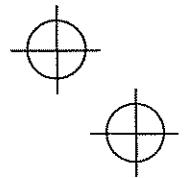
On the BHT is a radio frequency radiation related label suited to the destination.





MEMO

xii



■ Usage Precautions

Usage environment restrictions

- **Do not use the BHT where it may be exposed to fire, high temperatures, or direct sunlight.**
(Failure to observe this may result in damage, overheating, explosion, or fire.)
- * When the BHT is stored in a high-temperature, high-humidity environment of 50 to 60° C, leave to sit in a location at room temperature and normal humidity for at least 1 day prior to use. Failure to observe this may cause a scanning failure or damage the BHT.
- **Do not use the BHT in places with extreme temperature variations.**
(Failure to observe this may lead to BHT malfunction due to condensation.)
- * Leave the BHT for a short while prior to use when moved from a cold to a warm environment.
- **Do not use the BHT in places where it may be exposed to strong impact or significant static electricity.**

Keep the BHT away from electromagnetic waves and metallic objects.

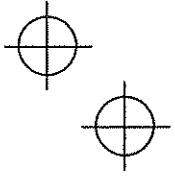
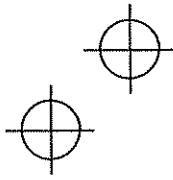
Wireless communication may not be possible in the following locations.

- **In the vicinity of the following devices operating on a 2.4GHz waveband**
(Communication may not be possible due to electromagnetic interference.)
- Industrial, scientific, or medical equipment such as microwave ovens
- Wireless LAN devices
- Logistics systems in places such as plants or warehouses
- Wireless devices such as personal or amateur radio stations
- **In the vicinity of household appliances emitting electromagnetic waves such as computers or televisions**
(Communication may not be possible due to electromagnetic noise.)
- **In the vicinity of metallic objects, in places with high levels of metallic dust, or in places surrounded by metal walls**
(Communication may not be possible due to the presence of metallic objects.)

Avoid light interference.

Infra-red communication may not be possible due to light interference.
Ensure to observe the following when performing infra-red communication.

- **Do not operate remote control units for televisions and so on nearby.**
- **The BHT should not be exposed to light interference such as strong illumination (especially the inverter fluorescent lamp) or sunlight.**



■ Wireless Equipment

• Precautions relating to the frequency used by this device

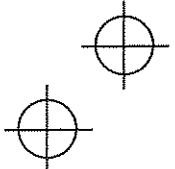
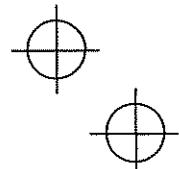
In addition to industrial, scientific, and medical equipment such as microwave ovens, static wireless stations (permit required) used for mobile identification in places such as plant manufacturing lines and specified low-power wireless stations (no permit required) operate on the same frequency band as this device.

1. Before using this device, ensure that no static wireless stations or specified low-power wireless stations for mobile identification are being used in the vicinity.
2. In the event of instances of electromagnetic interference from this device to a static wireless station being used for mobile identification, either promptly alter the usage frequency, or halt the electromagnetic discharge
3. If other problems arise due to reasons such as electromagnetic interference from this device to a specified low-power wireless station being used for mobile identification, please contact DENSO WAVE through QBnet (see page iv).

Introduction

• Requests to system designers

- Communication may not be possible depending on the environment in which the device is being used. Ensure that problem-free communication is possible prior to use.
- Use a program capable of retransmitting data if communication fails.
- If the BHT is introduced into an environment in which a device using 2.4GHz waveband electromagnetic waves is operating, or if a another device using 2.4GHz waveband electromagnetic waves is introduced following introduction of the system, run all devices and ensure that communication with the BHT is possible prior to use.
- Check communication once again prior to use if any changes are made to the usage environment (addition of household appliances, movement or addition of shelves, equipment and so on) following introduction of the system.

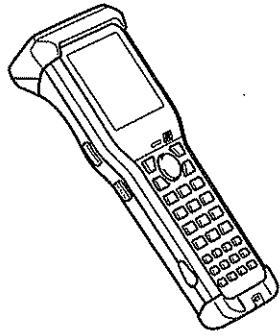


Introduction

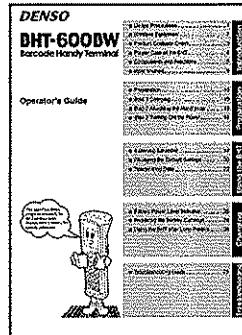
Product Contents Check

Ensure you have all of the following items prior to use. Contact your dealer in the event that any items are missing or damaged.

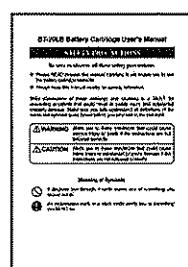
Handy terminal
(BHT-600BW)



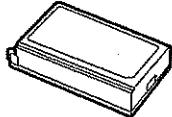
Operator's Guide
(this manual)



User's Manual
(for BT-20LB)



Rechargeable battery cartridge:
BT-20LB (Lithium-ion battery) (1)



Hand strap



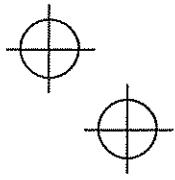
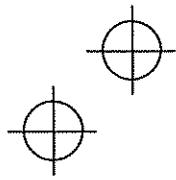
♦ Option

Please refer to the DENSO WAVE Web site for details.

(<http://www.denso-wave.com/>)

Software	: BHT-BASIC 4.0 Development Pack, BHT Advanced Pack II etc.
Communication units	: CU-601, CU-611, CU-621
Battery chargers	: CH-201A, CH-651, CH-654
Rechargeable battery cartridge	: BT-20LB
Other	: Soft case etc.

Refer to page ii for details of related manuals such as the User's Manual.



■ Proper Care of the BHT

Introduction

Ensure to turn OFF the BHT before cleaning.

• BHT terminal, charger terminal dirt

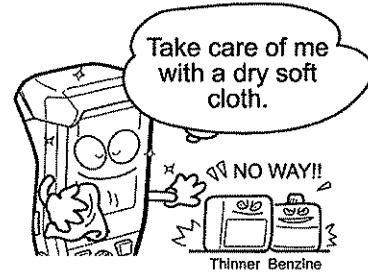
Periodically wipe any dirt from the BHT or battery terminals with a cotton swab and so on.

• Housing dirt

Wipe any dirt from the housing with a dry, soft cloth.

If excessively dirty, wipe with a soft cloth that has been soaked in soapy water (always use neutral detergent) and wrung out thoroughly.

Never use substances such as benzene or alcohol, as this may cause the housing to be marred or paint to peel off.



• LCD screen dirt

Never rub or strike the LCD screen with anything hard, as this may result in scratches on the screen or breakage.

• Keypad dirt

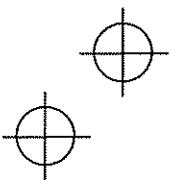
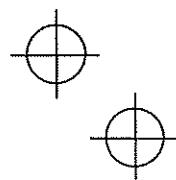
When cleaning the keypad, do not scrub the surface too hard or pull on the keys, as this may break the keys.

• Barcode reading window dirt

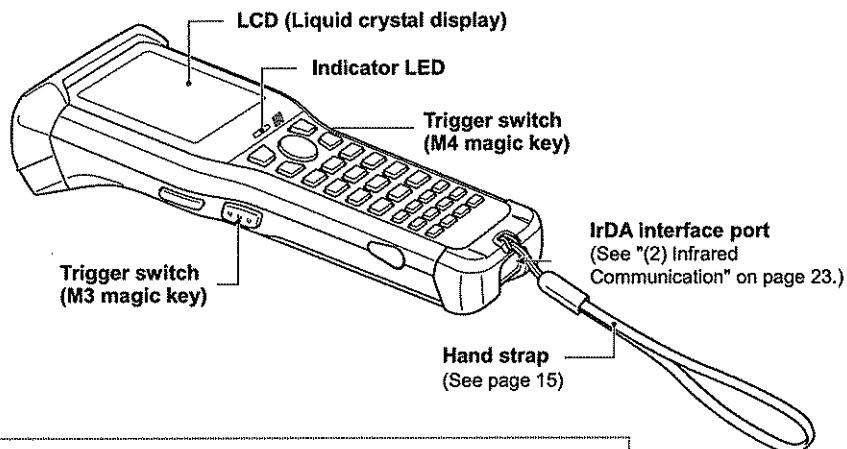
Any dirt or dust adhering to the clear plate of the barcode reading window will adversely affect reading performance.

When using in dusty areas, perform periodic inspections to check whether any dust has accumulated on the clear plate of the barcode reading window, and if so, first blow the dust away with an airbrush, and then gently wipe the plate with a cotton swab or similar soft object.

If sand or hard particles have accumulated, rubbing the plate will result in scratches. Blow the particles away with an airbrush or wipe with a soft brush.



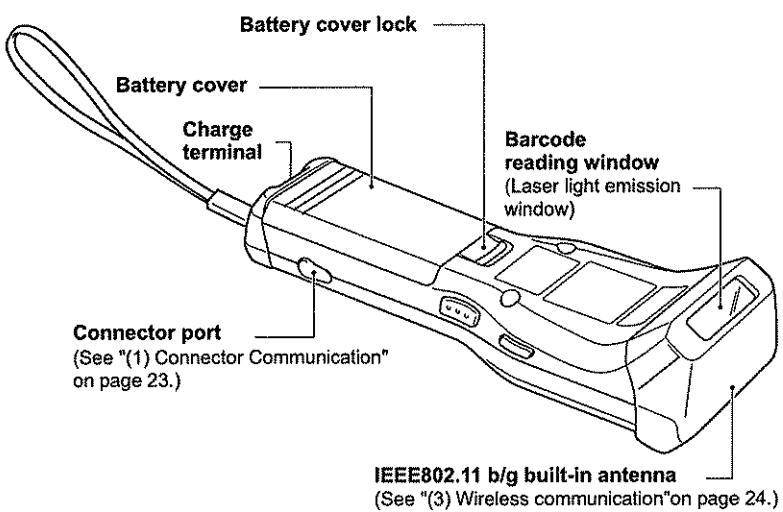
Components and Functions

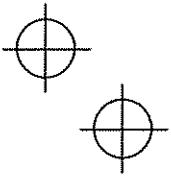
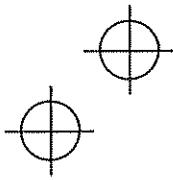


Trigger switch (M3, M4 magic keys):

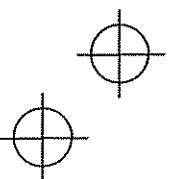
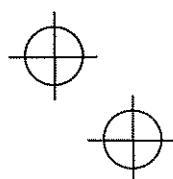
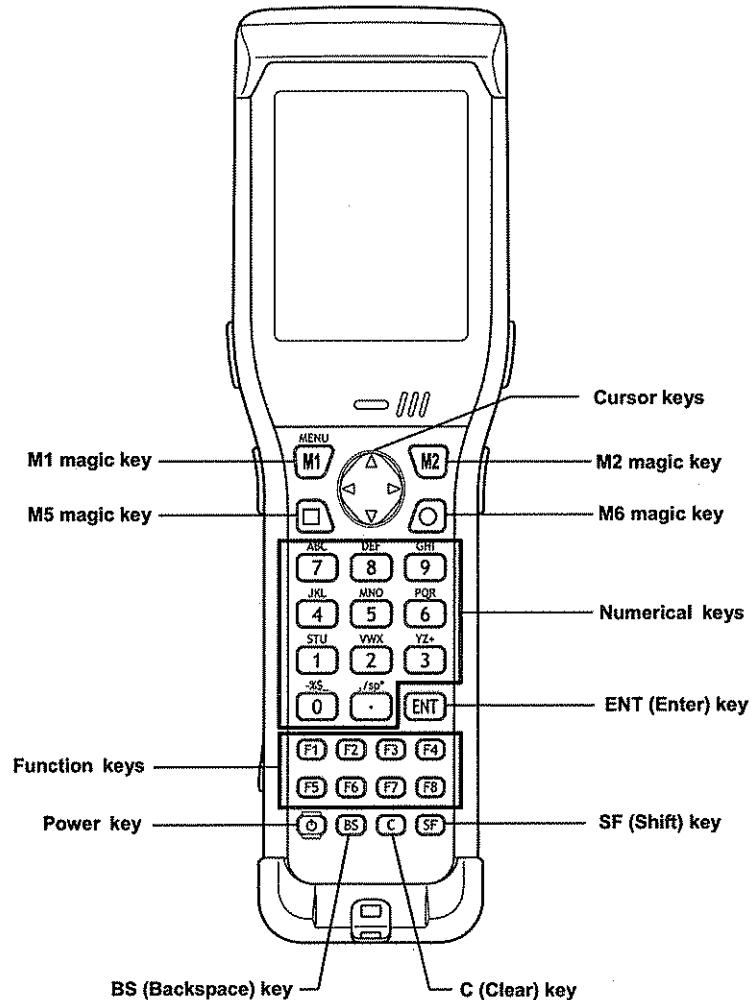
- Press when scanning a barcode.
- The **SF** and **ENT** key functions can be assigned by making settings at the **SYSTEM MENU** (Note).
- Character strings can be assigned at user programs.

Note: Refer to the User's Manual for details of the **SYSTEM MENU** operation method.



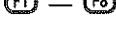


Components and Functions

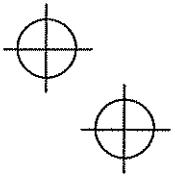
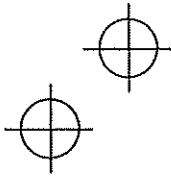


Introduction

Components and Functions

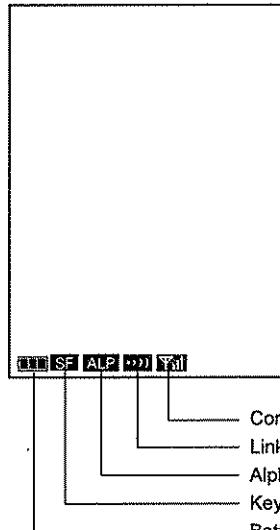
	M1 magic key	<ul style="list-style-type: none">The SF and ENT key functions can be assigned to this magic key by making settings at the SYSTEM MENU.Character strings can be assigned at user programs. <p>* The MENU screen (page 20) displays when held down for one second or longer.</p>
	M2 magic keys	
	M5 magic key	<ul style="list-style-type: none">The SF and ENT key functions can be assigned to these magic keys by making settings at the SYSTEM MENU.Character strings can be assigned at user programs.
	M6 magic key	
	Cursor keys	Used to move the cursor and select menus.
	Enter key	Press to finalize entered data or execute operations.
	Backspace key	Deletes the last entered character.
	Clear key	Cancels entry and returns the LCD display to the previous screen.
	Shift key	Used in combination with other keys such as the numerical keys, BS key, or power key [○] for special input procedures.
	Function keys	Used to select functions. * Function key functions are assigned at user programs. Refer to the "BHT-BASIC Programmer's Manual (For BHT-600 Series)" for further details.
	Numerical keys	Used to enter data.
	Power key	Turns the BHT power ON and OFF.

* Refer to the User's Manual for details on how to operate the SYSTEM MENU.



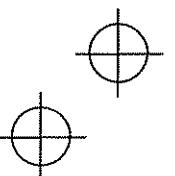
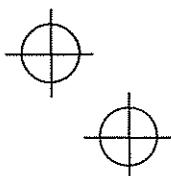
Components and Functions

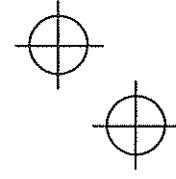
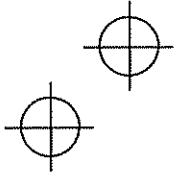
Screen Display



- Connection status with access point
- Link status with CU-611
- Alphabet entry status
- Key shift status
- Battery icon

	This is the battery icon. Indicates the current battery power level. (See page 25.)
	Displays when the SF key is pressed and the keys are in the shift status.
	When the SF key is pressed while set to alphabet entry mode at the user program, the entry mode changes from "numeric entry" to "alphabet entry" and ALP displays. Alphabet entry is used when performing FTP settings. Refer to the User's Manual for details.
	Link icon displays when a link is established with the CU-611. When an attempt is made to perform communication with the CU-611 when no link has been established, the Link icon flashes. When there is no response from the CU-611, when waiting for the link with the CU-611 to be established, or when waiting for the link to be disengaged, the icon displays in the order Link icon → Link icon → Link icon → Link icon → Link icon .
	Displays when the BHT is connected to the access point. The radio field intensity status displays as follows. Strong → Weak → None None displays when the BHT is not connected to the access point.





Introduction

■ Input Method

Numeric Data Entry

Enter numeric data such as product volume with the numeric keys and Enter (ENT) key.

If numeric data is entered incorrectly, use the backspace key (BS) to delete the data and then reenter with the numeric keys.

When Entering "120"	Key Operation
Press numeric keys 1, 2, and 0 followed by the Enter key.	 1 2 0 ENT

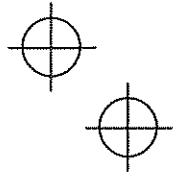
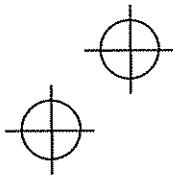
Task Selection

If a selection item such as "1:XXX 2:XXX" with numeric values displays, enter the values with the numeric entry keys and then press the Enter key.

When Selecting Task 2:XXX	Key Operation
Press numeric key 2 followed by the Enter key.	 2 ENT

If a YES/NO selection screen such as "1:YES 2:NO" displays, press numeric key [1] to select "YES", and [2] to select "NO".

When Selecting "1:YES"	Key Operation
Press numeric key 1 followed by the Enter key.	 1 ENT



■ Preparation

Follow the steps below to prepare the BHT for use.

Step 1 Charging (Page 10)

First charge the battery.

Step 2 Attaching the Hand Strap (Page 15)

Attach the hand strap to prevent the BHT from being dropped.

Step 3 Turning ON the Power (Page 16)

Preparation is now complete.

Preparation

■ Step 1 Charging

The BHT battery is not charged when purchased and must therefore be charged prior to use.

The following chargers can be used with the BHT.

Communication units: CU-601, CU-611, CU-621

Battery chargers: CH-201A, CH-651, CH-654

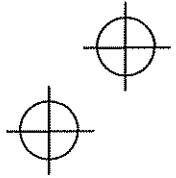
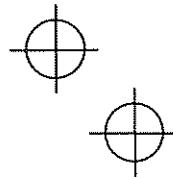
- * The CH-201A charger is used for charging individual battery, and the CH-651, CH-654 is a stand-type charger.

The charge time is approximately 3 hours.

- The charge time is approximately 7 hours using the CU-621 with power supplied via the USB port.
- An almost completely discharged battery cartridge should take this time to become fully charged.

Charging Precautions

- Do not touch the BHT, battery, or charger terminals by hand or stain them. Doing so could result in a contact failure or prevent charging.
- Never charge the battery near fire or in a high-temperature environment. High-temperatures may activate the charger's protective device, preventing charging, and lead to protective device damage, overheating, blowout or combustion.
- Terminate charging if not completed even after the specified time has elapsed.
- Do not use battery cartridges other than that specified by DENSO WAVE



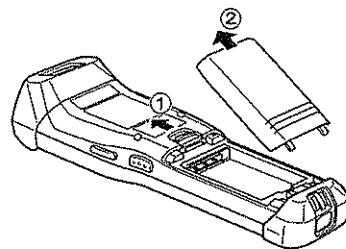
Preparation

Step 1 Charging

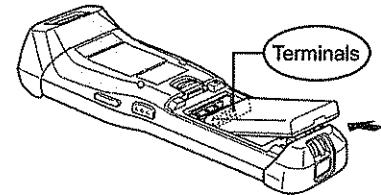
Charging with the communication unit (CU-601, CU-611, CU-621) or battery charger (CH-651)



1 Slide the battery cartridge cover release button (1) in the direction indicated by the arrow and remove the battery cartridge cover (2).



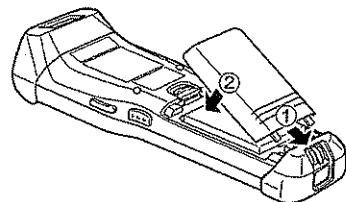
2 Check the battery cartridge terminals and indication on the BHT unit, and then insert the cartridge in the direction indicated by the arrow.



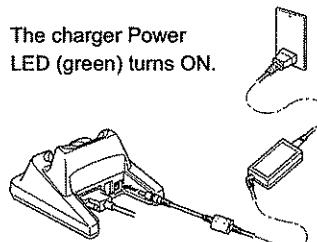
Point

Do not use battery cartridges other than that specified by DENSO WAVE.

3 Insert the battery cartridge cover tab (1), and then close the battery cartridge cover (2) to lock the cover in position.



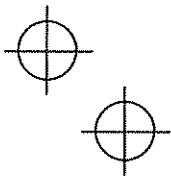
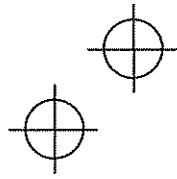
4 Connect the dedicated AC adapter to the DC input connector on the charger and plug the adapter into the wall socket.



The charger Power LED (green) turns ON.

Note:

Power for the CU-621 can be obtained from a USB connection port (host computer or hub), however, charging is not possible while the host computer is in suspend mode. Charging is resumed when suspend mode is exited. This can be avoided using a dedicated AC adapter to supply power. Suspend mode is a power saving function used to temporarily put the computer on standby when not in use.



Step 1 Charging

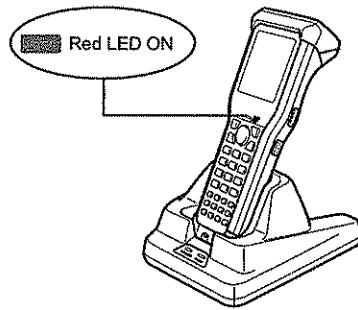
5

Place the BHT on the charger.

Point

After placing the BHT on the charger when using the BHT for the first time or when left unused for long periods of time, do not remove from the charger for approximately 10 minutes.

The LED illuminates in red and charging begins.



Preparation

Note:

The BHT is equipped with a back-up battery used to back-up the internal memory and calendar clock. The internal back-up battery is charged first when charging is commenced.

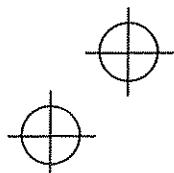
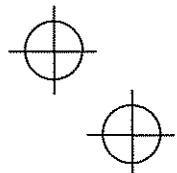
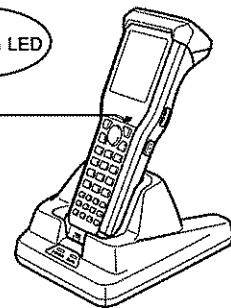
Do not remove the BHT from the charger for at least 10 minutes when using the BHT for the first time or when using after long periods of time.

6

The BHT indicator LED will change to green when charging is complete.

Point

- Charging takes approximately 3 hours.
- Charging takes approximately 7 hours when using the CU-621 with power supplied via the USB port.
- An only slightly discharged battery cartridge should take this time to become fully charged.



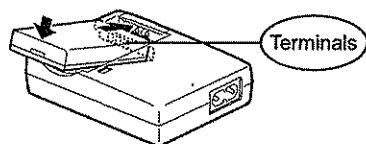
Preparation

Step 1 Charging

Charging with the battery charger (CH-201A)

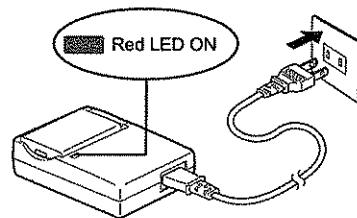


1 Check the battery cartridge terminals and insert the cartridge.



2 Connect the power cable to the CH-201A and connect the plug to a commercial AC power source (100 V AC).

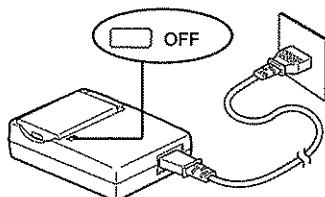
The LED will turn red when charging is commenced.



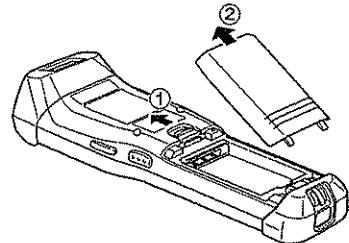
3 The LED will turn OFF when charging is complete.

Point

- Charging takes approximately 3 hours.
- An only slightly discharged battery cartridge should take this time to become fully charged.



4 Slide the battery cartridge cover release button (1) in the direction indicated by the arrow and remove the battery cartridge cover (2).



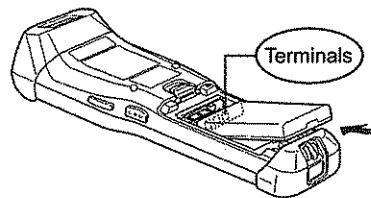
Step 1 Charging

5

Check the battery cartridge terminals and indication on the BHT unit, and then insert the cartridge in the direction indicated by the arrow.

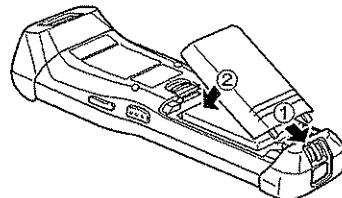
Point

Do not use battery cartridges other than that specified by DENSO WAVE.



6

Insert the battery cartridge cover tab (1), and then close the battery cartridge cover (2) to lock the cover in position.



Preparation

Note:

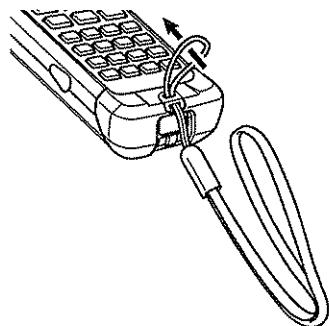
The BHT is equipped with a back-up battery used to back-up the internal memory and calendar clock.
The internal back-up battery is charged first a charged battery cartridge is inserted.
Do not remove the BHT from the charger for at least 10 minutes when using the BHT for the first time or when using after long periods of time.

■ Step 2 Attaching the Hand Strap

Attach the hand strap to prevent the BHT being accidentally dropped when performing operation.

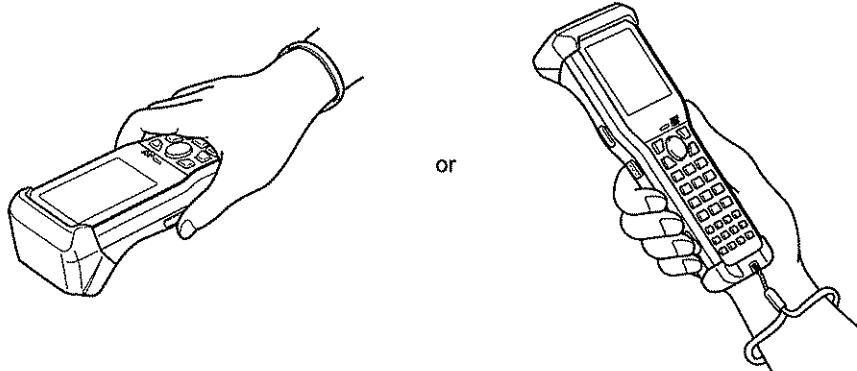
Hand Strap Attachment

Attach the hand strap as shown below.



Holding the BHT

Attach the hand strap to your wrist and hold the BHT as shown below.



■ Step 3 Turning ON the Power

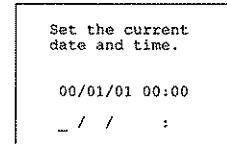
Turn ON the power after inserting the fully charged battery cartridge into the BHT.

The clock will not have been set at the time of purchase, and therefore it is necessary to set the date and time when turning ON the power for the first time.

1 Press the power () key to turn ON the BHT power.

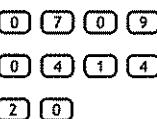


The screen below displays.



2 Enter the date and time using the numeric keys.

[Ex.]: September 4, 2007,
14:20



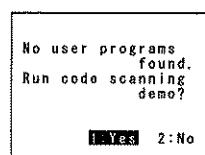
Point

Enter the last two digits for the year, and enter the time in 24-hour clock format.

3 Press the Enter key to set the date and time.



The screen below displays when the date and time are set.



4 Press numeric key [1] followed by Enter and select [1:Yes].



Point

By selecting [2:No], the power turns OFF.

A scanning demo commences.

The scanning demo is a program that allows barcodes to be scanned without a user program. Press the trigger switch to enable barcode scanning.

Refer to "Scanning Barcodes" on page 18 and scan a barcode.

Preparation

Step 3 Turning ON the Power

Preparation

Turning the Power OFF

Use one of the following three methods to turn OFF the BHT power.

- (1) Normal power OFF: Press the **power** (○) key.
- (2) Turning the power OFF after data back-up: Hold down the **power** (○) key for at least 3 seconds.
- (3) Auto power OFF: The power turns OFF automatically when the BHT is not used for a set length of time.

(1) Normal power OFF

Press the **power** (○) key.

The BHT power turns OFF after the message right displays.

Shutdown
in progress.
Do not remove the
battery.

Point

Do not remove the battery cartridge while the message on the right is displayed.

When the power is next turned ON, there are times when a message (2XXX) displays asking the user to contact the administrator.

(2) Turning the power OFF after data back-up

Hold down the **power** (○) key for at least 3 seconds.

The message right displays and data back-up is commenced.

The power turns OFF automatically when the back-up is complete.

Now saving data.
Do not remove
batteries until
saving process
complete.

Point

Do not remove the battery cartridge while the message on the right is displayed.

The back-up process may take several tens of seconds depending on the amount of data.

(3) Auto power OFF

The power turns OFF automatically when the BHT is not used for the length of time set at the user program. The default time is set to 3 minutes when the BHT is shipped from the factory.

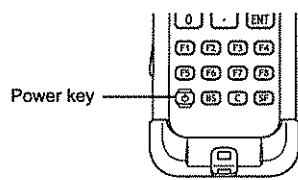
* Refer to the User's Manual for further details of auto power OFF.

Scanning Barcodes

Follow the procedure below to scan barcodes.

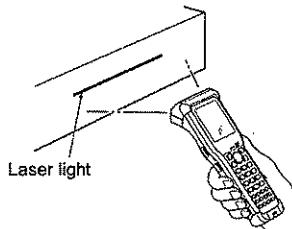
Procedure

1 Turn the BHT power ON.



2 Press the trigger switch.

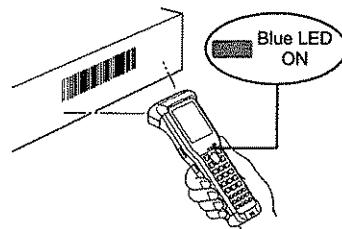
The BHT emits a laser light to indicate the scanning range.



Using the BHT

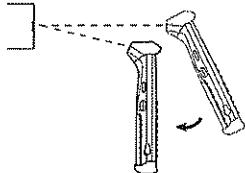
3 Hold the BHT close to the barcode to align the laser light.

When the BHT has read the barcode successfully, the indicator LED will illuminate in blue.



Scanning Barcodes

When Unable to Successfully Read Barcodes

Cause	Countermeasure
Specular reflection	<p>When the laser light is focused on the printed surface of the barcode from directly above, there are times when scanning is unsuccessful due to specular reflection.</p> 
Distance from barcode	<p>Scanning may be unsuccessful if the BHT reading window is too close to or too far from the barcode, even when the barcode is within the illumination LED range.</p>
Barcode surface curvature	<p>Scanning may be unsuccessful if the barcode surface is curved.</p>
Barcode surface dirt	<p>Scanning may be unsuccessful if the barcode surface is dirty.</p>
Barcode reading window dirt	<p>Scanning may be unsuccessful if the barcode reading window is dirty.</p>
Direct sunlight, ambient light	<p>Barcode scanning may be adversely affected by direct sunlight or the brightness of the surrounding light.</p>
	<p>Change the BHT scanning angle and try again.</p>
	<p>Move the BHT slowly toward or away from the barcode and try again.</p>
	<p>Scan the barcode at the center of the barcode reading window.</p>
	<p>Wipe the dirt from the barcode and try again.</p>
	<p>Blow any dust away with an airbrush, and then gently wipe the reading window with a cotton swab or similar soft object.</p>
	<p>Perform barcode scanning away from direct sunlight. Try adjusting the brightness of the surrounding light when scanning indoors.</p>

Using the BHT

■ Changing the Default Settings

The beeper volume, vibrator, LCD display brightness and power save settings can be changed at the MENU screen.

Item	Details	Setting
BUZZER VOLUME	Used to set the volume of the beeper that notifies the user when barcode scanning is complete. The volume can be adjusted in 4 levels: Hi, Lo, Mid and Mute.	Mute→Lo→Mid→Hi
VIBRATOR	Used to turn ON/OFF the vibrator that notifies the user when barcode scanning is complete.	ON, OFF
BRIGHTNESS	Used to set the backlight brightness of the LCD display. The brightness can be adjusted in 5 levels.	Levels 1 -5
BRIGHTNESS(PS)	Used to set the backlight brightness of the LCD display during power save mode. The brightness can be adjusted in 6 levels.	Levels 0 -5
POWER SAVE	Used to set the time until the LCD display backlight is dimmed when not in use in order to save power.	1-second units (max. 30 seconds)
KEY BACKLIGHT	Used to turn ON/OFF the keypad backlight.	ON, OFF

Using the BHT

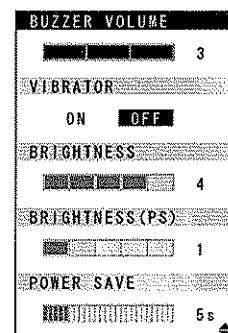
Procedure

1

Hold down magic key M1 for at least 1 second.



The MENU screen displays.



Using the BHT

Changing the Default Settings

2

Use the "▲" and "▼" cursor keys to select the item to be changed.

With the start or end of the item highlighted, press "▲" or "▼" to change to the next screen.

3

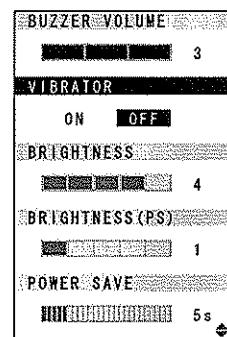
Use the "◀" and "▶" cursor keys to select the setting.

4

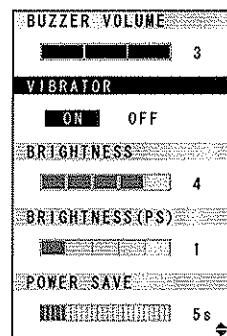
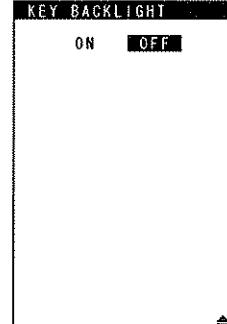
Press any of the following keys to exit the settings screen.

- M1 key long press
- Clear key
- Enter key

The selected item is highlighted.



"▲" OR "▼"



The settings screen is exited.

M1

C

ENT

■ Transmitting Data

Data gathered by the BHT can be transmitted to the host computer by connector communication, infrared communication or wireless communication*.

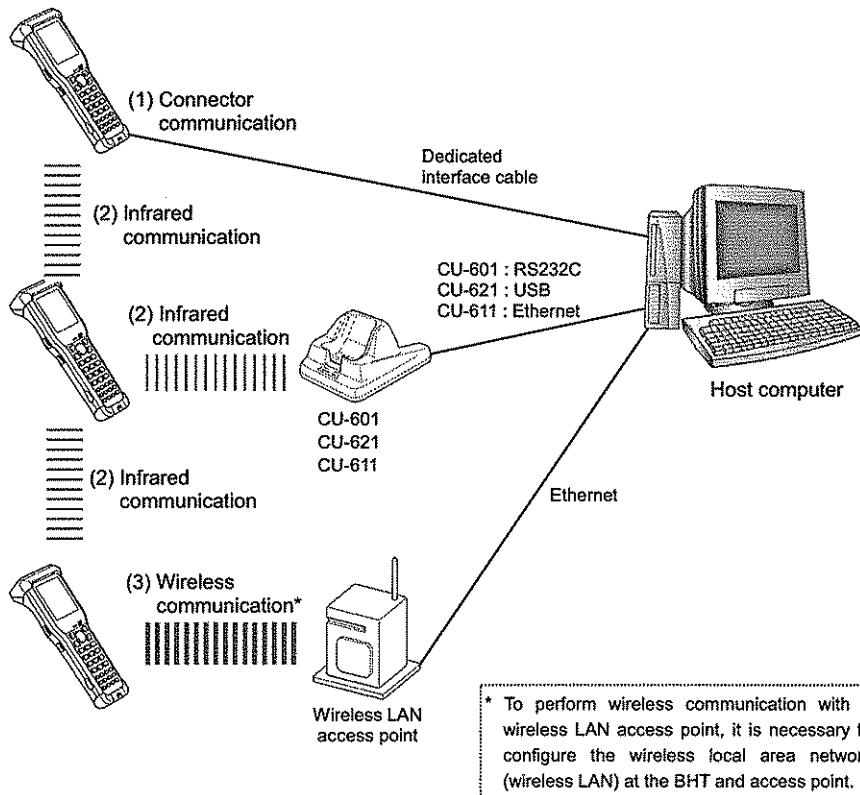
Infrared communication is used to transmit data to and from BHT units.

The data transmission method and BHT setting method will differ depending on the system used, and therefore the system administrator should be contacted for details of operation.

Refer to the User's Manual for details of each communication method.

Request

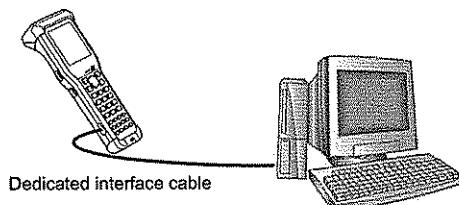
Data gathered by the BHT should be promptly uploaded to the host computer.



Transmitting Data

(1) Connector Communication

Connect the host computer and BHT with a dedicated interface cable and perform data communication.



Requests

- Do not use a cable other than the dedicated interface cable.
- Avoid disconnecting and reconnecting the cable more than once a day. Disconnecting and reconnecting the cable too frequently will shorten the lifetime of the connector interface port.
- Use the communication unit (CU-601, CU-611 or CU-621) when it is necessary to perform frequent communication between the host computer and BHT.
- Avoid inserting the connector at an angle or pulling the cable strongly.

Using the BHT

(2) Infrared Communication

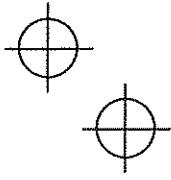
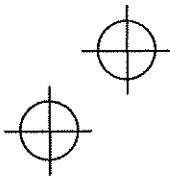
■ When performing data communication between BHT units

Point the BHT infrared communication ports toward each other and perform communication.



Requests

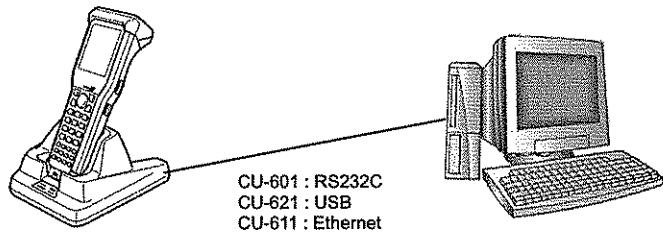
- Ensure that the light path between the BHT and any target stations is not obstructed.
- Perform communication within the effective infrared emission range (15 cm).
- Do not operate remote control units for televisions and so forth in the vicinity of infrared communication. This may result in communication failure.
- Perform communication in locations where the BHT units will not be exposed to light interference from sources such as intense ambient lighting (inverter-driven fluorescent lighting, in particular) or direct sunlight. This may result in communication failure.



Transmitting Data

■ When performing data communication with the host computer

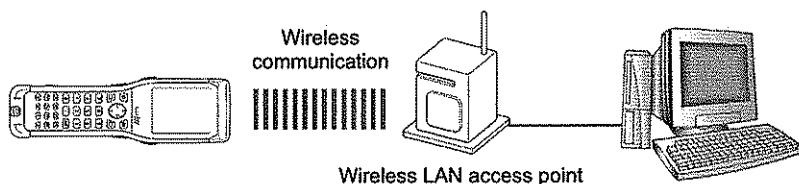
Place the BHT on the communication unit (CU-601, CU-611 or CU-621) and transmit data.



(3) Wireless Communication

Transmit data to host computer via the wireless LAN access point.

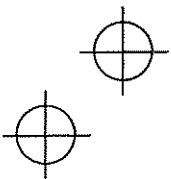
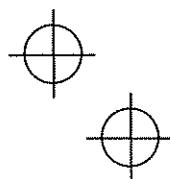
To perform wireless communication, it is necessary to configure the wireless local area network (wireless LAN) at the BHT and access point.



Using the BHT

Requests

- Point the antenna on top of the BHT toward the access point to improve communication performance.
- Communication may not be possible at the following locations.
 1. In the vicinity of devices operating on the same 2.4GHz waveband as the BHT such as microwave ovens, industrial heating equipment, or high-frequency medical equipment.
 2. In the vicinity of computers or household appliances such as refrigerators that emit electromagnetic noise.
 3. In the vicinity of metallic objects, in places with high levels of metallic dust, in rooms surrounded by metal walls (metallic influence), or places where the BHT may be subject to strong impact.



■ Battery Power Level Indicator

Confirming at the Power Level Icon

The battery power level can be confirmed at the battery icon () that displays in the bottom left of the LCD display. The battery power displays in four levels.

The battery power level indicator is a guideline to notify the operator to charge the battery promptly when discharged.

-  : Sufficient battery power remains.
-  : The battery power is partially depleted. Charge promptly.
-  : The battery power is almost fully depleted. Charge immediately.
-  : The battery power is fully depleted.
Charge immediately or replace with a fully charged battery cartridge.

Confirming at the BATTERY VOLTAGE Screen

The battery power level can also be confirmed at the "BATTERY VOLTAGE" screen.

The BATTERY VOLTAGE screen displays the battery power level in more detail than the battery icon () that displays at the LCD display.

Display the "BATTERY VOLTAGE" screen using the following procedure.



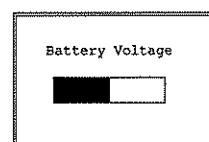
1

Hold down the Shift key and press the Enter key.

 + 

Press simultaneously.

The "Battery Voltage" screen displays while the keys are pressed.



About the Battery Level

- The battery power level indicator does not accurately reflect the battery residual power and should only be used as a guideline.
- The battery power level will fluctuate due to BHT operation, and therefore disparities may occur between the actual battery voltage and the display indicator.
- Ensure to charge the battery as soon as possible before the battery power is depleted.

Replacing the Battery Cartridge

Battery Cartridge Service Life

The battery cartridge is a consumable part and should be replaced after being charged approximately 300 times.

The performance of the battery cartridge's lithium-ion battery will deteriorate gradually with repeated charging, even during normal use. When the battery operation time becomes shorter even after charging for the specified length of time, replace the battery with a new one.

Battery Cartridge Replacement Method

1 Press the **power** key to turn OFF the BHT power. The screen on the right displays.

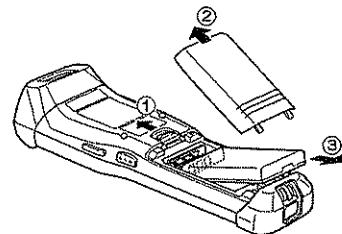
Point

Do not remove the battery cartridge until the power turns OFF and the screen display clears.

Turn OFF the power after the message below displays.

Shutdown
in progress.
Do not remove the
battery.

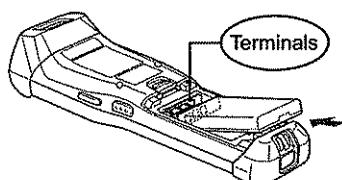
2 Slide the battery cartridge cover release button (1) in the direction indicated by the arrow, remove the battery cartridge cover (2), and then remove the battery cartridge (3).



3 Check the terminals on the new battery cartridge and then insert in the direction indicated by the arrow. (See "Step 1 Charging" on page 10.)

Point

- Do not use battery cartridges other than that specified by DENSO WAVE.
- Insert the new battery cartridge within 3 minutes of removal to avoid data loss.

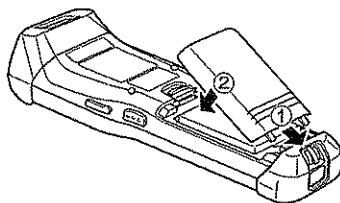


Charging

Replacing the Battery Cartridge

4

Insert the battery cartridge cover tab (1), and then close the battery cartridge cover (2) to lock the cover in position.



Battery Cartridge Recycling Request

- This product uses a lithium-ion battery that contains scarce, recyclable resources. We kindly ask for your cooperation in recycling to ensure reuse of these resources.



- Used battery cartridges must not be disposed of as combustibles.
- Contact your nearest rechargeable battery recycling center or DENSO WAVE sales office for information on disposal procedures.
- When disposing of used battery cartridges at your nearest recycle center, cover the terminals with vinyl tape to insulate and protect from overheating or fire due to a short-circuit.
- Never disassemble battery cartridges.

Charging

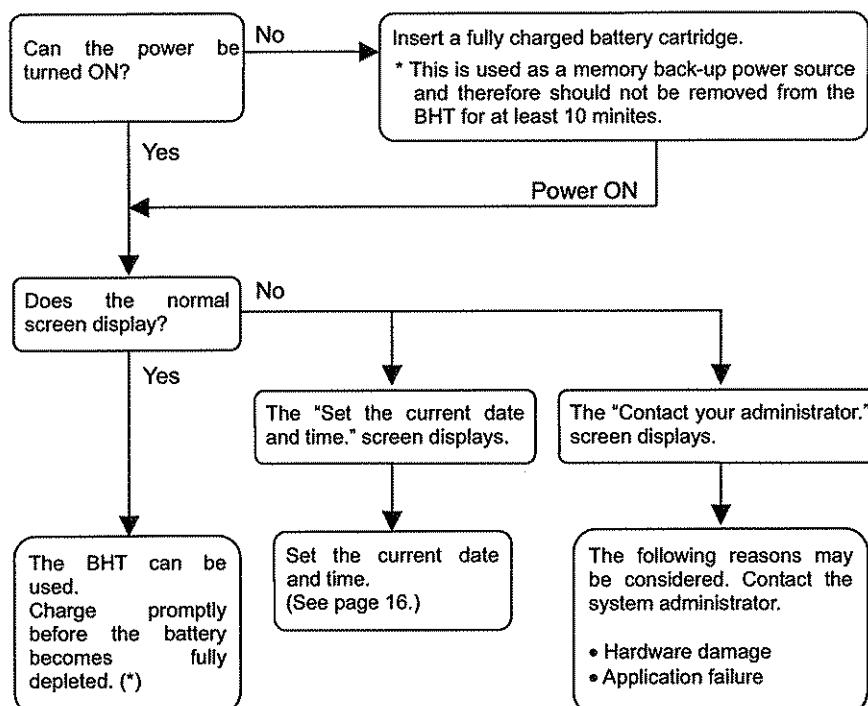
If the Screen Below Displays Following Replacement...

Display	Handling
The "Set the current date and time." screen displays.	When the BHT power is turned ON after a long period of no use, it may be necessary to reset the date and time. If this message displays, set the current date and time. (See page 16.)
The "Contact your administrator.(XXXX)" screen displays.	If this message displays, reboot the BHT. If this error persists, take a note of the error displayed and contact the system administrator.

■ Using the BHT after Long Periods

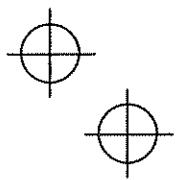
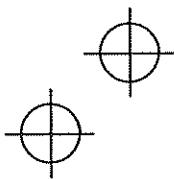
Data stored in the BHT may be lost and the calendar clock may stop if the BHT is left unused for long periods of time.

Take appropriate measures in accordance with the procedure below.



Charging

— Point — *: Files may become corrupt if left for a long period of time without replacing the battery cartridge.



■ Troubleshooting Guide

Problem The BHT power does not turn ON.

- Ensure that the battery cartridge has been properly inserted into the BHT. (See page 11.)
- Check the battery power level (see page 25) and charge if necessary.
- Wipe any dirt from the battery cartridge and BHT terminals. (See page 4.)

If the power still does not turn ON after taking the above measures, there is a possibility that the BHT may be broken. Notify the system administrator.

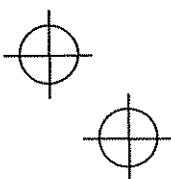
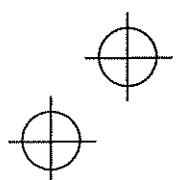
Problem Unable to charge the BHT.

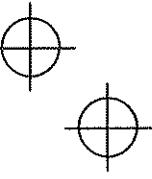
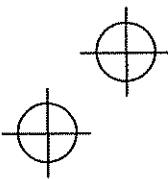
- Ensure that the dedicated battery charger is being used. (See page 10.)
- Ensure that the battery cartridge has been properly inserted into the BHT. (See page 11.)
- Ensure that the BHT has been properly placed on the charger.
The BHT LED will turn red when properly placed on the charger.
- Wipe any dirt from the battery cartridge and BHT terminals. (See page 4.)
- When using an old battery cartridge that has been repeatedly charged 300 times or more, replace with a new one. (See page 26.)

If still unable to charge the BHT after taking the above measures, there is a possibility that the charger may be broken. Notify the system administrator.

Problem The BHT power turns OFF immediately.

- Ensure that the battery cartridge has been charged (see page 25) and charge if necessary.
- If set to auto power OFF, the BHT power will automatically turn OFF if not used for the set length of time. (See page 17.)
The auto power OFF setting can only be changed at user programs.





Troubleshooting Guide

Problem Unable to read barcodes.

It may not be possible to read barcodes at the following times. Refer to page 19 and take appropriate measures.

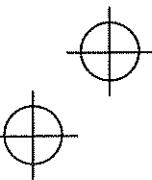
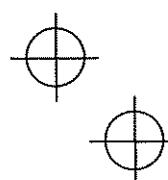
- The barcode surface is dirty or curved.
- The barcode reading window is dirty.
- The scanning distance from the barcode is unsuitable.
- The BHT is unable to read barcodes due to specular reflection.
- Scanning is performed in a place where the direct sunlight or ambient lighting is too bright, or in a place that is too dark.

If still unable to read barcodes after taking measures to tackle the above problems, notify the system administrator.

Problem An error message displays.

If an error message displays at the BHT during operation, refer to the table below and take appropriate measures.

Message	BHT Response	Problem	Solution
NO System!	If this error occurs, the BHT beeps five times.	A System Program error has occurred.	Contact your system administrator.
Battery voltage has lowered.	If low battery is detected, the BHT beeps three times. After that, it will resume previous regular operation.	The battery output level has dropped below a specified lower limit.	Replace or recharge the battery cartridge.
Charge the battery!	If lower battery is detected, the BHT beeps five times and then turns itself off. Depending upon the battery level, the beeper may not sound five times.	The battery output level has lowered so that the BHT no longer operates.	Replace or recharge the battery cartridge.
Set the current date and time. 00/01/01 00:00 / / :	The date and time settings screen displays, awaiting entry.	The calendar clock integrated in the BHT has stopped because: - the battery cartridge had been removed for a long time, - the battery cartridge had not been recharged for a long time.	Set the current date and time. (See page 16)



Troubleshooting

Troubleshooting Guide

Message	BHT Response	Problem	Solution
Your terminal was not shut down properly the last time it was used. Unsaved data was lost.	The message continues to display.	After shut down abnormally, the BHT has been left without the battery cartridge loaded, so unsaved data was lost.	Contact your system administrator.
Reload the battery to restart! XXXXXXXXX 01	If this error occurs, the BHT beeps five times.	During execution of System Program, the System Program has attempted to write onto the write-protected area of the memory. (xxxxxxxx: Error address)	Unload and reload the battery cartridge, then turn the BHT on. If this error occurs frequently, make a note of the displayed message and codes and contact your system administrator.
Reload the battery to restart! tskid :XXXXXXXX ercd :XXXXXXXX addr :XXXXXXXX	If this error occurs, the BHT beeps five times.	During execution of System Program, the System Program has received an invalid command code. (xxxxxxxx: Error address)	During execution of System Program, the System Program has received an invalid command code. (xxxxxxxx: Error address)
No user programs found. Run code scanning demo? 1:Yes 2:No	The message continues to display.	When the BHT is turned on, no user programs are found.	Contact your system administrator. You can run the code scanning demo without user programs. Pressing "1:Yes" runs the code scanning demo. Press the trigger switch to start the code scanning demo. Selecting "2:No" turns the power off.
Contact your administrator. Note the error number. (XXXX)	If any of the above errors occurs, the BHT beeps five times and then turns itself off.	Any of the hardware error, memory error and execution program error has occurred. (xxxx: Error code)	Turn the BHT on again. If this error occurs frequently, make a note of the displayed code and contact your system administrator.
No resume info. has been retained. Program restarts automatically.	The BHT displays this error message and automatically runs the execution program from the point of start-up.	Operation was terminated without turning OFF the power normally with the resume function set, and therefore resume info has been lost.	If this error occurs frequently, make a note of the displayed code and contact your system administrator.
Your settings in System Mode have been lost. Will reset to defaults.	After displaying this error message, the BHT may start a user program other than the preset auto-start execution program or display the message "No execution program loaded.	Your settings made in System Mode contain an error.	Contact your system administrator. If this error occurs, the System Mode settings revert to the factory defaults.

Troubleshooting

Troubleshooting Guide

Message	BHT Response	Problem	Solution
Reload the battery to restart!	If this error occurs, the BHT beeps five times.	An error has occurred during execution of System Program.	Unload and reload the battery cartridge, then turn the BHT on. If this error occurs frequently, contact your system administrator.

The following messages display when a problem occurs while in System mode. Refer to the User's Manual for details of the System mode operation method.

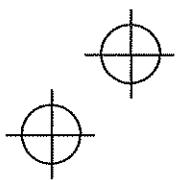
Message	Problem	Solution
NO FILE EXISTS	You attempted to execute a user program in the EXECUTE PROGRAM menu, but no user program files had been stored in the memory.	Press the C key to return to the SYSTEM MENU, then download user programs.
XXXXXXXX.XXX Out of memory Retry? 1:Yes 2:No	The memory is insufficient for storing files to be downloaded.	Press the 2 key to return to the SYSTEM MENU, then delete unnecessary files in the memory or decrease the size of the file to be downloaded.
XXXXXXXX.XXX File mismatch Retry? 1:Yes 2:No	In the SYSTEM PARAMETER transfer menu, you attempted to download a file other than the BHT system parameter file. Or in the SYSTEM MESSAGE transfer menu, you attempted to download a file other than the system message file.	Check the file you attempted to download and then download the file in the appropriate menu (DOWNLOAD menu, SYSTEM PARAMETER transfer menu, or SYSTEM MESSAGE transfer menu).
XXXXXXXX.XXX Too many files Retry? 1:Yes 2:No	The current download will exceed the maximum allowable number of files (420 files) in the memory.	Press the 2 key to return to the SYSTEM MENU, then delete unnecessary files in the memory (or decrease the number of files to be downloaded if you attempted to download more than one file in the DOWNLOAD menu.)
XXXXXXXX.XXX Communication error Retry? 1:Yes 2:No	Downloading has failed. Uploading has failed.	To retry downloading/uploading, press the 1 key. To return to the SYSTEM MENU, press the 2 key. Check the interface port, communications parameters, and communications protocol in the SET SYSTEM menu or perform the communications test in the TEST menu.

Troubleshooting

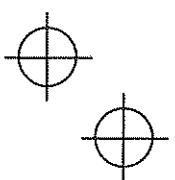
Troubleshooting Guide

Message	Problem	Solution
XXXXXXX.XXX Program File error Retry? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 2:No	You attempted to download an invalid program file.	Check whether the program file you attempted to download is available to the BHT-600 model. If it is not available, download the appropriate program.
XXXXXXX.XXX File error Retry? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 2:No	The file you attempted to upload is damaged.	To upload the damaged file as is, press the 1 key.
Out of memory	The memory is insufficient for setting up the BHT system parameter file or system message file to be uploaded.	Press the C key to return to the SYSTEM MENU and delete unnecessary files.
Too many files	The memory has already contained 420 files, so the BHT system parameter file or system message file cannot be set up.	Press the C key to return to the SYSTEM MENU and delete unnecessary files.

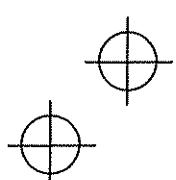
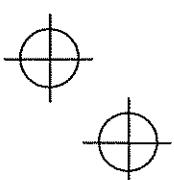
Troubleshooting

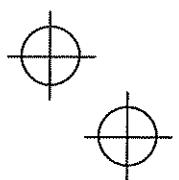
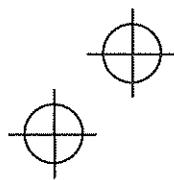


MEMO



Troubleshooting





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