

Diagnosis Tester

# Intelligent Tester II

## Operator's Manual



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# Preface

Thank you for purchasing this Intelligent Tester II.

Read this document carefully so that you can use this tester correctly and safely.

## For safe usage

This document uses symbols for warnings, cautions, and prohibitions. These symbols and their meanings are as follows. Please make sure you fully understand the meanings of these symbols before reading the rest of this document.

 <b>WARNING</b>	This indicates an item for which incorrect handling can result in a major accident involving death or serious injury.
 <b>CAUTION</b>	Indicates an item for which incorrect handling can lead to injury or damage to property. Under certain conditions, more serious consequences may result.
 <b>PROHIBITED</b>	Indicates a prohibited method of handling.



## WARNING

- Always observe the following rules. Failure to do so can result in heat generation, fire, blowout, or electrical shock.
  - Do not use or charge this device with anything other than the AC adapter specifically designed for this tester. 
  - Do not disassemble or alter this tester. 
  - Do not connect this tester to anything with a voltage exceeding the ratings of this tester. 



## CAUTION

- Do not leave this tester in any location subject to excessive heat for example in direct sunlight or inside a car on a sunny day. 
- Do not touch any metal parts when connecting the test leads to the measurement position, even when within the ratings range. 
- Do not work anywhere that water could come in contact with the equipment. 
- Do not drop this tester or subject it to a strong impact.  
This could cause the liquid crystal leak from inside the tester.  
A rash may result if the liquid crystal comes into contact with the skin.  
If this happens, wash the skin with plenty of running water, then seek medical attention. 
- Block the wheels of the vehicle with chocks before carrying out work such as connecting the tester cable.  
Failure to do so could result in an accident.
- Do not pass the cable for this tester over the engine compartment while the engine is running.   
An accident may result in cable, test lead, or clothing becomes caught in a belt or pulley.
- When working anywhere not be easily visible, for example under the vehicle, always remove the key from the ignition to ensure the vehicle cannot be moved.  
Failure to do so could result in an accident.
- Do not work connect the tester cables etc. while the vehicle is running.   
Doing so could result in an accident.
- When working near the engine compartment, be careful of the engine and other high-temperature parts.  
High-temperature parts can cause burns.

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# **1 Before Use**

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# 1 Before Use

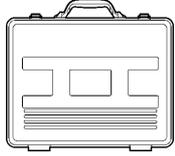
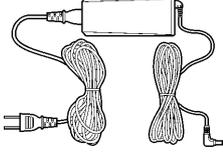
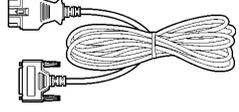
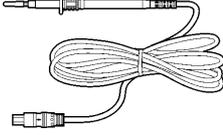
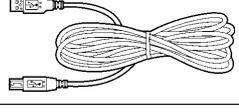
## Product Configuration

Check that you have all the following standard components before using this tester.

*For information on the optional accessories and oscilloscope accessories, see Page 4.*

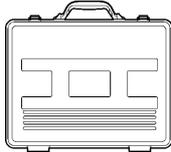
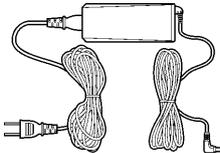
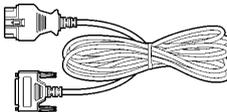
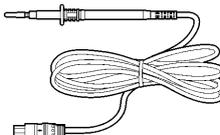
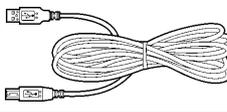
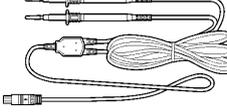
### Standard Components

#### Standard Set (Part Number: 95171-00043/-00093(\*1)/-00113(\*2))

Part Name	Illustration	Part No.	Q'ty
Intelligent Tester II (without oscilloscope cartridge)		—	1
Storage Case		95171-10050	1
AC / DC Power Supply		95171-10310 -11260(*1) -11340(*2)	1
DLC3 Cable		95171-10100	1
Voltage Meter Probe		95171-10120	1
USB Cable		95171-10110	1
Screen Overlay		—	1
Operator's Manual		95009-13220	1
Quick Reference Manual		—	1
Repair Order Sheet		—	1
Warranty Terms Sheet		—	1

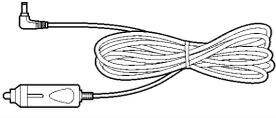
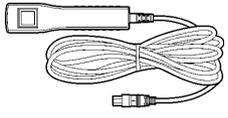
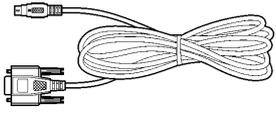
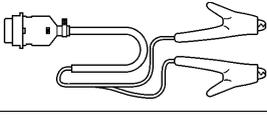
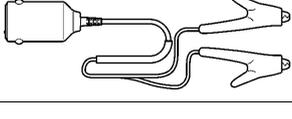
\*1: China specifications \*2: Taiwan specifications

**Oscilloscope Set (Part Number: 95171-00053/-00103(\*1)/-00123(\*2))**

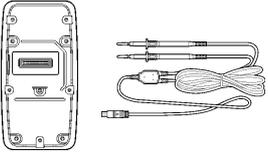
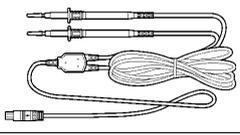
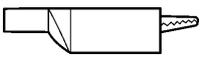
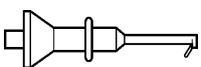
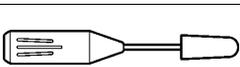
Part Name	Illustration	Part No.	Q'ty
Intelligent Tester II (with oscilloscope cartridge)		—	1
Storage Case		95171-10050	1
AC / DC Power Supply		95171-10310 -11260(*1) -11340(*2)	1
DLC3 Cable		95171-10100	1
Voltage Meter Probe		95171-10120	1
USB Cable		95171-10110	1
Oscilloscope Probe		95171-10500	2
Screen Overlay		—	1
Operator's Manual		95009-13220	1
Quick Reference Manual		—	1
Repair Order Sheet		—	1
Warranty Terms Sheet		—	1

\*1: China specifications \*2: Taiwan specifications

## Optional Accessories

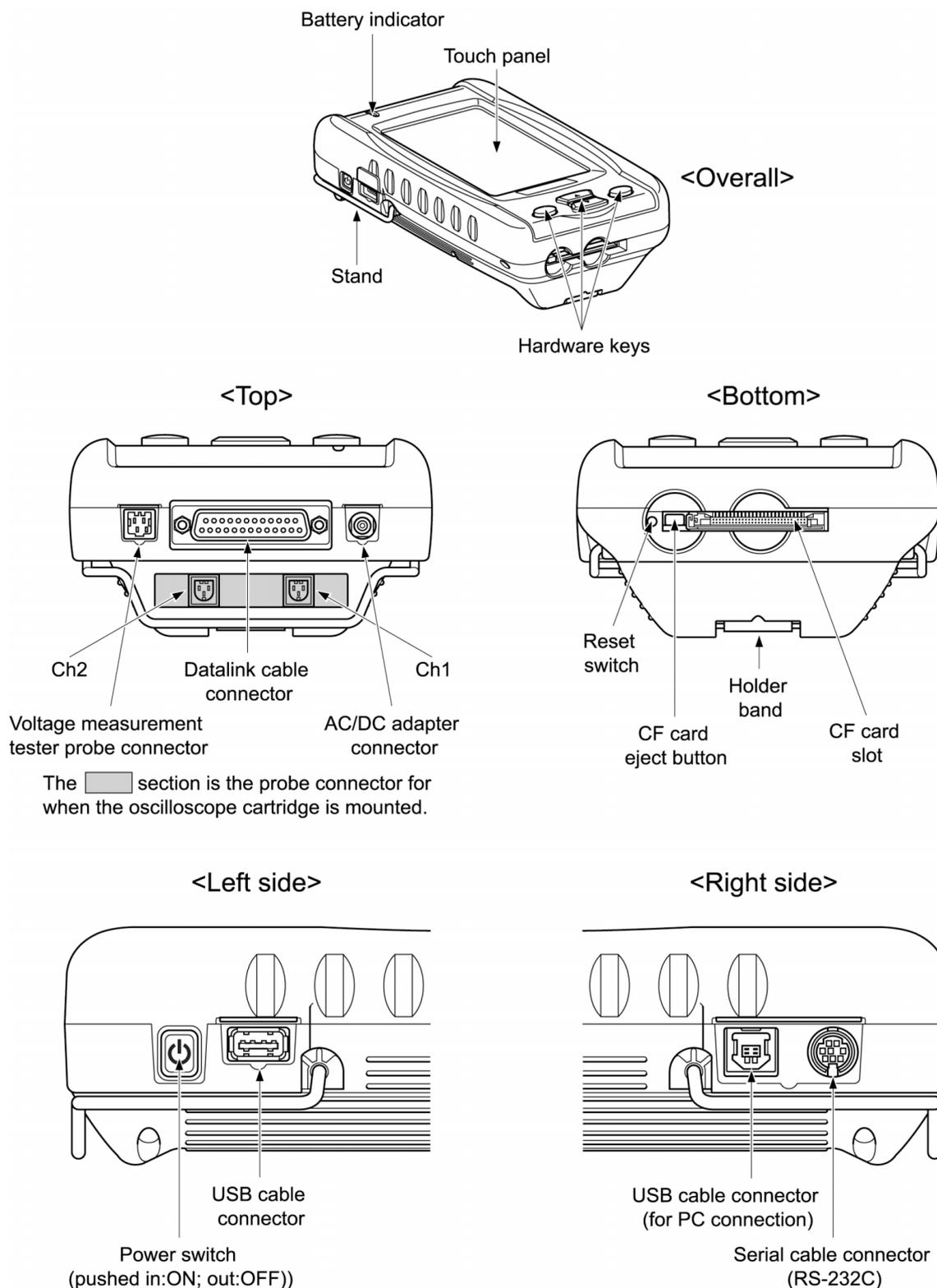
Part Name	Illustration	Part No.	Q'ty
DC Power Cable for Cigarette Lighter Socket		95171-10140	1
Trigger Snapshot		95171-10150	1
RS-232C Cable		95171-10130	1
Battery Power Cable (DLC3 Cable Type)		95171-10200	1
Battery Power Cable (Cigarette Lighter Type)		95171-10210	1
Screen Overlay		95171-10220	5
Replacement Battery		95171-10340	1
Storage Card (128MB)		95171-11120	1

## Oscilloscope Accessories

Part Name	Illustration	Part No.	Q'ty
Oscilloscope Set		95171-00070	Cartridge(1), Probe(2).
Oscilloscope Cartridge		95171-10240	1
Oscilloscope Probe		95171-10500	1
Attachment of Oscilloscope Probe (Clip Set)		95171-10170	Red(1), black(1).
Attachment of Oscilloscope Probe (IC Clip Set)		95171-10180	Red(1), black(1).
Attachment of Oscilloscope Probe (Needle Set)		95171-10190	Red(1), black(1).

## Names of the Parts

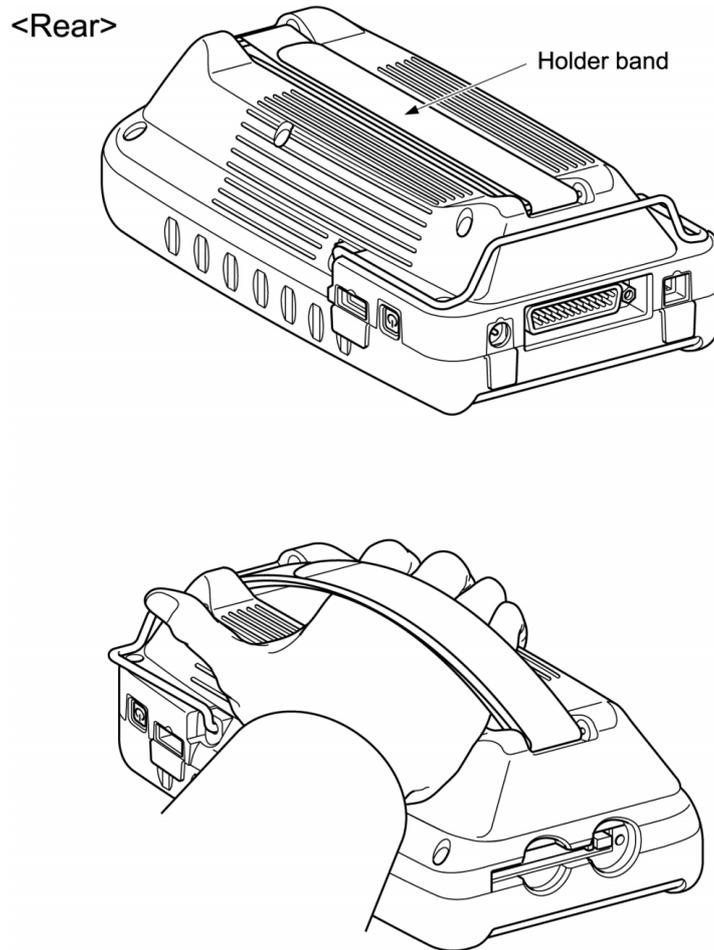
The names of the Intelligent Tester II parts are as follows.



### How to Use the Holder Band

Slip your hand between the holder band and the Intelligent Tester II.

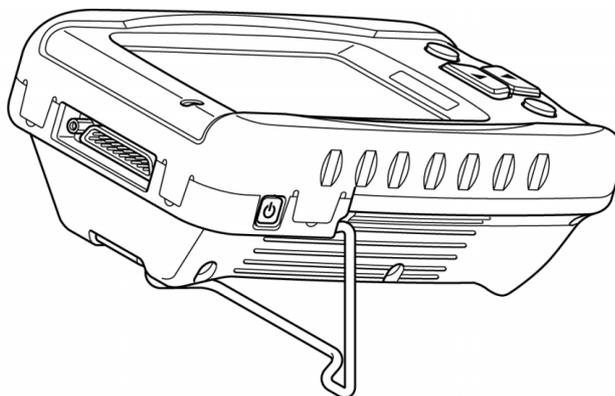
The length of the holder band can be adjusted using the velcro strap. If the holder band is too loose, adjust it so that the Intelligent Tester II is held securely to your hand.



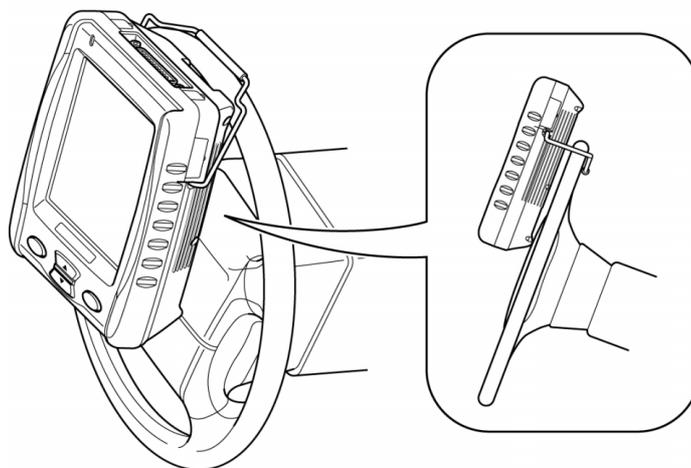
## How to Use the Stand

The stand can be pulled out and used as shown below.

To return the stand to its original position, open the stand coupling section horizontally, and then push it back into place.



Raised stand position



Attached to steering wheel

### Note

- Be careful when using the stand on an easily damaged surface, for example a wooden steering wheel.

## Charging

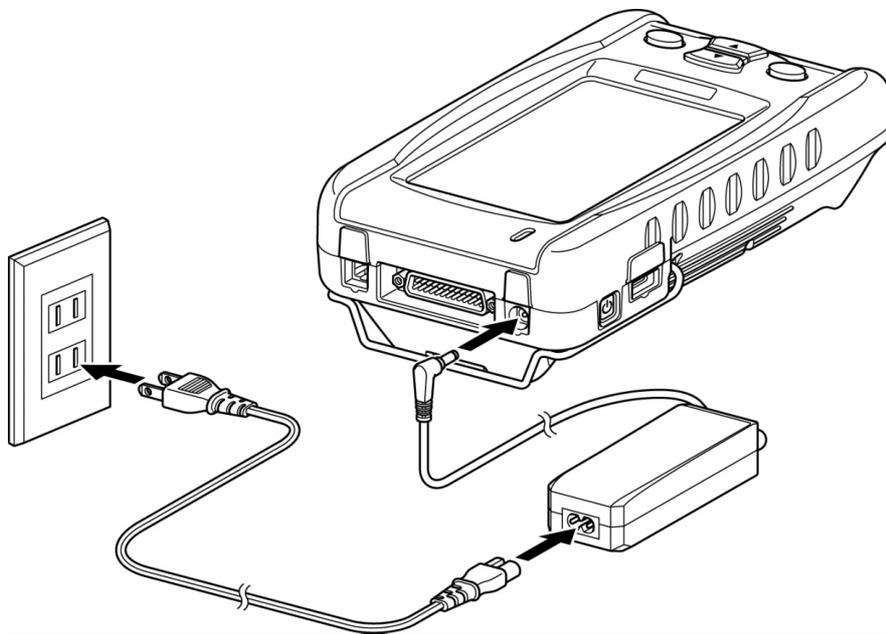
The main unit of the Intelligent Tester II has a special internal rechargeable battery (lithium ion battery).

This battery is not charged when the Intelligent Tester II is shipped from the factory, so be sure to charge the battery before using the tester.

### Note

- There is no need to turn OFF the power switch on the Intelligent Tester II while charging. The Intelligent Tester II can be charged with the power ON or OFF.
- It takes approximately five hours to fully charge the battery from a completely discharged state, regardless of whether the power switch is ON or OFF.

1. Connect the AC/DC adapter DC plug to the AC/DC adapter connector of the Intelligent Tester II.
2. Plug the AC/DC adapter power plug into an electrical socket.  
Charging starts and the battery indicator on the Intelligent Tester II lights up red.  
Charging is complete when the battery indicator changes from red to green.
3. Disconnect the AC/DC adapter DC plug from the AC/DC adapter connector of the Intelligent Tester II.
4. Unplug the AC/DC adapter power plug from the electrical socket.



 **CAUTION**

- Do not charge the Intelligent Tester II battery with any device other than the AC/DC adapter provided.  
Use of another adapter may prevent full battery charging, heat and damage the charger used.
- Do not leave the AC/DC adapter plugged into the electrical socket after charging is complete.  
Dust can build up between the socket and the plug and cause tracking and fire.
- If the battery is charged while outside the usage temperature range, the battery indicator flashes.  
Continued charging in this condition could damage the equipment, so discontinue charging.
- Do not connect the AC/DC adapter to the Intelligent Tester II, when using the oscilloscope function.

**Note**

- The Intelligent Tester II can be connected to the vehicle with the datalink cable to run off the vehicle battery when the tester internal battery is not charged.  
In this state, the Intelligent Tester II internal battery will charge using the vehicle power, so take care not to run down the vehicle battery.
- When using the Intelligent Tester II without connecting it to the vehicle (for example when using it as an oscilloscope), monitor the amount of power remaining in the battery and charge it with the AC/DC adapter when it runs low.  
The onboard/offboard check screen can be used to check the amount of power remaining in the battery.  
*Reference: Page 22 Battery Icon (Chapter 2 Basic Operations/Screen Configuration/Title Bar)*
- It is normal for the main unit of the Intelligent Tester II to heat up during charging.
- The Intelligent Tester II may be left connected to the AC/DC adapter when the charging is complete.

## Internal Battery

When the Intelligent Tester II is not connected to the vehicle, such as with the datalink cable or the external power cable, the Intelligent Tester II is powered by its internal battery.

When the Intelligent Tester II is run on its internal battery, a fully charged battery will last approximately 80 minutes if there is an oscilloscope cartridge or approximately one hour if there is not.

You can check the amount of power remaining in the battery with the onboard/offboard check screen.

*Reference: Page 22 Battery Icon (Chapter 2 Basic Operations/Screen Configuration/Title Bar)*

The internal battery is a consumable part. When the time that a fully charged battery can be used becomes extremely short, replace the internal battery.

Replace the internal battery with a new internal battery.

The Intelligent Tester II uses a specially made internal battery. When it becomes necessary to replace the internal battery, please purchase a replacement battery and install it according to the replacement instructions.

*Reference: Page 109 Battery Replacement (Chapter 7 Handling)*

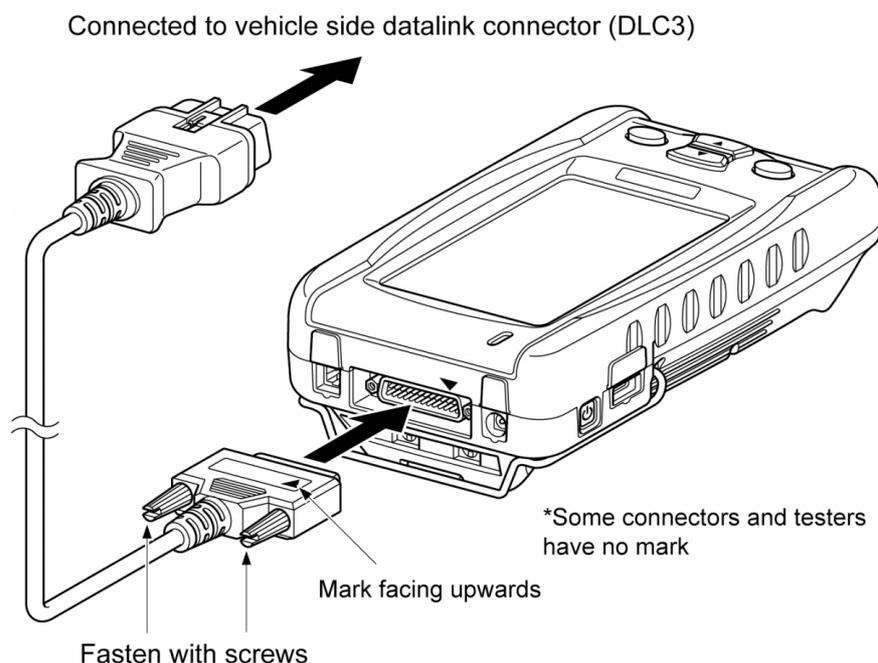
## Connection

This section explains how to connect the tester to a vehicle or PC, how to mount a CF card, and how to connect the probes.

### Connecting to the Vehicle

Use the datalink cable to connect the Intelligent Tester II to the vehicle.

Check the position of the vehicle-side datalink connector (DLC 3) in the vehicle repair manual.



### CAUTION

- When connecting the datalink cable to the Intelligent Tester II and the vehicle side datalink connector (DLC 3), gently insert it gently straight into the connector. Inserting the cable at a slant can break the connector pins.
- When connecting the data link cable to the Intelligent Tester II, make sure the connector is in the right direction. (If the data link cable connector has a ▲ mark, it should be facing upwards.) If you connect it the wrong way up or insert it at an angle, there is a risk of damaging the connector terminal and causing a malfunction of the vehicle or Intelligent Tester II.

### Note

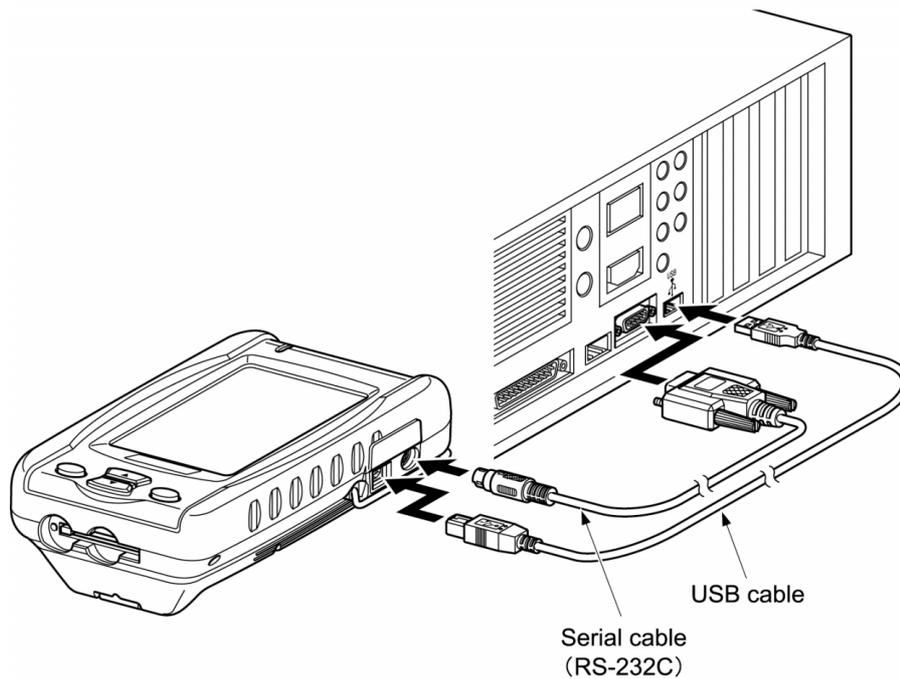
- The carrying case can remain on even when the data link cable is connected to the Intelligent Tester II. It is recommended that you keep them connected all the time.

## Connecting to a PC

Use a USB cable or serial cable (RS-232C) to connect the Intelligent Tester II to a PC.

It is necessary to connect to a PC in the following cases:

- When upgrading the Intelligent Tester II software;
- When rewriting the vehicle computer (ECU) program;
- When downloading data stored in the Intelligent Tester II into your PC.



### CAUTION

- When connecting a USB cable or serial cable (RS-232C) to the Intelligent Tester II and the PC, gently insert the cable straight into the connector.  
Inserting the cable at a slant can break the connector pins.

### Note

- When downloading data to a PC, use the accessory Intelligent Viewer software.  
For details on usage methods, see the Intelligent Viewer user's manual.

## Inserting a CF Card

The Intelligent Tester II can use CF (CompactFlash™) cards.

### CAUTION

- Please use the recommended CF card (DENSO Supply No. 95171-11120). We cannot guarantee proper operation if a different CF card is used.

The methods for inserting/removing CF cards are as follows.

#### ● Inserting a CF card

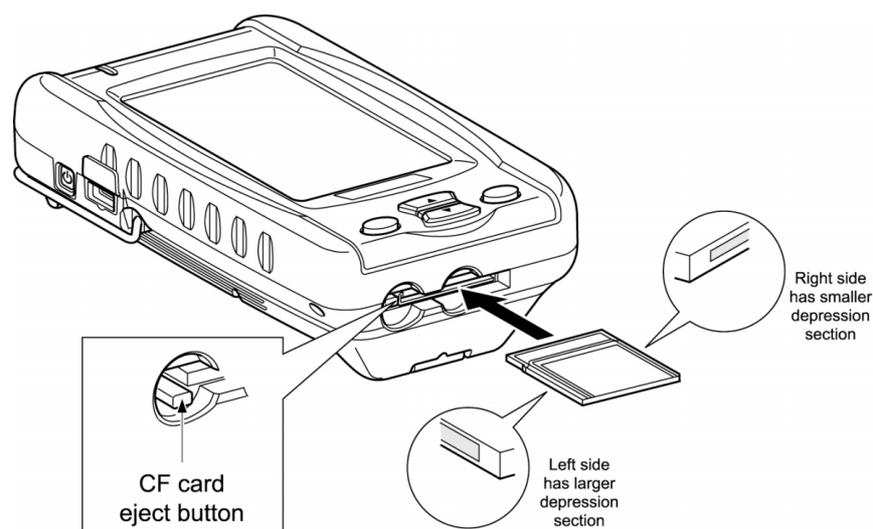
Gently insert the CF card with the larger indentation (notch) facing to the left side.

When the CF card is fully inserted and set correctly, the CF card eject button is click out.

#### ● Removing a CF card

Press the CF card eject button.

The CF card will eject slightly, so gently pull it out the rest of the way.



### CAUTION

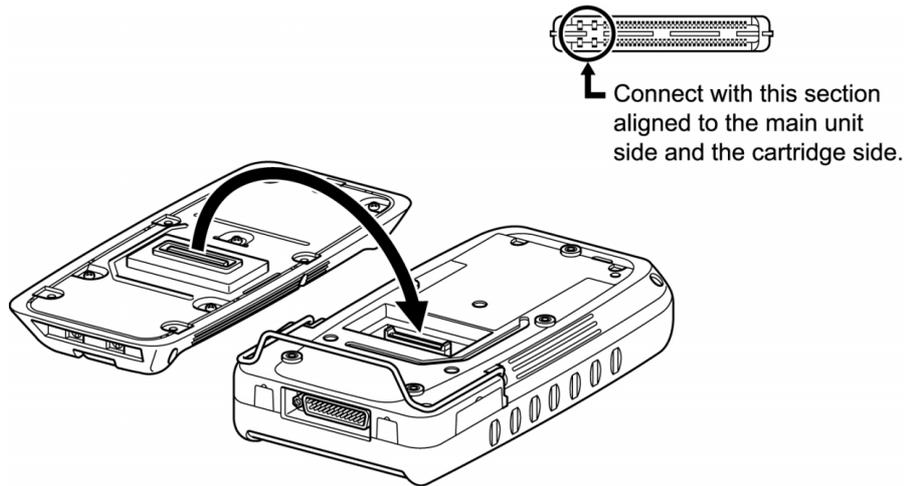
- Do not insert anything but a CF card in this card slot.
- Do not pull out a CF card when power is on.

## Connecting the Oscilloscope Cartridge

If you purchased the optional cartridge with the built-in oscilloscope, it is necessary to replace the standard cartridge with this cartridge.

Loosen the five screws securing the standard cartridge and remove the cartridge.

Replace the standard cartridge with the built-in oscilloscope cartridge, and secure it in place by tightening the five screws to a torque of  $0.5 \pm 0.1$  Nm.



### CAUTION

- Always make sure the power to the Intelligent Tester II is OFF before replacing the cartridge.
- When connecting the cartridge with the built-in to oscilloscope to the main unit, carefully check the configuration of the connector and gently insert the cartridge straight in.

Inserting the cartridge at a slant can break the connector pins.

- Be careful not to touch the connector section of the main unit or the cartridge with your hands.

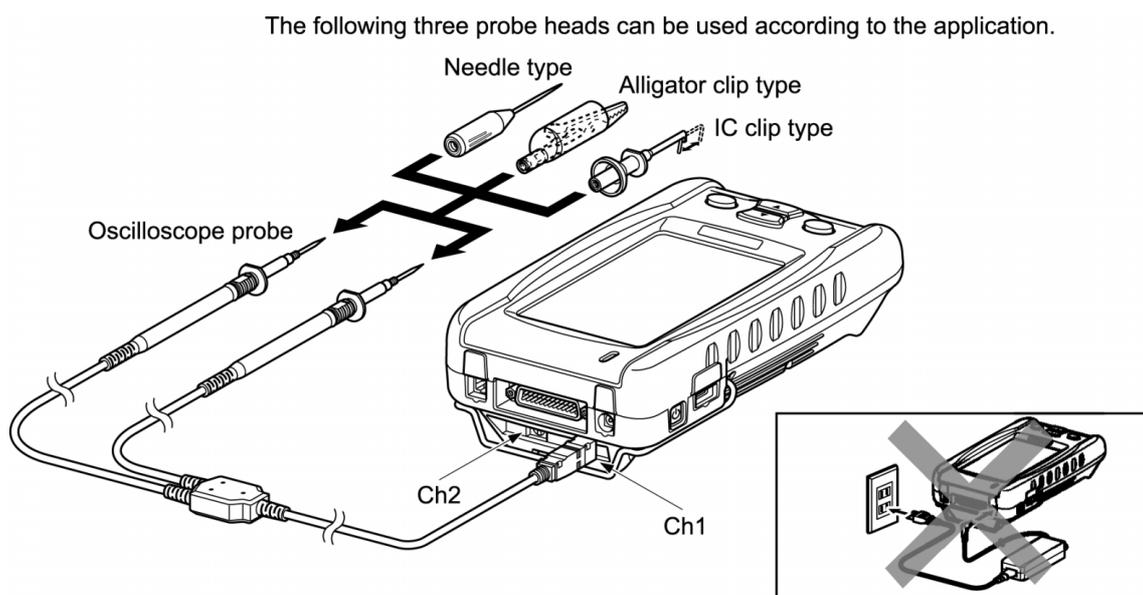
## Connecting the Probes

There are two types of probe, the voltage measurement tester probe and the oscilloscope probe.

The oscilloscope probes are an accessory for the oscilloscope.

### Connecting the oscilloscope probes

The probe tip is secured to the oscilloscope probe with a screw, regardless of whether the probe is an IC clip type, Needle type, or alligator clip type.

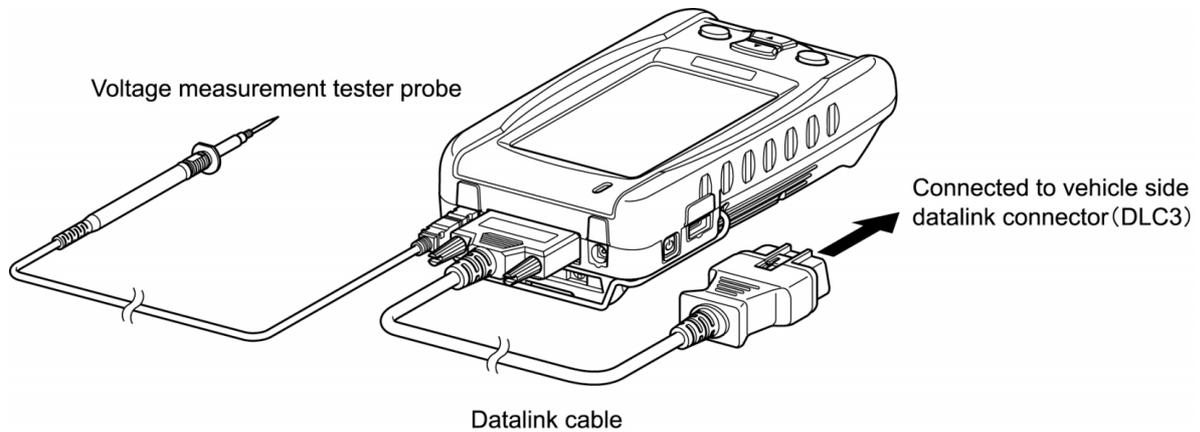


Connect the oscilloscope probes to Ch1 or Ch2.  
The probes can be connected to both Ch1 and Ch2.

### **CAUTION**

- When connecting the probe to the Intelligent Tester II, gently insert it straight into the connector. Inserting the probe at a slant can break the connector pins.
- The tip of the probe is sharp, so handle it carefully.
- Do not connect the AC/DC adapter to the Intelligent Tester II, when using the oscilloscope function.

### Connecting the voltage measurement tester probe



In order to measure correctly,  
always connect the datalink cable.

#### CAUTION

- When connecting the probe to the Intelligent Tester II, gently insert it straight into the connector. Inserting the probe at a slant can break the connector pins.
- The tip of the probe is sharp, so handle it carefully.

#### Note

- In addition to the datalink cable, the optional cigarette lighter cable or battery cable can also be used to ensure correct measurement.

# **2 Basic Operations**

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# 2 Basic Operations

## Starting and Ending

### Starting

1. Connect the Intelligent Tester II and vehicle side datalink connectors (DLC3) with the datalink cable.

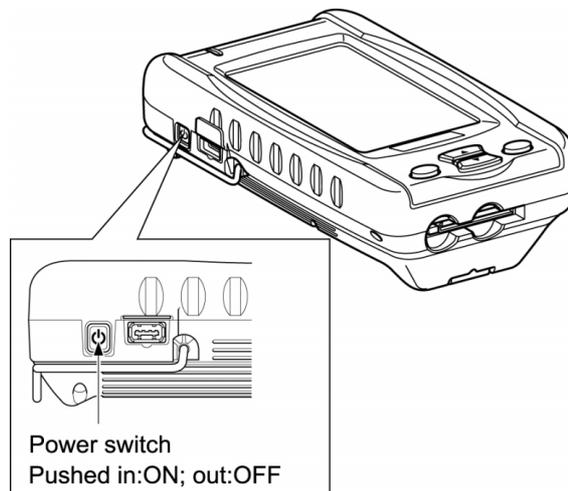
*Reference: Page 11 Connecting to the Vehicle (Chapter 1 Before Use/Connecting)*

2. Turn the vehicle ignition switch ON.

#### Note

- Communication with the vehicle computer (ECU) is not possible if the ignition switch is at OFF or ACC. When the Intelligent Tester II is turned ON, always switch the ignition switch ON or start the engine.
- When the Intelligent Tester II is used as measurement function (voltage measurement, oscilloscope), it will work even if the ignition switch is at OFF or ACC.
- If the Intelligent Tester II is connected to the vehicle's diagnostic connector (DLC3) by a datalink cable and supplied with power via an AC/DC adapter or DC power cable for a cigarette lighter socket, the Intelligent Tester II can be operated even with its power switch turned off.

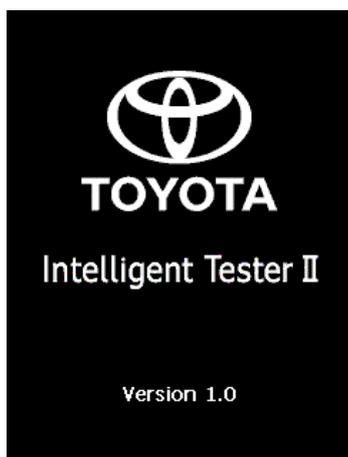
3. Press the Intelligent Tester II power switch to turn the power ON.



#### CAUTION

- During startup, never switch the Intelligent Tester II power switch OFF until the onboard/offboard check screen is displayed.

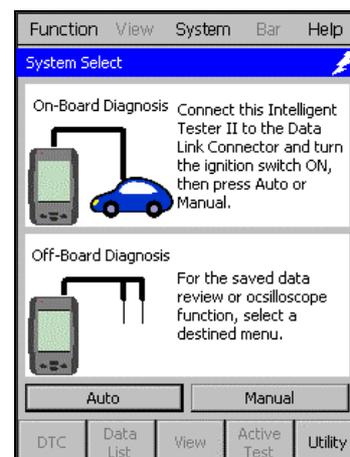
After the opening screen is displayed, the display automatically switches to the onboard/offboard check screen.



Toyota opening screen



Lexus opening screen



Onboard/offboard check screen

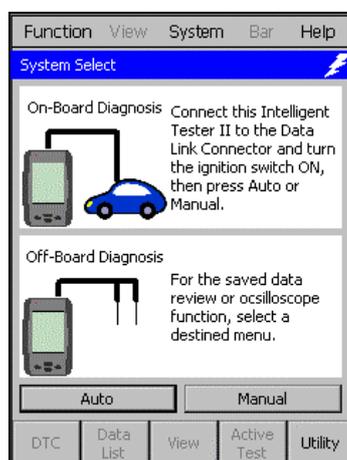
### Note

- There are two opening screens, one for Toyota and one for Lexus. These are selected using the brand select function. The factory setting is the Toyota opening screen.

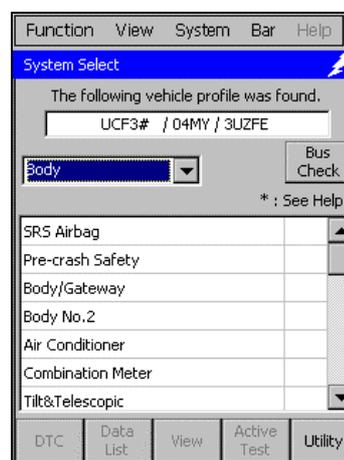
*Reference: Page 34 Brand Selection Function (Chapter 3 Default Settings/Tool Option Functions)*

- When using the Intelligent Tester II as an the OBD function, touch **Auto** or **Manual** on the onboard/offboard screen.

The system select screen is displayed.



Onboard/offboard check screen



System select screen

### Note

- To execute the OBD function, choose whether the vehicle is to be selected automatically or manually.

*Reference: Page 38 Automatic Vehicle Selection (Chapter 3 Default Settings/Tool Option Functions)*

*Page 39 Manual Vehicle Selection (Chapter 3 Default Settings/Tool Option Functions)*

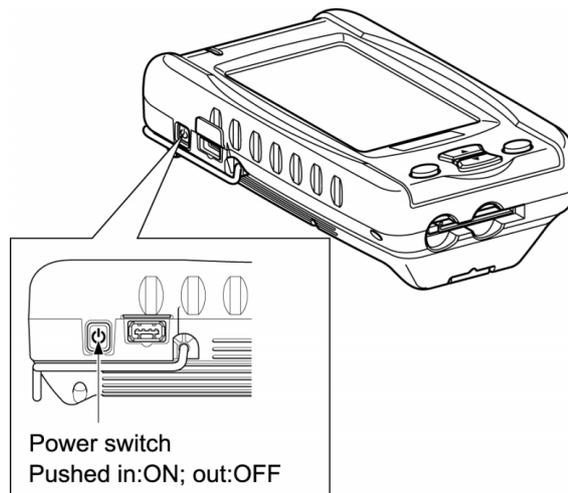
- When using Autoprobe or another measurement function, select that function from the [Utility] menu.

## Ending

### CAUTION

- If the power to the Intelligent Tester II is switched OFF during an active test, the actuator may remain in the drive state. Always end the active test before switching the power OFF.

1. Turn the vehicle ignition switch OFF.
2. Press the Intelligent Tester II power switch to turn the power OFF.



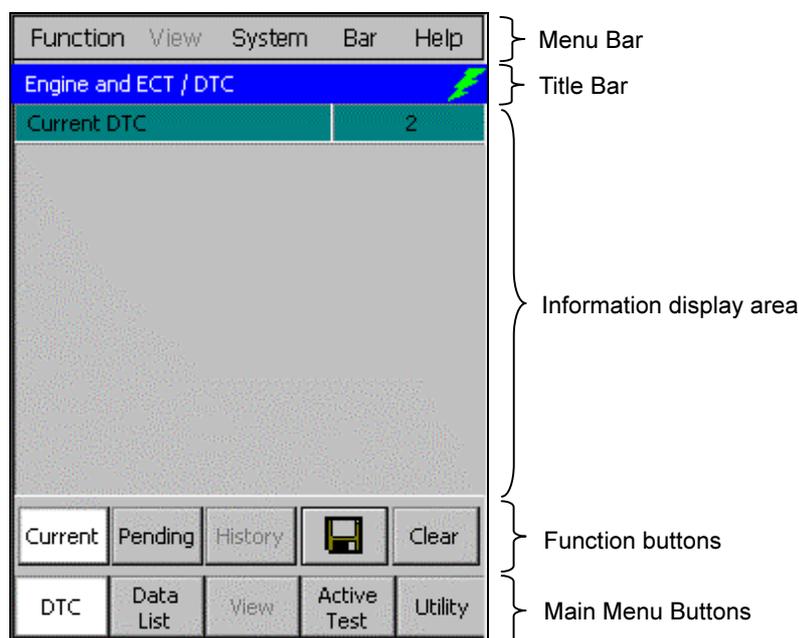
3. Disconnect the datalink cable from the vehicle side datalink connector (DLC3).

### CAUTION

- When disconnecting the datalink cable from vehicle side datalink connector (DLC 3), gently pull it straight out of the connector.  
Pulling the cable at a slant can break the connector pins.
- When pulling the cable out, hold it by the connector section, and never by the cord section.  
Pulling on the cord section can break the lines in the cable.

## Screen Configuration

The screen configuration for the Intelligent Tester II is as follows.



Screen Configuration

### Note

- The Intelligent Tester II display is a touch panel, so use your fingers to operate it.
- When a menu bar or button item is displayed in gray, this indicates that the item is disabled.

### Main Menu Buttons

The main menu buttons are composed of frequently used functions.

These functions can be selected from the menu bars, but the main menu buttons enable these functions to be started at one touch.



Main Menu Buttons

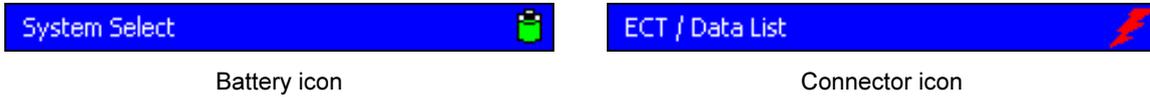
#### ◆ ACTIVE KEY

- |             |   |
|-------------|---|
| DTC         | Starts the DTC check. Freeze frame data can also be checked with a DTC check. |
| Data List   | Starts the data list. Snapshots can also be recorded with the data list.      |
| View        | Switches the data list display format.  |
| Active Test | Starts an active test.  |
| Utility     | Starts the utility.   |

### Title Bar

The title bar displays the ECU name and function names. Icons displaying the power status and communications status are also shown at the right end.

The icon display at the right end of the title bar varies according to the connection between the Intelligent Tester II and the vehicle computer (ECU).



#### Battery icon

This icon is displayed when the Intelligent Tester II and the vehicle computer (ECU) are not connected, to show that the Intelligent Tester II is running on its internal battery. The battery icon also functions as an indicator showing the charge level (remaining power) for the internal battery.

#### Connector icon

This icon is displayed when the Intelligent Tester II and the vehicle computer (ECU) are correctly connected, to show that the Intelligent Tester II is running on vehicle power. The connector icon also functions as an indicator by showing the communications status with its color.

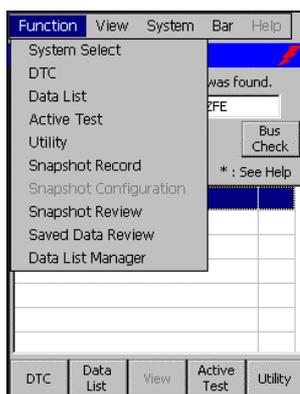
When communication starts, the connector icon changes color according to the communication speed: low speed (green), medium speed (yellow) and high speed (red). The communication speed is determined by the vehicle computer (ECU).

## Menu Bar

Five menu titles are displayed in the menu bar.  
Touching a menu titles displays the list of its functions.

### [Function] menu

The [Function] menu is used to select the program for execution.  
The functions that can be selected from the [Function] menu are as follows.

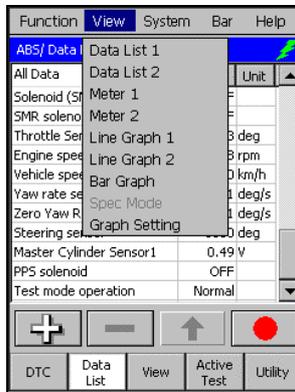


[Function] menu

Function	Contents	Reference page
System Select	Moves to the system select screen.	<a href="#">P.38</a>
DTC	Starts the DTC check. Freeze frame data can also be checked with a DTC check.	<a href="#">P.41</a>
Data List	Starts the data list. Snapshots can also be recorded with the data list.	<a href="#">P.49</a>
Active Test	Starts an active test.	<a href="#">P.68</a>
Utility	Starts the utility.	<a href="#">P.71</a>
Snapshot Record	Starts snapshot recording.	<a href="#">P.60</a>
Snapshot Configuration	Starts snapshot detail setting.	<a href="#">P.63</a>
Snapshot Review	Displays a saved snapshot data file.	<a href="#">P.79</a>
Saved Data Review	Displays a saved DTC data file.	<a href="#">P.77</a>
Data List Manager	Starts the data list manager.	<a href="#">P.66</a>

**[View] menu**

The data list display form can be selected from the [View] menu. However, the [View] menu is only enabled when the [Data List] or [Active Test] function is selected from the [Function] menu. Functions that can be selected from the [View] menu are as follows.

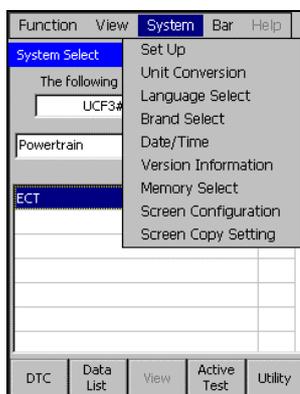


[View] menu

Function	Contents	Reference page
Data List 1	Displays the monitor items, values, and units in a list on one line.	P.53
Data List 2	Displays the monitor items (abbreviations), values, and units in a list on two lines.	P.54
Meter 1	Displays the monitor items, values (enlarged), maximum, and minimum values, and units in a list on one line.	P.55
Meter 2	Displays the monitor items (abbreviations), values (enlarged), and units in a list on two lines.	P.56
Line Graph 1	Displays the monitor items, values (broken-line graph), maximum, and minimum values, and units in a list on one line.	P.57
Line Graph 2	Displays the monitor items, values, and units in a list on one line together with a broken-line graph of the values.	P.58
Bar Graph	Displays the monitor items, values (bar graph), maximum, and minimum values, and units in a list on one line.	P.59
Graph Setting	<ul style="list-style-type: none"> <li>• Sets the vertical axis for graphing the displayed data. (Line Graph1, Line Graph2, Bar Graph only)</li> <li>• Sets the buzzer to ON/OFF for when the maximum value or minimum value displayed on a graph other than for Data List1 or Data List2 is updated.</li> </ul>	—

## [System] menu

Tool option functions (default setting functions) can be selected from the [System] menu. The functions that can be selected from the [System] menu are as follows.



[System] menu

Functions	Contents	Reference page
Set Up	Sets the backlight and display brightness, and the buzzer.	<a href="#">P.32</a>
Unit Conversion	Sets the speed, temperature, pressure, and flow units.	<a href="#">P.34</a>
Language Select	Selects the language used with the Intelligent Tester II.	<a href="#">P.33</a>
Brand Select	Sets the brand for the opening screen (Toyota or Lexus).	<a href="#">P.34</a>
Date/Time	Sets the date and time.	<a href="#">P.33</a>
Version Information	Displays version information for the Intelligent Tester II.	<a href="#">P.35</a>
Memory Select	Sets the data storage destination (memory or card).	<a href="#">P.36</a>
Screen Configuration	Corrects the touch panel touch keys.	<a href="#">P.35</a>
Button Configuration	Sets the shortcut keys, and switches the screen image save function ON/OFF.	<a href="#">P.36</a>

## Bar

- The function button displays are switched ON/OFF by touching the [Bar].

## Help

- When [Help] is touched with [Data List] or [Active Test] selected, an explanation of the item is displayed.
- When [Help] is touched with [Utility] selected, an explanation of the functions is displayed.

# Basic Operations

## Display Operation

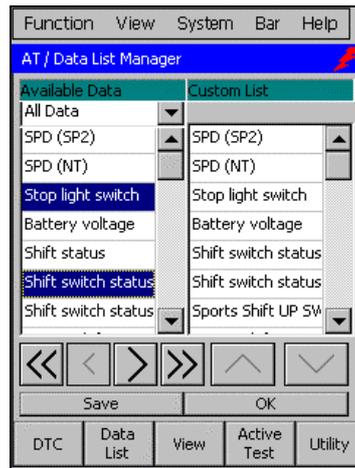
### Touch panel operation

The display for the Intelligent Tester II is a touch panel. Operations on the display are all operated using your fingers.

- To select an item from a list or press a button, briefly tap the item or button with your finger.



Example of screen displaying items in a list



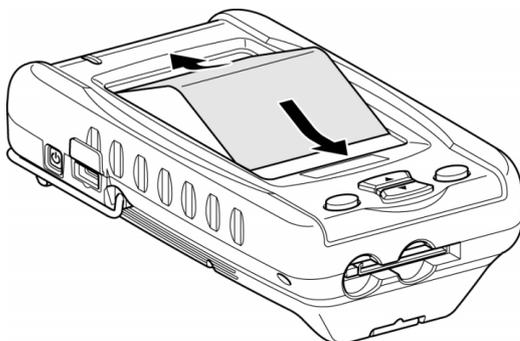
Example of a screen displaying buttons

### CAUTION

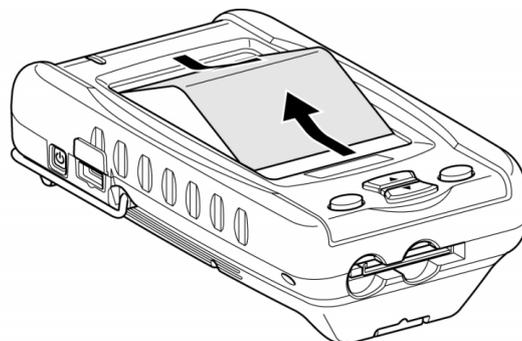
- To protect the display from scratches, always insert the screen overlay.
- Always operate the touch panel with your fingers. Never use any other object.

### Replacing the screen overlay for the display

- When removing the screen overlay, grasp the screen overlay with your fingers and remove.
- Use a soft cloth to wipe the surface of the touch panel clean of any dust etc.
- When inserting the screen overlay, insert it into the gap between the top section and the bottom section of the display.



Insertion



Removal

### Scroll bar operation

A scroll bar is displayed on a screen displaying a list. The scroll bar can be used to scroll up and down the list.

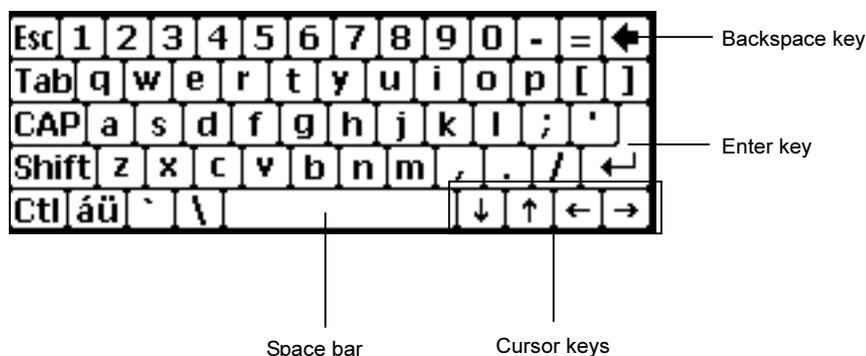
- If you move your finger up/down while touching the scroll bar, the list scrolls up/down.
- Touching ▲ / ▼ once scrolls the list up/down one line.
- Touching and holding ▲ / ▼ scrolls the list up/down continuously.

Parameter	Value	Units
Vehicle SPD	32	Km/h
Short FT #1	-0.032	%
Long FT #1	-5.499	%
Short FT #2	-0.032	%
Long FT #2	-3.937	%
FUEL SYS #1	OLFAULT	
FUEL SYS #2	OLFAULT	
PC IDL	OFF	
Starter SIG	OFF	

Example of screen with scroll bar displayed

### Software keyboard operation

When it is necessary to input characters on the screen, use the software keyboard.



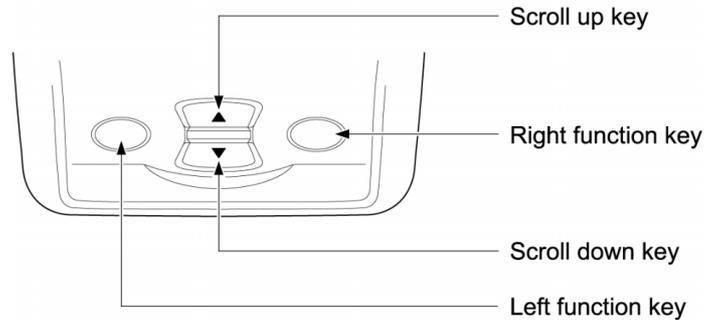
Methods for use are as follows.

- The keyboard can input English alphanumeric.
- To delete a character, use the ← (backspace) key.
- To switch between uppercase and lowercase English letters, use the Shift key.
- To input accented characters (such as à and Ä) not displayed on the keyboard, touch the áü key. The keyboard display switches to accented characters.

## Main Unit Operation

The main unit of the Intelligent Tester II has four hardware keys.

All operations of the Intelligent Tester II can be carried out on the display, but four hardware keys are used for frequently-used functions in order to improve operability.



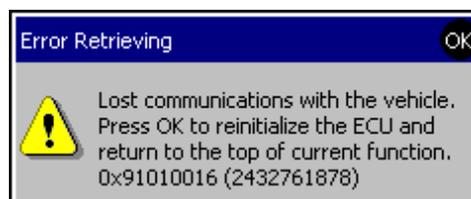
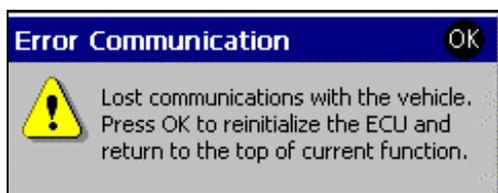
The hardware key functions are as follows.

Hardware key	Functions
Scroll up key	This key is enabled when a list (and a scroll bar) is shown on the display. It scrolls the list up. Pressing this key once scrolls the list up one line; holding the key down scrolls the list up continuously.
Scroll down key	This key is enabled when a list (and a scroll bar) is shown on the display. It scrolls the list down. Pressing this key once scrolls the list down one line; holding this key down scrolls the list down continuously.
Left function key.	Used to return from the screen currently being displayed to the onboard/offboard check screen.
Right function key	<ul style="list-style-type: none"> <li>• Normally used to return to the system select screen.</li> <li>• Used to start/stop measurement during voltage measurement and measurement with the oscilloscope function.</li> <li>• When screen image saving is set to "ON", pressing this key saves the screen image.</li> </ul> <p><i>Reference: <a href="#">Page 36 Button Setting Functions</a> (Chapter 3 Default Settings/Tool Option Functions)</i></p>

## In Case of Error

### Communication Errors

If a communication error occurs while the Intelligent Tester II is in use, the following error message is displayed.



If a communications error occurs, check the error according to the following procedure.

1. Touch [OK] at the top right of the error message window.

This closes the window and returns to the head screen of the function in which the communication error occurred.

2. Turn the vehicle ignition switch OFF.
3. Turn the Intelligent Tester II power switch OFF.

A connection defect for the datalink cable may be the cause of a communication error. Check the datalink connector (DLC 3) connection at the Intelligent Tester II and vehicle sides.

4. Restart the Intelligent Tester II.

Check if the communication error occurs again.

If so, connect the Intelligent Tester II to another vehicle (of the same model) and check if a communication error occurs with that vehicle.

- If no communication error occurs

There may be a problem with the vehicle. Inspect and repair the vehicle as necessary, in accordance with the vehicle repair manual.

- If a communication error occurs

There may be a problem with the Intelligent Tester II.

## System Errors

If a system error occurs while the Intelligent Tester II is in use, an error message dialog box like the following is displayed.



If a system error occurs, follow the procedure listed below.

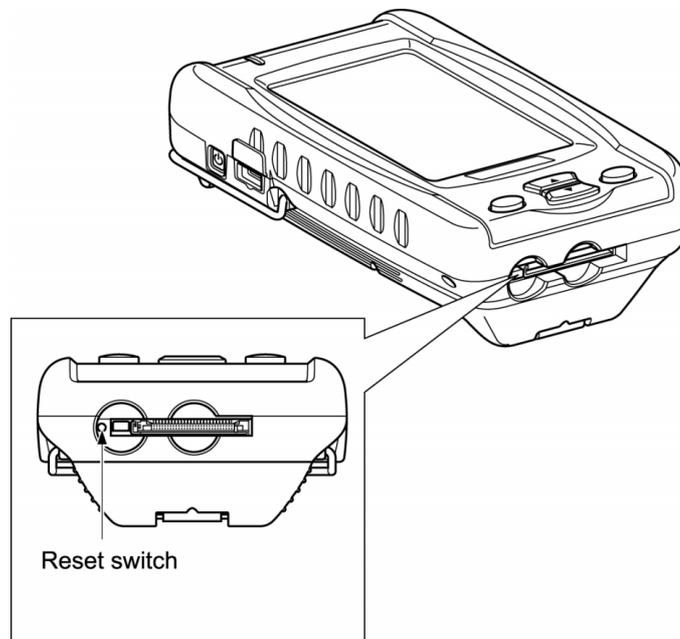
1. Touch **OK** in the error message dialog box.
2. Turn the Intelligent Tester II power switch OFF.
3. Turn the Intelligent Tester II power switch ON to restart the Intelligent Tester II.

If restarting the Intelligent Tester II does not eliminate the system error, write down the error message and ask the service reception staff.

## Screen Lock Errors

If there is no response when the touch keys are pressed or the screen locks up when using the Intelligent Tester II, follow the procedure listed below.

1. Turn the Intelligent Tester II power switch OFF.
2. Press the reset switch beside the CF card slot.



3. Turn the Intelligent Tester II power switch ON to restart the Intelligent Tester II.

# **3** Default Settings

---

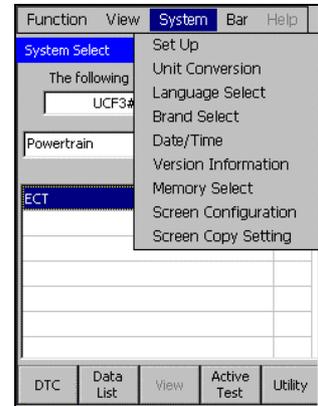
# 3 Default Settings

## Tool Option Function

The default setting tool option function changes the default settings (the factory settings) for the Intelligent Tester II.

The various tool option functions can be selected from the [System] menu on the main menu screen title bar.

This section explains the default setting functions.



[System] menu

### Supplementary Functions (Set Up)

The supplementary functions set the level of back light brightness and the display contrast, and turn the buzzer ON/OFF.

#### Back Light

Adjusts the back light brightness. Sliding the indicator to the left increases the level of brightness.

**Note**

- Making the back light brighter uses more power. When the Intelligent Tester II is running on its internal battery, we recommend that the back light be dimmed for as possible.

#### Display Contrast

Adjusts the display contrast. Sliding the indicator to the left darkens the display.

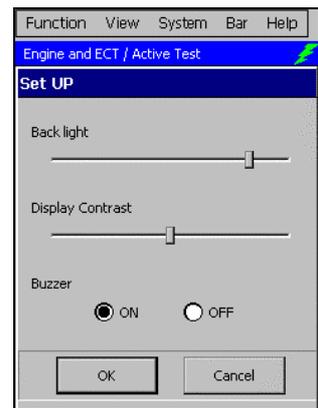
#### Buzzer

Select ON/OFF for the buzzer (touch sound).

#### ◆ ACTIVE KEY

Activates the selected settings.

Returns to the previous settings.



## Clock Functions (Date/Time)

The clock functions set the date and time.

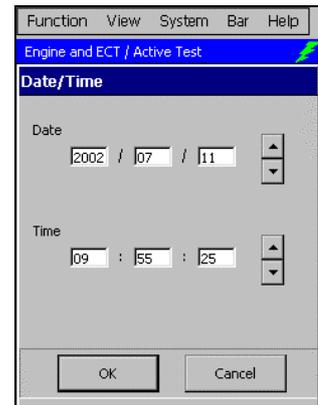
The cursor is displayed and the item can be set when the desired item is touched.

### Date

Sets the year /month/day.

### Clock

Sets the hour:minute:second.



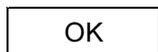
### ◆ ACTIVE KEY



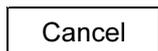
Raises the value in the input column where the cursor is displayed.



Lowers the value in the input column where the cursor is displayed.



Activates the selected settings.



Returns to the previous settings.

## Language Selection Function (Language Select)

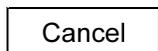
The language selection function sets the use language for the Intelligent Tester II.

English, German, French, Spanish, Italian, or Chinese (simplified characters) can be selected.

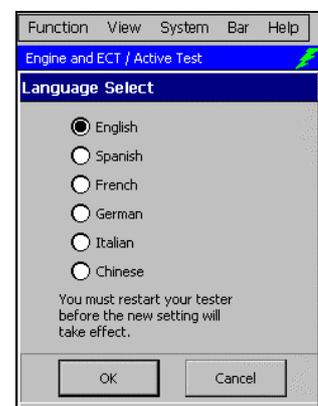
### ◆ ACTIVE KEY



Activates the selected settings.



Returns to the previous settings.



### Note

- The Intelligent Tester II must be restarted to operate it in the selected language.

### Unit Conversion Function (Unit Conversion)

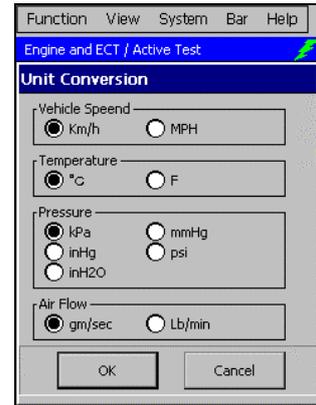
The unit conversion function sets the conversion units used with the Intelligent Tester II.

Units for the vehicle speed, temperature, pressure and air flow can be selected.

◆ **ACTIVE KEY**

Activates the selected settings.

Returns to the previous settings.



### Brand Selection Function (Brand Select)

The brand selection function sets the brand displayed on the opening screen when the Intelligent Tester II starts up.

Select from TOYOTA, LEXUS, or TOYOTA & LEXUS.

◆ **ACTIVE KEY**

Activates the selected settings.

Returns to the previous settings.



**Note**

- The brand selected for the opening screen can be checked the next time the Intelligent Tester II is started up.

## Version Display Function (Version Information)

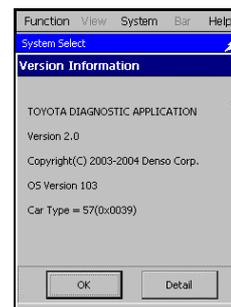
Version information for the Intelligent Tester II and for the applications used by the Intelligent Tester II can be checked using the version function.

The screen on the right is the Intelligent Tester II version information screen.

### ◆ ACTIVE KEY

Ends the version information check.

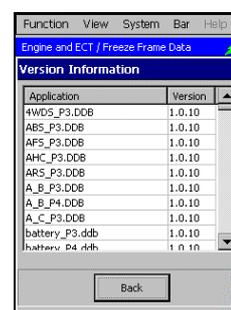
Displays the detailed version information screen enabling a check for application versions.



The screen on the right is the detailed version information screen.

### ◆ ACTIVE KEY

Returns the display to the previous screen.

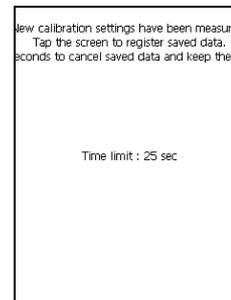
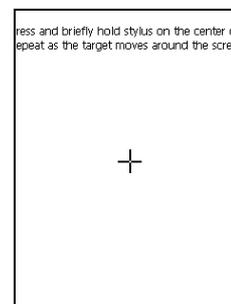


## Touch Panel Compensation Function (Screen Configuration)

The touch panel compensation function compensates for the deviation when a key is operated on the touch panel.

The touch panel compensation procedure is as follows.

1. Touch the + mark displayed in the center of the display.  
The + mark moves to the top left of the display.
2. Touch the new + mark that has moved.  
The + mark moves to the bottom left of the display.
3. Touch the new + mark that has moved.  
The + mark moves to the bottom right of the display.
4. Touch the new + mark that has moved.  
The + mark moves to the top right of the display.
5. Touch the new + mark that has moved.  
The screen changes when the + mark disappears from the display.
6. Touch any point on the display.  
The display changes to the opening screen and touch panel compensation is complete.



### Note

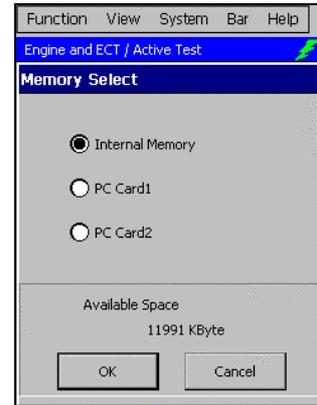
- When touching the + mark, always touch for at least one second. The + mark does not move unless touched it for at least one second.

### Data Storage Setting Function (Memory Select)

The data storage setting function sets the storage location data. Either internal memory or PC Card 1 can be selected.

- Internal Memory: Internal memory
- PC Card1 : External memory card 1

The storage capacity is displayed after the data storage location has been selected.



#### ◆ ACTIVE KEY

Activates the selected settings.

Returns to the previous settings.

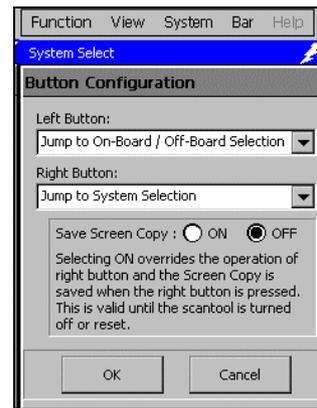
### Button Setting Functions (Button Configuration)

The button setting functions set short cuts to the left and right function keys on the main unit, and set image storage for the right function key.

- Short cut key settings determine where the screen returns to when the left or right function key on the main unit is pressed.
- The image storage setting switches the image storage function ON/OFF.

The image storage function can store the image being displayed as a file when the right function key on the main unit is pressed. Up to 2 such image files can be stored. The 3rd image file will be written over the oldest file.

The image storage setting returns to the default value (OFF) when the Intelligent Tester II power goes OFF. This setting is always OFF immediately after the Intelligent Tester II starts up. To enable this function, you must set it to ON after startup.



#### ◆ ACTIVE KEY

Activates the selected settings.

Returns to the previous settings.

# 4 Diagnostics Functions

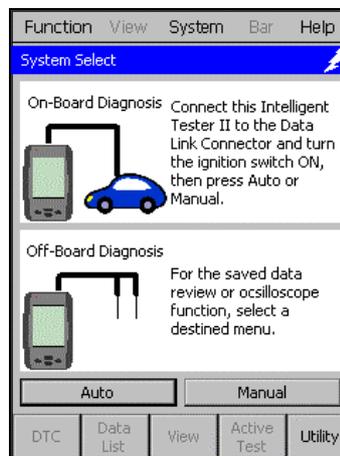
---

# 4 Diagnostics Functions

The onboard/offboard check screen is displayed after the opening screen is displayed when the Intelligent Tester II starts up.

When **Auto** or **Manual** is touched on the onboard/offboard check screen, the Intelligent Tester II begins communication with the vehicle and check the ECU.

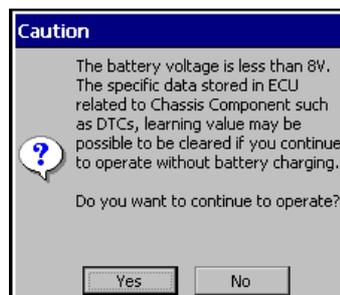
To execute measurement functions such as the oscilloscope that do not require communication with the vehicle, touch **Utility**.



Onboard/offboard check screen

**Note**

- If you execute the OBD function when the vehicle battery is 8V or less, the ABS lamp may come on, depending on the vehicle. A warning screen like the one shown on the right will appear. Recharge or replace the battery and execute the OBD function again.



Warning screen

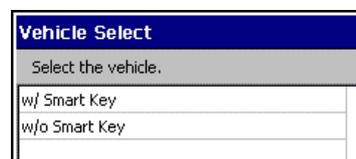
## System Selection

It is necessary to select the diagnostics system (the system within the vehicle) when diagnosing the vehicle.

The procedure for selecting the system is as follows.

**Note**

- The screen on the right may appear before selecting the system procedure. Select the vehicle to be diagnosed.



Vehicle select screen

### Automatic Vehicle Selection

1. Touch the list box on the system select screen to select the system category.

When the vehicle information is acquired from the vehicle computer (ECU), the system select screen is displayed.

Select powertrain, chassis, or body as the system category.

A list of the vehicle mounted systems being diagnosed is then displayed.

If vehicle information cannot be acquired, a message screen is displayed.

**Note**

- If a message screen appears, touch **OK** to close the window. Touch **Manual** on the onboard/offboard check screen and select the vehicle to be diagnosed.

**Manual Vehicle Selection**

1. Enter the data on the vehicle data input screen to specify the vehicle to be diagnosed.

When you touch each data button, a data select screen is displayed.

Select the data of the vehicle to be diagnosed from the data select screen.

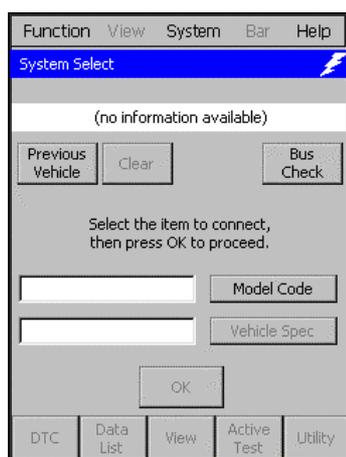
Touch **OK** and the system select screen is displayed.

Operation from this point is the same as when selecting an automatic vehicle.

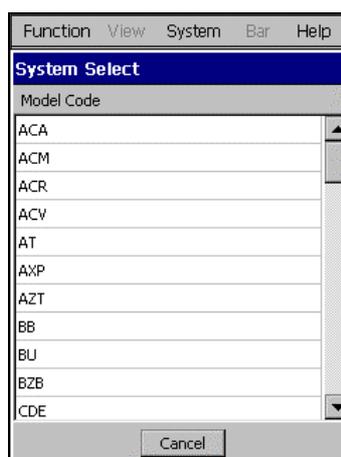
**Note**

- The Intelligent Tester II communicates with the vehicle computer (ECU) even in the case of Manual Vehicle Selection. Connect the Intelligent Tester II with the vehicle before touching **Manual**.

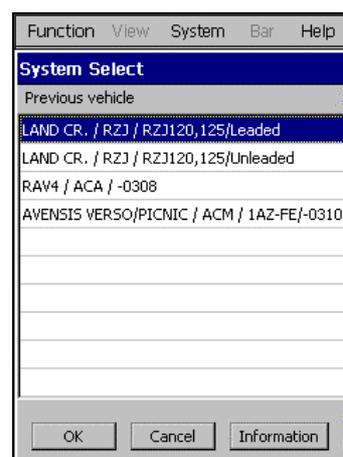
*Reference: P.11 Connecting to the Vehicle (Chapter 1 Before Use)*



Vehicle data input screen



Data select screen



Previous vehicle select screen

**◆ ACTIVE KEY**

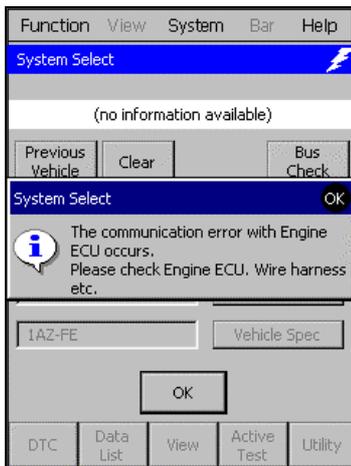
**Previous Vehicle**

You can select the manual select data of the previous ten selected vehicles.

2. Touch the system to undertake diagnosis from the system list.



System select screen



Message screen

**Note**

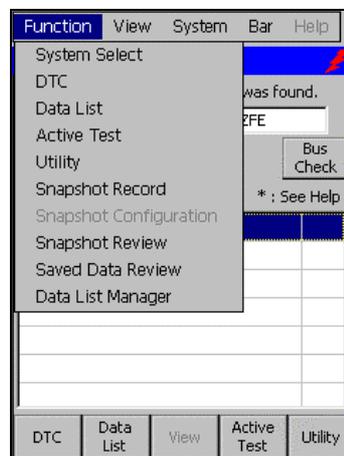
- When you select the system, a warning screen like the one shown on the right may be displayed. Make sure you understand the message displayed before carrying out vehicle diagnosis.



Warning screen

**Note**

- After the Intelligent Tester II is started, the system select screen is displayed. To reselect a system after having moved to other processing, press the right function key on the main unit or select the menu bar [Function] menu list -> [System Select]. This displays the system select screen.



[Function] Menu list

◆ ACTIVE KEY

Bus Check

Starts the CAN bus check.

## DTC Check

DTC data is data stored in the vehicle computer (ECU) internal memory when a trouble occurs. Checking DTC data can aid in specifying the cause of the trouble.

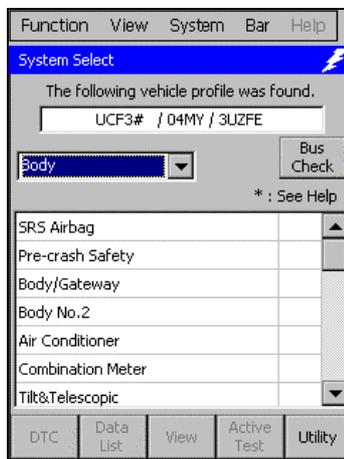
### DTC Data Display

Displays the DTC data for the system selected on the system select screen.

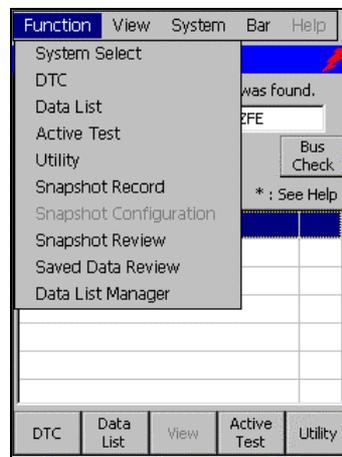
The procedure for displaying the DTC data is as follows.

1. Select the system from the system select screen.
2. Touch the **[DTC]** main menu button.  
Alternatively, touch [DTC] in the system select screen [Function] list.

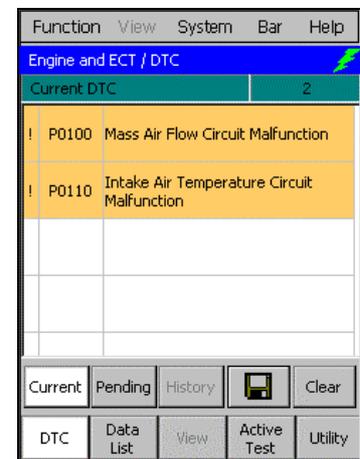
The DTC data list is displayed on the DTC data display screen.



System select screen



[Function] Menu list



DTC data display screen

### Note

- A "!" displayed at the left of DTC data shown in orange means that freeze frame data has been recorded for that data.

*Reference: Page 45 Freeze Frame Data Display (Chapter 4 Diagnostics Functions/DTC Check)*

### ◆ ACTIVE KEY

- |   |  |
|---|--|
| Current   | Displays the current DTC data.<br>When there is DTC data, this button is displayed in blue.                        |
| Pending   | Displays pending DTC data.<br>When there is pending DTC data, this button is displayed in blue.                    |
| History   | Displays historical DTC data (past codes).<br>When there is historical DTC data, this button is displayed in blue. |
|  | Saves DTC data. <i>See the next page.</i>  |
| Clear   | Clears the DTC data stored in the vehicle computer (ECU). <i>Reference: Page 44.</i>                               |

## DTC Data Storage

DTC data can be stored. The factory setting for the data storage destination is the internal memory. The data storage destination can be changed using the data storage setting function.

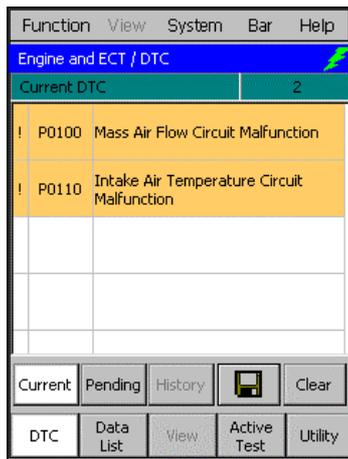
*Reference: Page 36 Data Storage Setting Function (Chapter 3 Default Settings/Tool Option Functions)*

The procedure for saving the DTC data is as follows.

1. From the DTC data display screen function buttons, touch  .  
The DTC data save screen is displayed.
2. The set file name is displayed on the DTC data save screen.  
If this file name is correct, touch  .  
To save to a different file, input the name of that file, and then touch  .

*Reference: Page 27 Software keyboard operation (Chapter 2 Basic Operations/Basic Operations/Display Operations)*

The first time this screen is displayed, "Vehicle model\_model year\_serial number" is set automatically as the file name displayed.



DTC data display screen



DTC data save screen

### ◆ ACTIVE KEY

Saves DTC data.

Cancels DTC data saving.

### Note

- The stored DTC data can be played back at any time. The Intelligent Tester II does not need to be connected to the vehicle for playback.

*Reference: Page 77 DTC Playback (Chapter 5 Saved Data Playback Function)*

- If the storage memory is full, the DTC data delete verification dialog box is displayed and unnecessary DTC data can be deleted.



DTC data delete verification dialogue

◆ **ACTIVE KEY**

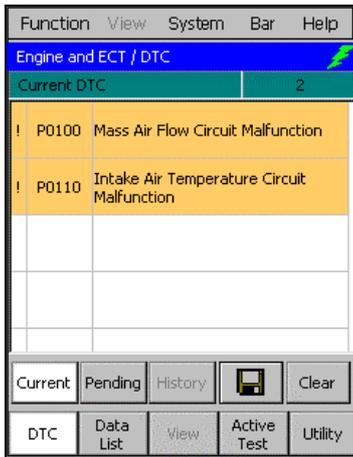
- |   |                                 |
|---|---------------------------------|
| <input type="button" value="Delete Files"/> | Displays a list of stored data. |
| <input type="button" value="Cancel"/>       | Cancels DTC data deletion.      |

### DTC Data Clear

The procedure for clearing the DTC data is as follows.

1. From the DTC data display screen function buttons, touch **Clear**.  
The DTC data clear dialog box is displayed.
2. On the DTC data clear dialog box, touch **Yes**.

Delete DTC data by following the operating instructions on the screen.



DTC data display screen



DTC data clear dialog box

### Note

- A Vehicle data input screen is displayed with certain vehicles. Follow the instructions on the screen.



Vehicle data input screen

## Freeze Frame Data Display

Displays freeze frame data related to the DTC data.

There are two types of freeze frame data:

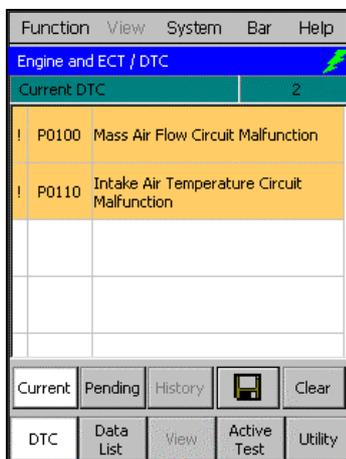
- Single freeze frame data : ECU data recorded when the DTC data is generated
- Multi freeze frame data : ECU data recorded when the DTC data is generated and before and after it is generated.

The procedure for displaying freeze frame data is as follows.

1. On the DTC data display screen, touch the DTC data displayed in orange with "!" to the left.

### Note

- A "!" displayed to the left of DTC data shown in orange indicates that freeze frame data has been recorded for that data.



DTC data display screen

The single freeze frame data display screen is displayed for single freeze frame data. The multi freeze frame data display screen is displayed for multi freeze frame data.

Parameter	Value	Units
Vehicle SPD	32	Km/h
Short FT #1	-0.032	%
Long FT #1	-5.499	%
Short FT #2	-0.032	%
Long FT #2	-3.937	%
FUEL SYS #1	OLFAULT	
FUEL SYS #2	OLFAULT	
FC IDL	OFF	
Starter SIG	OFF	

Single freeze frame data display screen

Parameter	Value	Units
Trouble Code	275	
Injector	0.000	ms
IGN Advance	5.0	deg
Calculate Load	0.000	%
MAF	0.56	g/sec
Engine Speed	0.00	rpm
Vehicle Speed	0	Km/h
Coolant Temp	48	°C

Multi freeze frame data display screen

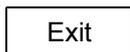
### Single freeze frame data display

The single freeze frame data display screen is displayed for single freeze frame data



Single freeze frame data display screen

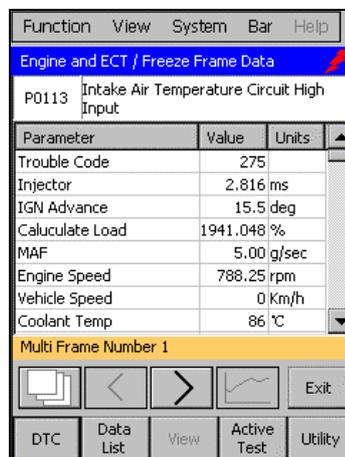
#### ◆ ACTIVE KEY



Returns the display to the DTC data display screen.

### Multi freeze frame data display

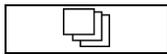
The multi freeze frame data display screen is displayed for multi freeze frame data.



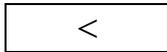
Multi freeze frame data display screen

The Multi Frame Number for multi freeze frame data currently being displayed is shown in orange. The Multi Frame Number is a serial number.

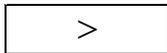
## ◆ ACTIVE KEY



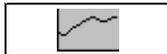
Displays a screen showing a list of time series data.



Displays the data for the previous frame.



Displays the data for the next frame.



Displays a graph of the data history selected on the multi freeze frame data display screen. This is not valid unless an item has been selected.



Exit

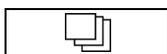
Returns the display to the DTC data display screen.

- Touching  on the multi freeze frame data display screen displays a screen showing a list of time series data for the displayed multi freeze frame data.

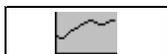
Param...	-3	-2	-1	0	1
IGN Advan	15.5	15.5	18.5	16.5	14.5
Calculated	1.048	33.205	58.627	50.784	32.31
MAF	5.00	5.04	0.50	0.50	0.50
Engine Spe	788.25	795.25	521.75	508.50	194.1
Vehicle Spe	0	0	0	0	0
Coolant Te	86	86	86	86	86
Intake Air	55	55	-40	-40	-40
Air-Fuel Ra	10.100	10.100	10.100	10.100	14.3

Time series data list display screen

## ◆ ACTIVE KEY



Returns the display to the multi freeze frame data display screen.



Displays a graph of the data history selected on the time series display screen. This is not valid unless an item has been selected.

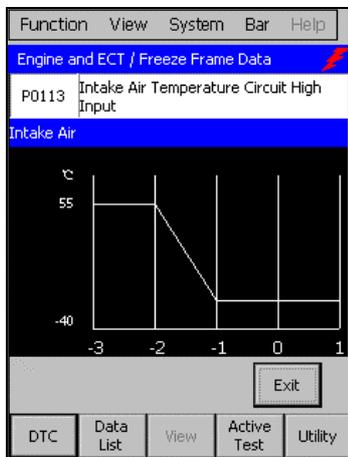


Exit

Returns the display to the DTC data display screen.

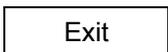
### Multi freeze frame data graph display

When data is selected on the multi freeze frame data display screen or the time series display screen and then  is touched, a multi freeze frame data graph screen is displayed.



Multi freeze frame data graph screen

#### ◆ ACTIVE KEY



Returns the display to the previous screen.

## Data List

Vehicle computer (ECU) data can also be monitored numerically or in graph form and snapshots can be recorded.

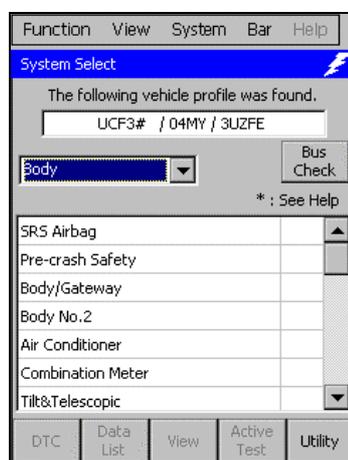
### Data List Display

Displays the ECU data for the system selected on the system select screen.

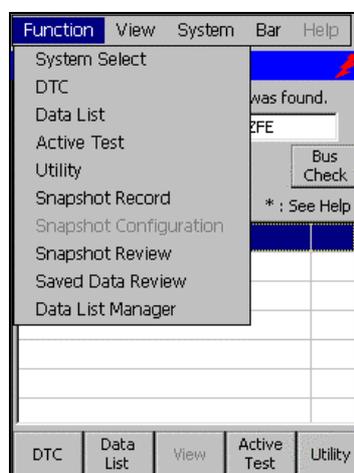
The procedure for displaying the ECU data is as follows.

1. Select the system with the system select screen.
2. Touch the **Data List** main menu button.  
Alternatively, touch [Data List] in the system select screen [Function] menu list.

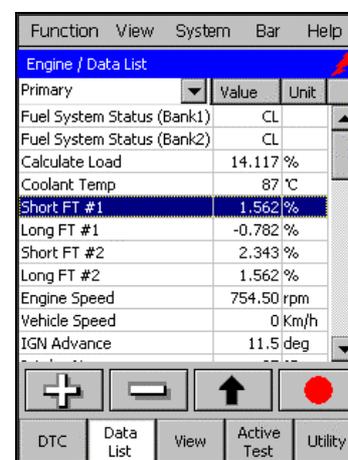
ECU data is displayed on the data list screen.



System select screen



[Function] menu list



Data list screen

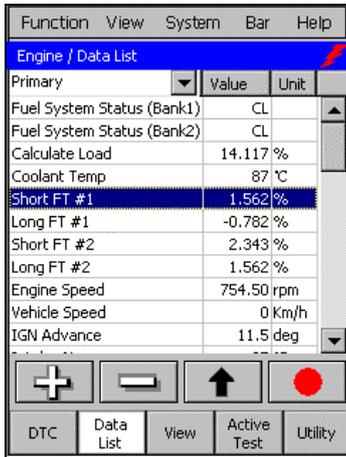
### Measurement group selection

Data required for diagnosing a specific breakdown can be grouped.

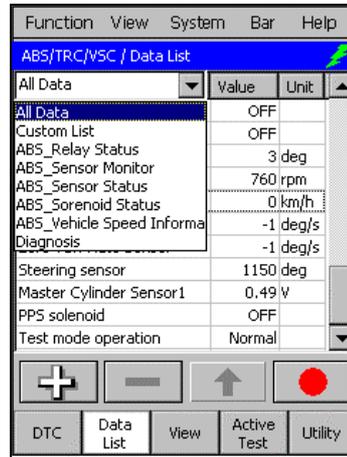
The ECU data belonging to a measurement group can be displayed by selecting that group.

1. From the data list screen list box, select the measurement group.

When you select a measurement group, the ECU data belonging to that group is displayed.



Data list screen

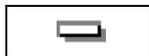


Measurement group select screen

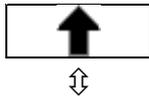
#### ◆ ACTIVE KEY



Starts the data list manager and adds the displayed data. [Reference: Page 66](#)



Ends display of the selected data.  
This is not valid unless data has been selected.



Moves the selected data to the head of the list and holds it there.  
This is not valid unless data has been selected.



Returns the data held at the head of the list to its original position.  
When the held data is selected,  changes to .



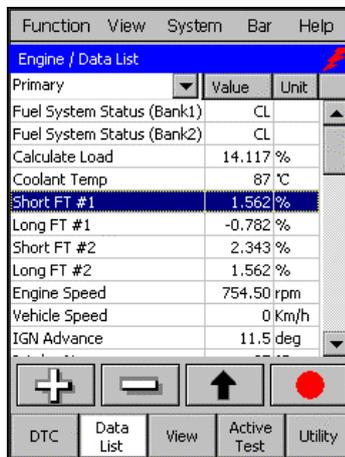
Records a snapshot. [Reference: Page 60](#)

## Display Switching

### Display form

There are seven data list display formats.

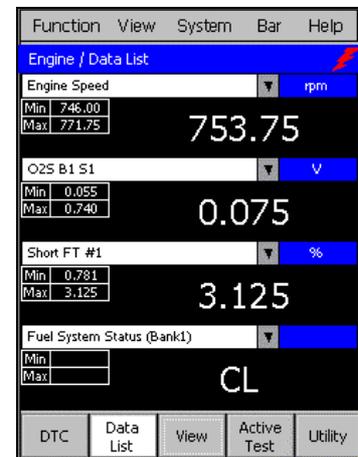
These display formats are shown below.



Data List 1



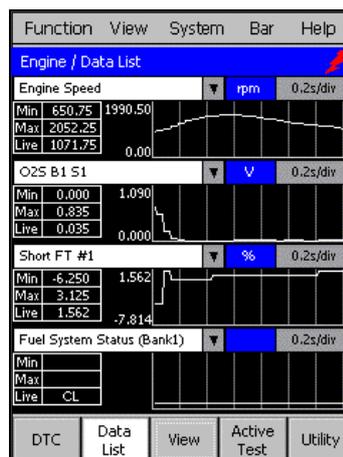
Data List 2



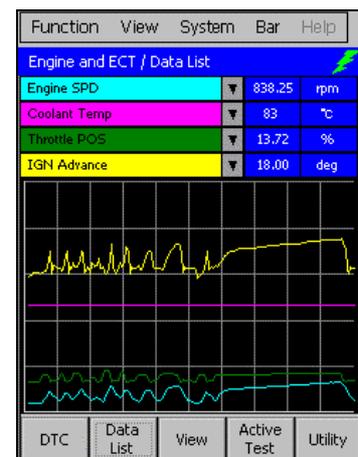
Meter 1



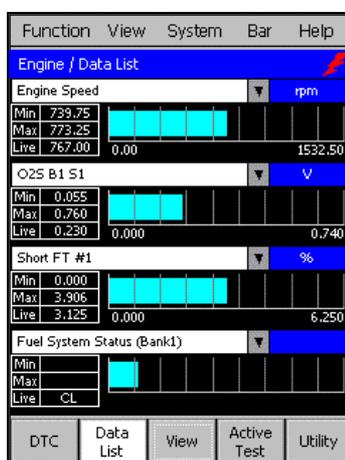
Meter 2



Line Graph 1



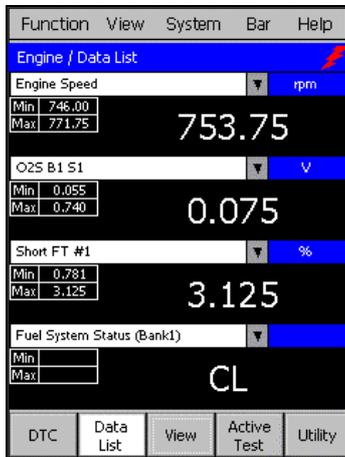
Line Graph 2



Bar Graph

## 4 Diagnostics Functions

- Display of maximum, minimum and current values  
 If the display forms are Meter 1, Line Graph 1 and Bar Graph, the maximum, minimum and current values are displayed to the left of the data.  
 They are not displayed if the value is not a number e.g. ON/OFF.

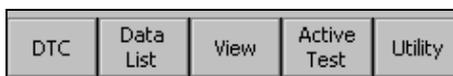


Meter 1

### Display format switching

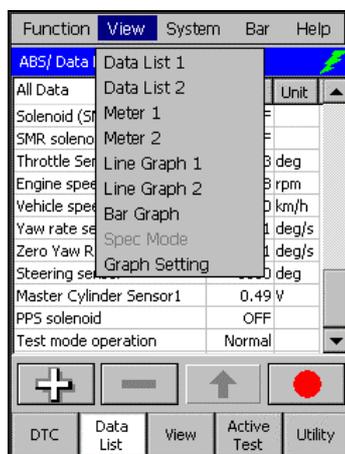
The following two methods can be used to switch the display format.

- Select the display format by touching the main menu **View** .  
 Each time **View** is touched, the display form switches to the next type in the following order: Data List 1-> Meter 1-> Line Graph 1-> Line Graph 2-> Bar Graph.



Main Menu Buttons

- Select from the menu bar [View] menu.



[View] menu

## Data List 1

Data List 1 (number display) displays the data numerically.

- A measurement group can be selected with the list box.
- You can switch the function button display on and off by touching [Bar] on the menu bar.

Function	View	System	Bar	Help
Engine / Data List				
Primary	▼	Value	Unit	▲
Fuel System Status (Bank1)		CL		
Fuel System Status (Bank2)		CL		
Calculate Load		14.117 %		
Coolant Temp		87 °C		
Short FT #1		1.562 %		
Long FT #1		-0.782 %		
Short FT #2		2.343 %		
Long FT #2		1.562 %		
Engine Speed		754.50 rpm		
Vehicle Speed		0 Km/h		
IGN Advance		11.5 deg		

Data List 1

Function	View	System	Bar	Help
ABS/TRC/VSC / Data List				
All Data	▼	value	Unit	▲
All Data		OFF		
Custom List		OFF		
ABS_Relay Status		3 deg		
ABS_Sensor Monitor		760 rpm		
ABS_Sensor Status		0 km/h		
ABS_Solenoid Status		-1 deg/s		
ABS_Vehicle Speed Informa		-1 deg/s		
Diagnosis				
Steering sensor		1150 deg		
Master Cylinder Sensor1		0.49 V		
PPS solenoid		OFF		
Test mode operation		Normal		

With the list box pulled down

### ◆ ACTIVE KEY



Starts the data list manager and adds the displayed data. [Reference: Page 66](#)



Stops display of the selected data.  
This is not valid unless data has been selected.



Moves the selected data to the head of the list and holds it there.  
This is not valid unless data has been selected.



Returns the data held at the head of the list to its original position.  
When the held data is selected, changes to .

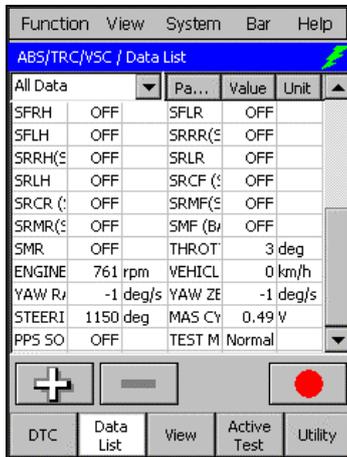


Records a snapshot. [Reference: Page 60](#)

**Data List 2**

Data List 2 (compressed number display) uses abbreviations for the data names and displays twice as many data items as Data List 1.

- A measurement group can be selected using the list box.
- The function button display can be switched on and off by touching [Bar] on the menu bar.

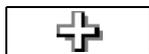


Data List 2



With the list box pulled down

◆ ACTIVE KEY



Starts the data list manager and adds the displayed data. *Reference: Page 66*



Ends display of the selected data. This is not valid unless data has been selected.

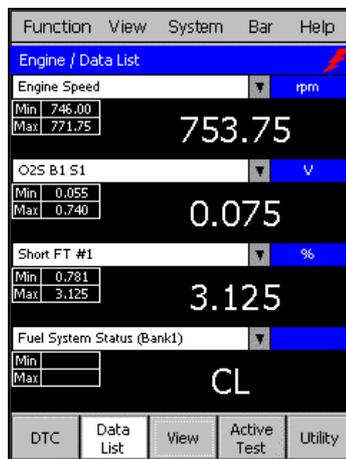


Records a snapshot. *Reference: Page 60*

## Meter 1

Meter 1 (enlarged number display) displays the data as enlarged numbers.

- The maximum and minimum values are displayed.
- The data for display can be selected using the list box.
- The function button display can be switched on and off by touching [Bar] on the menu bar.



Meter 1

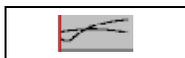


When the [Bar] menu is touched



With the list box

### ◆ ACTIVE KEY



Switches the buzzer that sounds when the "Max" or "Min" value or the line graph vertical axis (value) is updated ON/OFF.



Sets the line graph horizontal axis (time).



Records a snapshot. [Reference: Page 60](#)

**Meter 2**

Meter 2 (compressed enlarged number display) uses abbreviations for the data names and displays twice as many data items as Meter 1.

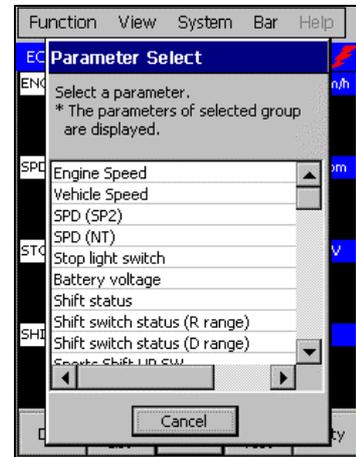
- The data for display can be selected using the list box.
- The function button display can be switched on and off by touching [Bar] on the menu bar.



Meter 2

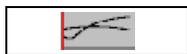


When the [Bar] menu is touched



With the list box

◆ **ACTIVE KEY**



Switches the buzzer that sounds when the "Max" or "Min" value is updated ON/OFF.

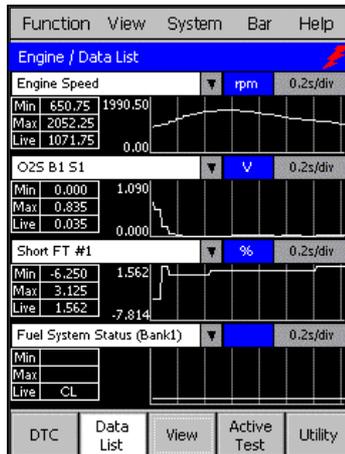


Records a snapshot. [Reference: Page 60](#)

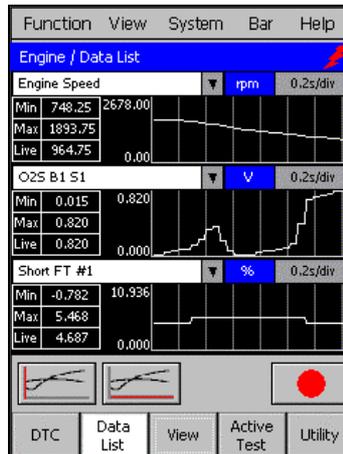
## Line Graph 1

Line Graph 1 displays the data as a line graph.

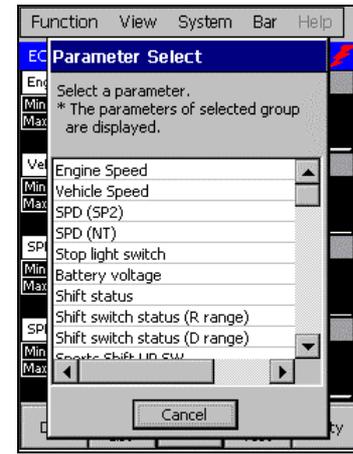
- The maximum and minimum values are displayed.
- The current values of the data are displayed.
- Data can be selected using the list box.
- The function button display can be switched on and off by touching [Bar] on the menu bar.



Line Graph 1

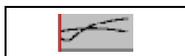


When the [Bar] menu is touched



With the list box

### ◆ ACTIVE KEY



Switches the buzzer that sounds when the "Max" or "Min" value or the line graph vertical axis (value) is updated ON/OFF.



Sets the line graph horizontal axis (time).

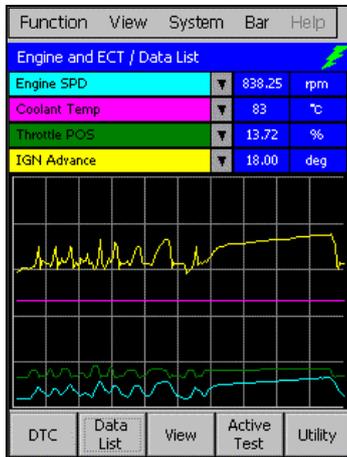


Records a snapshot. [Reference: Page 60](#)

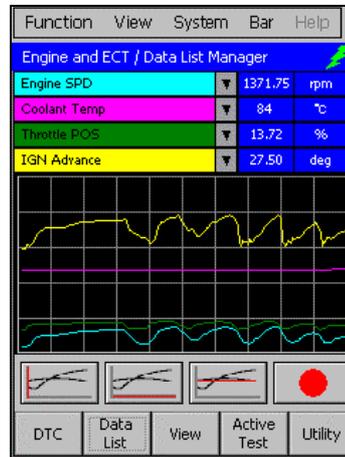
### Line Graph 2

Line Graph 2 (line graph combined display) displays multiple data sets as a line graph on the same axis.

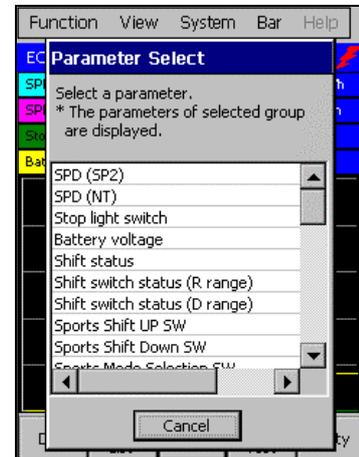
- Data can be selected using the list box.
- The function button display can be switched on and off by touching [Bar] on the menu bar.



Line Graph 2

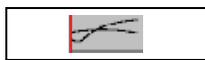


When the [Bar] menu is touched

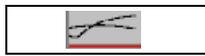


With the list box

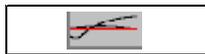
#### ◆ ACTIVE KEY



Switches the buzzer that sounds when the "Max" or "Min" value or the line graph vertical axis (value) is updated ON/OFF.



Sets the line graph horizontal axis (time).



Sets the ground position for the selected data.

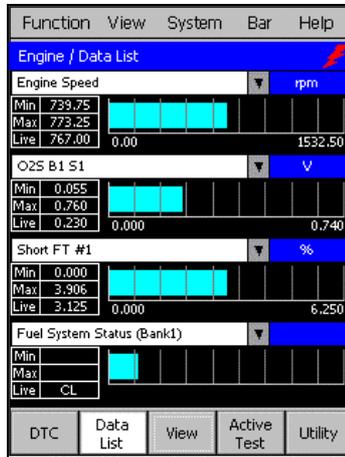


Records a snapshot. [Reference: Page 60](#)

## Bar Graph

This function displays the data as a bar graph.

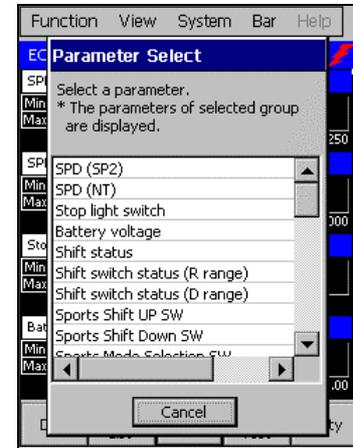
- Data can be selected using the list box.
- The function button display can be switched on and off by touching [Bar] on the menu bar.



Bar Graph

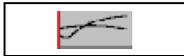


When the [Bar] menu is touched



With the list box

### ◆ ACTIVE KEY



Switches the buzzer that sounds when the "Max" or "Min" value or the line graph vertical axis (value) is updated ON/OFF.



Sets the line graph horizontal axis (time).



Records a snapshot. [Reference: Page 60](#)

## Snapshots

Data in the data list can be recorded/saved/played back. In addition, settings can be performed for snapshot operation.

### Snapshot recording/saving

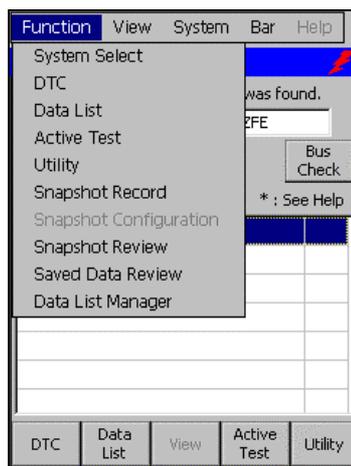
The procedure for recording/saving snapshots is as follows.

1. Touch the  function button.  
Alternatively, in the data list screen [Function] menu list, touch [Snapshot Record].

The snapshot record/save screen is displayed.



Data list screen



[Function] menu list

2. Data recording/saving starts automatically.

When the data recording/saving ends, the system goes into playback/new recording standby mode.



When recording



When saving



Playback/new recording standby

- "Vehicle model\_model year\_serial number" is set automatically as the file name saved.
- You can set the snapshot flag by touching [  ] when recording.

**Note**

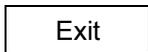
- The snapshot flag stores the point as a mark for the data time elapsed. During playback, you can move quickly to points using the snapshot flags.
- Up to five snapshot flags can be set.

*Reference: Page 81 Playback With Snapshot Flag Set*

*(Chapter 5 Saved Data Playback Function/Snapshot Playback)*

**◆ ACTIVE KEY**

Sets snapshot operations. *Reference: Page 63*



Exit

Ends the snapshot.



Stops recording/playback and returns to the start of the data.



Recording starts.



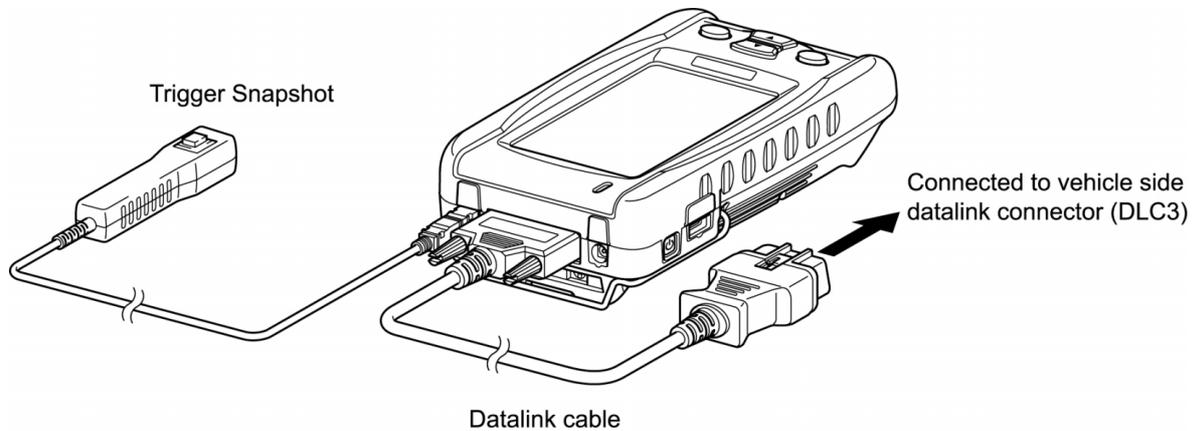
Playback starts.



Sets a snapshot flag.

## How to use the optional accessory Trigger Snapshot

### Connecting the Trigger Snapshot



#### **CAUTION**

- When connecting the probe to the Intelligent Tester II, gently insert it straight into the connector. Inserting the probe at a slant can break the connector pins.

### How to use Trigger Snapshot

1. Press the Trigger Snapshot button while the data list is displayed.  
Data recording begins.
2. Press the Trigger Snapshot button during data recording.  
A snapshot flag is set.

#### **Note**

- Trigger Snapshot can be used to set snapshot flags in a maximum of five places.  
*Reference: [Page 81 Playback With Snapshot Flag Set \(Chapter 5 Saved Data Playback Functions/Snapshot Playback\)](#)*
- Pressing the Trigger Snapshot button after five snapshot flags are set stops data recording.

## Snapshot operation settings

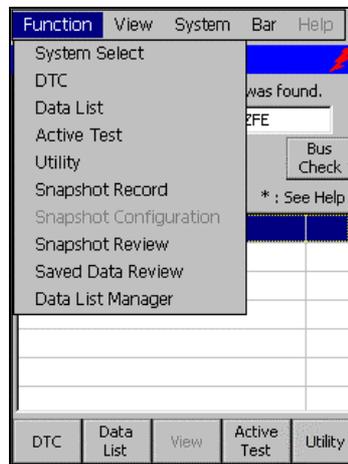
Settings can be performed for snapshot operation.

1. Touch  on the snapshot screen.  
Alternatively, in the data list screen [Function] list, touch [Snapshot Configuration].

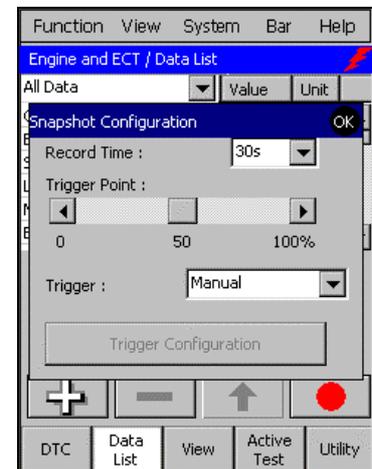
The snapshot operation setting screen is displayed.



Snapshot screen



[Function] Menu list



Snapshot operation setting screen

The setting contents are as follows.

- Record Time  
Sets the recording time.  
Select from 5s/10s/15s/30s/1 min./2 min./5 min.
- Trigger Point  
Sets the percentage of the recording time saved as data before the trigger is pressed.
- Trigger  
Sets the type of trigger. The types of triggers are as follows.
  - Manual : The trigger is applied manually by touching the data list display section.
  - Parameter : The trigger is applied at the set parameter value.
  - DTC : The trigger is applied when a diagnostics code is detected.
  - MIL : The trigger is applied when the engine warning lamp comes ON.
- Trigger Configuration Button  
Sets the parameter triggers. This button is only active if “Parameter” is selected from the trigger items. [See the next page.](#)

### Parameter trigger setting

Detailed settings can be performed related to the parameter triggers.



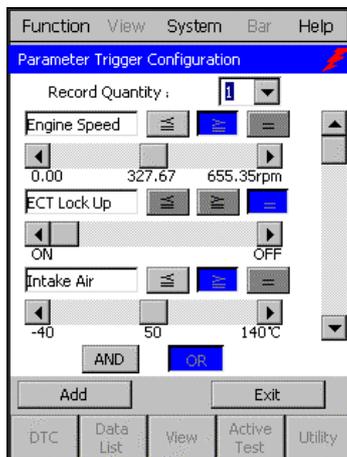
Trigger data selection screen

#### ◆ ACTIVE KEY

- Adds only the data selected in the item list to the Trigger list.
- Deletes all the data in the Trigger list.
- Deletes only the data selected in the Trigger list.
- Moves the data selected in the Trigger list up one space.
- Moves the data selected in the Trigger list down one space.
- Displays the Parameter trigger level setting screen.

## Parameter trigger level setting

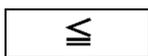
Detailed settings can be performed related to the level of parameter triggers.



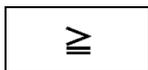
Value setting screen

- Record Quantity : Sets the number of times snapshot is repeated.

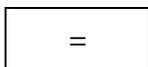
### ◆ ACTIVE KEY



Applies the trigger when the ECU data becomes bigger than the set value.



Applies the trigger when the ECU data becomes smaller than the set value.



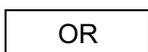
Applies the trigger when the ECU data equals the set value.



Sets the trigger level.



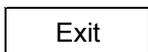
Applies the trigger when all set conditions are satisfied.



Applies the trigger when some of the set conditions are satisfied.



Returns to the trigger data selection screen. (Trigger data can be added.)



Returns to the Snapshot operation setting screen.

## Data List Manager

With the data list manager, you can change display data lists and other data set in measurement groups and create new measurement groups.

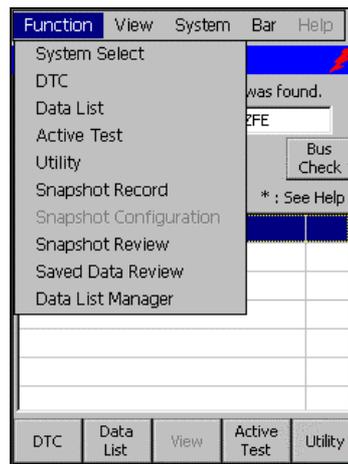
The procedure for starting the data list manager is as follows.

1. To change the display data, select the related measurement group on the data list screen.
2. In the data list screen [Function] menu, touch [Data List Manager]. Or touch the  function button.

The data list manager screen is displayed.



Data list screen

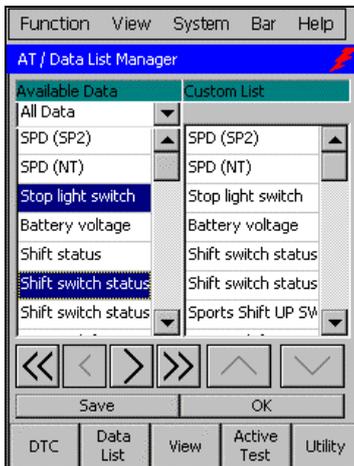


Function buttons



[Function] Menu list

3. Change the display data on the data list manager screen.



With the display data selected



When the display data is decided

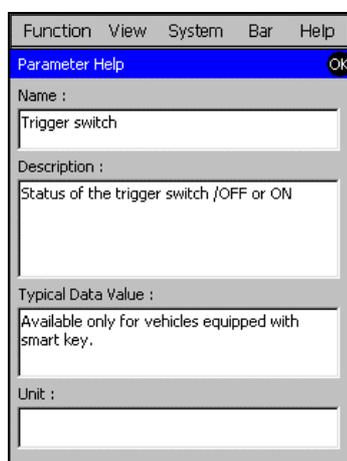
## ◆ ACTIVE KEY

- |      |  |
|------|--|
| >    | Adds only the data selected in the item list to the custom list. |
| >>   | Adds all the data in the item list to the custom list.           |
| <<   | Deletes all the data in the custom list.                         |
| <    | Deletes only the data selected in the custom list.               |
| ^    | Moves the data selected in the custom list up one space.         |
| v    | Moves the data selected in the custom list down one space.       |
| Save | Sets the custom list data.                                       |
| OK   | Returns the display to the previous screen.                      |

**Help function**

When [Help] is touched in the menu bar, the help screen is displayed and guidance concerning the data list is shown.

To close the help screen, touch [OK] at the top right of the screen.



Help screen

## Active Test

The active test is a function to forcibly drive relays, actuators, solenoids, etc.

If they are driven normally in the active test, it is possible to judge circuits as normal from the ECU to relays, actuators, solenoids, etc.

### Active Test Item Selection

Selects the active test items.

- From the main menu buttons, touch **Active Test** .  
Alternatively, from the [Function] menu list, touch [Active Test].

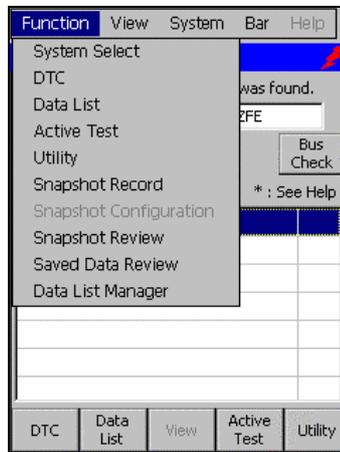
The active test item select screen is displayed.

- On the active test item select screen, select the test items and then touch **Enter** .

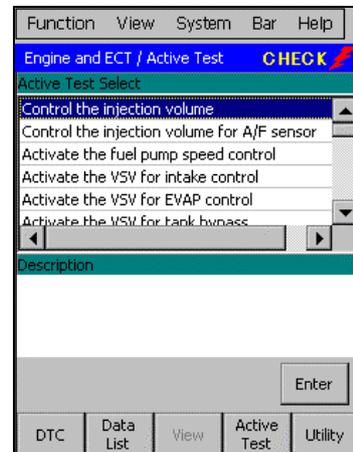
The active test starts.



Main menu buttons



[Function] menu list



Active test item select screen

#### ◆ ACTIVE KEY



Starts the active test for the selected items.  
This is not valid unless a test item has been selected.

## Active Test Execution

Actuators are driven by the control box.

During an active test, the data list can be displayed simultaneously and measurement groups selected from the list box.



Active test execution screen

### Note

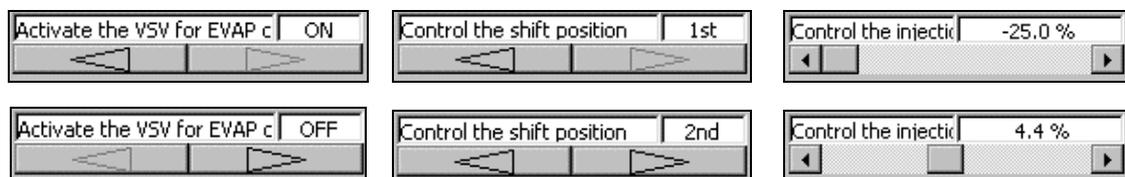
- No data list can be displayed during an active test according to the ECUs selected (ABS, etc.).

### Control box

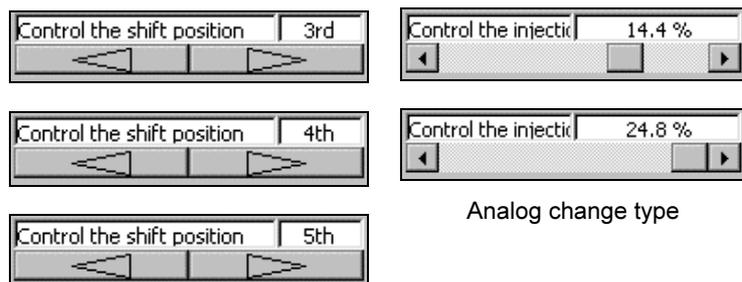
When an active test is executed, the control box for varying the drive value is displayed under the test item, so it is possible to set the active test drive value.

There are three types of control box as follows, and the system switches automatically among them according to the test items selected.

- Binary type  
The drive value is varied between two values (ON/OFF, etc.).
- Digital change type  
The drive value is changed digitally.
- Analog change type  
The drive value is changed in analog.



Binary type



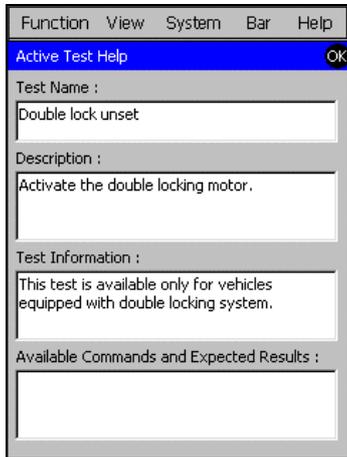
Digital change type

Analog change type

### Help function

When [Help] is touched in the menu bar, the help screen is displayed and guidance concerning the active test being executed is shown.

To close the help screen, touch [OK] at the top right of the screen.



Help screen

## Utilities

The Intelligent Tester II has a utility with various functions.

The procedure for starting the utility is as follows.

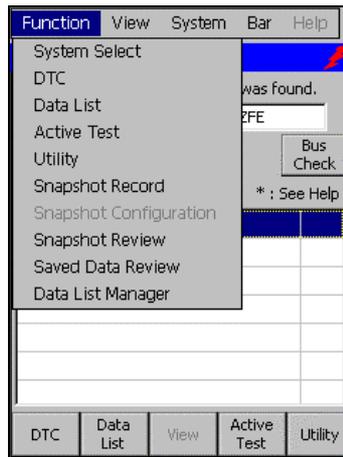
1. From the main menu buttons, touch **Utility** .  
Alternatively, touch [Utility] in the [Function] menu list.

The utility function select screen is displayed.

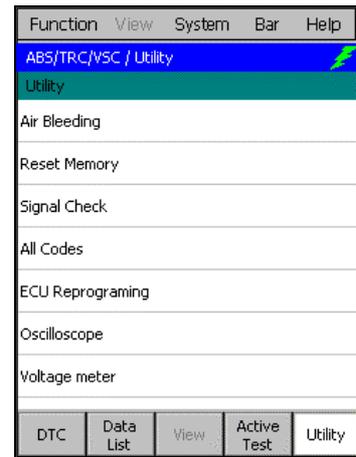
2. Touch the function to be executed on the utility function select screen.



Main Menu Buttons



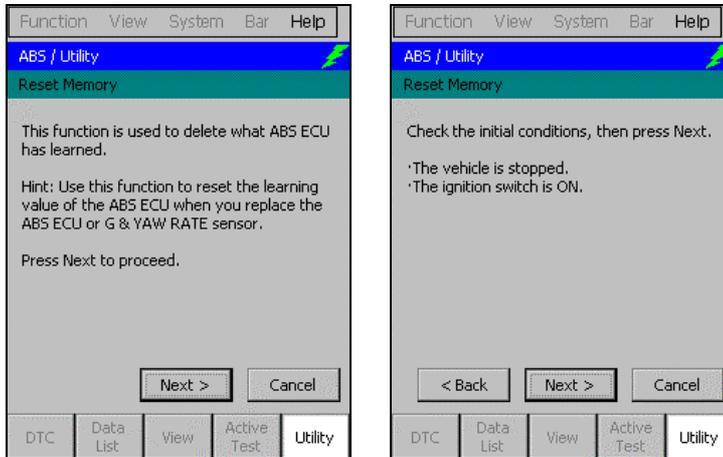
[Function] Menu list



Utility function select screen

## Explanation of Button Operations

This section explains button operations using the utility function ABS air bleeding as an example.



Initial screen

Next screen

### ◆ ACTIVE KEY

- Moves the display to the next screen.
- Returns the display to the previous screen.
- Cancel the utility function.

### Note

- Each screen displays notes and the procedure for proceeding with the operation. Proceed with the operation according to the procedures noted in the service manual and the contents displayed on the screen.

## Explanation of ECU Reprogramming Functions

The ECU REPROGRAMMING application allows authorized service professionals to update ECU software without removing the ECU. Please note that there are many security checks performed by the ECU during the reprogramming process, so the specified reprogramming procedure must be followed carefully. *DO NOT attempt ECU reprogramming without proper training from the Toyota service division.*

The utility ECU Reprogramming utility functions are four functions for rewriting the ECU program.

- Download Calibration File  
Downloads programming data from a PC.
- Current Vehicle Calibration ID  
Acquires the vehicle ECU program ID.
- Reprogramming  
Updates the ECU program.
- Calibration File Manager  
Deletes the programming data stored in the Intelligent Tester II.

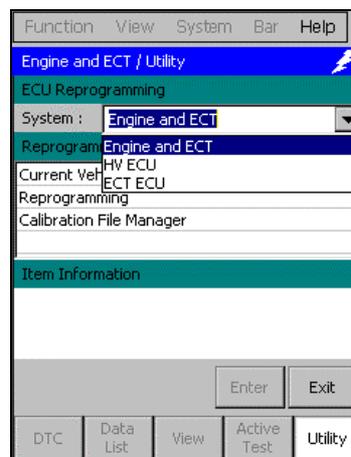
Select the function for execution from the ECU Reprogramming screen.

"Item Information" displays an explanation of the selected function.

The ECU to be reprogrammed can be selected from the system list box.



ECU Reprogramming screen



With the list box pulled down

### ◆ ACTIVE KEY

Enter

The selected function is executed. This is not valid unless the function has been selected.

Exit

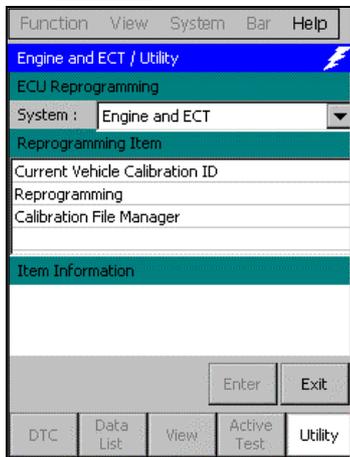
Ends ECU Reprogramming.

## Calibration File Manager

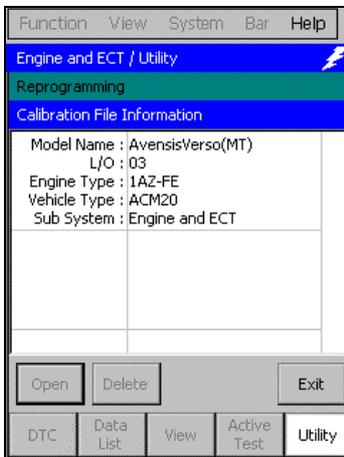
The programming data delete

1. Touch **Calibration File Manager** in the ECU Reprogramming screen.

Then, **Enter** button becomes effective.



ECU Reprogramming screen



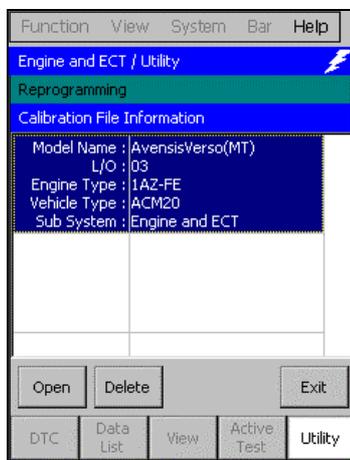
Calibration file information screen

2. Touch **Enter** in the ECU Reprogramming screen.

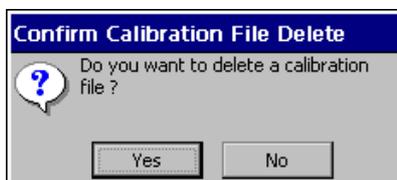
The Calibration file information screen is displayed.

3. Touch the programming data. Then, the programming data becomes covered blue and

**Delete** button becomes effective.



Programming data selected



Delete verification dialogue

4. Touch **Delete** in the Calibration file information screen.

The Delete verification dialogue is displayed.

5. Touch **Yes** in the Delete verification dialogue.

The programming data deletes.

### ◆ ACTIVE KEY

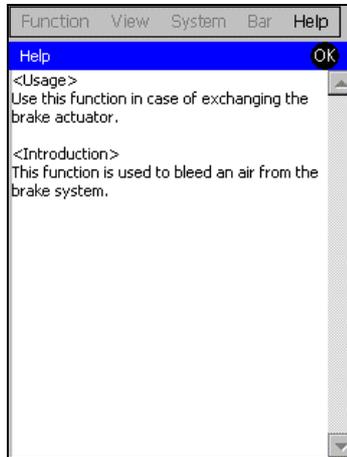
**Delete** Deletes the selected data.

**Open** Displays the calibration ID of the selected data.

## Help function

When [Help] is touched in the menu bar, the help screen is displayed and guidance concerning the utility functions is shown.

To close the help screen, touch [OK] at the top right of the screen.



Help screen

# **5** Saved Data Playback Functions

---

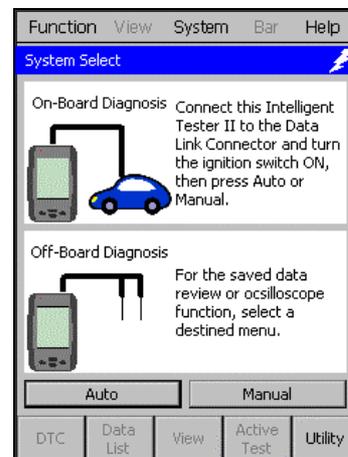
# 5 Saved Data Playback Functions

The Intelligent Tester II not only has functions for diagnosing breakdowns in real time, but also has functions that can play back saved data afterwards.

The saved data playback functions do not require the Intelligent Tester II and the vehicle to connect.

The onboard/offboard check screen is displayed after the opening screen when the Intelligent Tester II is started up.

The saved data playback functions are the DTC playback and snapshot playback functions, and they can be started from the [Function] menu.



Onboard/Offboard check screen

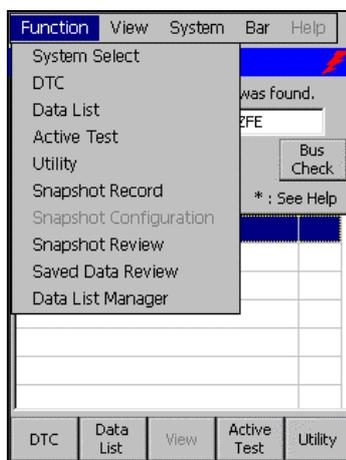
## DTC Playback

Plays back saved DTC data.

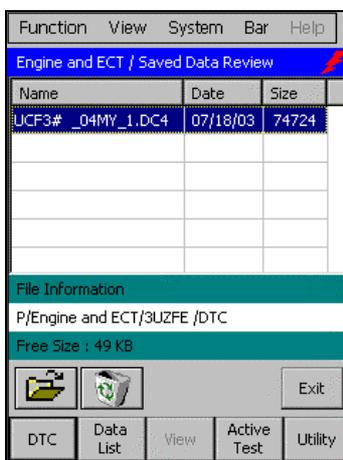
The procedure for playing back DTC data is as follows.

1. From the [Function] menu list, touch [Saved Data Review].  
The playback data select screen is displayed and a list of saved DTC data files is displayed.
2. On the playback data select screen, select the DTC data for playback and then touch  .

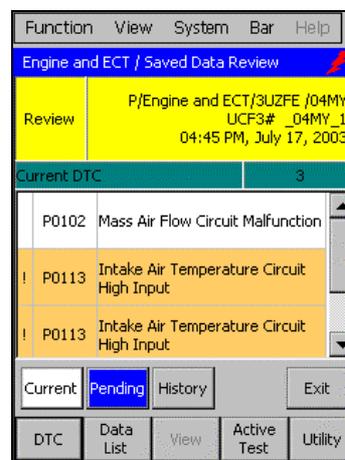
When DTC data is selected, file information is displayed in the File Information column. Touching  plays back the selected DTC data.



[Function] Menu list



Playback data select screen



DTC data playback screen

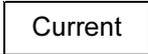
◆ ACTIVE KEY



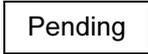
Opens the selected DTC data and plays it back.



Deletes the selected DTC data.



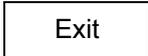
Displays saved the current DTC data.  
When there is DTC data, this button is displayed in blue.



Displays saved pending DTC data.  
When there is pending DTC data, this button is displayed in blue.



Displays saved historical DTC data (past codes).  
When there is historical DTC data, this button is displayed in blue.



Ends playback data selection. (Playback data select screen)  
Returns the display to the playback data select screen. (When saved DTC data is played back.)

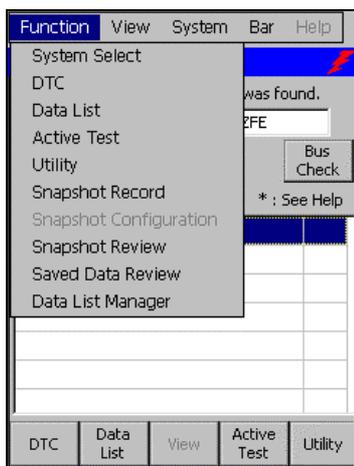
## Snapshot Playback

Plays back stored snapshot data.

The procedure for playing back snapshot data is as follows.

1. From the [Function] menu list, touch [Snapshot Review].  
The playback data select screen is displayed and a list of saved snapshot data files is displayed.
2. On the playback data select screen, select the snapshot data for playback and then touch the  function button.

The selected snapshot is played back.



[Function] menu list



Playback data select screen



Snapshot data playback screen

### Note

- "DL" and "AT" may be displayed in the playback data selection screen Function column. "DL" means that the snapshot is from the data list, and "AT" means that it was saved while an active test was executed.

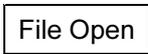
◆ ACTIVE KEY



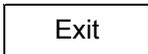
Displays the playback screen and plays back the data.



Deletes the selected data.



Displays the playback data select screen.



Ends playback data selection. (Playback data select screen)  
Returns the display to the playback data select screen. (During snapshot data playback.)



Stops playback and returns to the start of the data.



Pauses playback.



Fast forwards the data playback.



Starts the data playback.



Fast rewinds the data playback.



Moves to a point at which the snapshot flag is set and plays back from there.



The playback position can be changed by touching   or by moving the scroll bar to the left and right. This bar is only valid during data list playback.

## Playback With Snapshot Flag Set

When a snapshot flag is set, you can quickly move to the set point during snapshot playback. There are two methods for playback when a snapshot flag has been set.

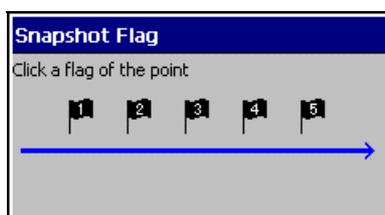
- During normal playback, when a point is reached for which a snapshot flag is set, " " is displayed in red. When the set point is passed, the " " returns to its original color and playback continues.
- " " is touched during playback, the snapshot flag point is displayed. When this point is selected, the " " is displayed in red and snapshot data for the selected point is played back.

The above " " is displayed in red for about 1 second, and the buzzer sounds at this time.

The playback screen when a snapshot flag is set is as follows.



Screen for selecting point where snapshot flag is set.



Snapshot flag set point playback screen

◆ ACTIVE KEY

 Displays the playback data select screen.

 Returns the display to the playback data select screen.

 Stops playback and returns to the start of the data.

 Pauses playback.

 Fast forwards the data playback.

 Starts the data playback.

 Rewinds the data playback.

 Displays the dialog box for selecting the point where a snapshot flag is set.

 The playback position can be changed by touching   or by moving the scroll bar to be the left and right. This bar is only valid during data list playback.

# 6 Measurement Functions

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# 6 Measurement Functions

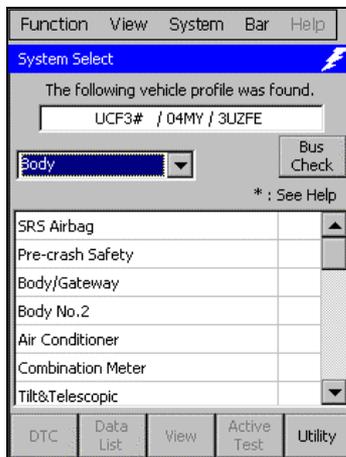
## Voltage Measurement Functions

A voltage meter probe can be connected to the Intelligent Tester II for voltage measurement.

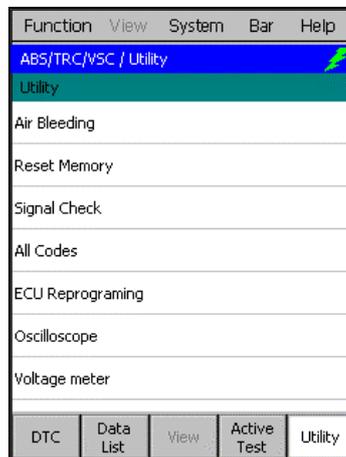
### Measurement Function Selection Menu

1. From the main menu buttons of the system select screen, touch **Utility** .  
The function select screen is displayed.

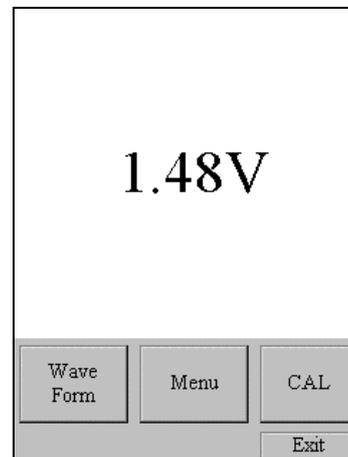
2. On the function select screen, touch **Voltage meter** .  
The voltage display screen is shown and the voltage currently being measured is displayed in real time.



System select screen



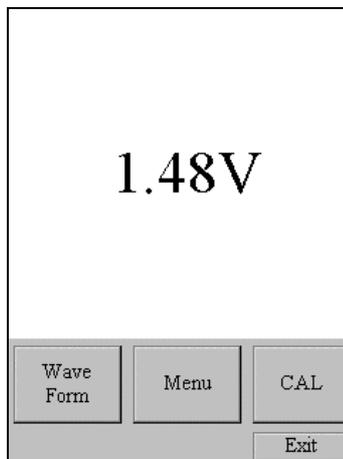
Function select screen



Voltage display screen

## Voltage Display

The voltage display screen is displayed.



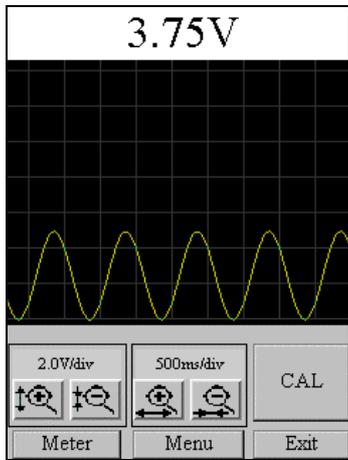
Voltage display screen

### ◆ ACTIVE KEY

- |           |   |
|-----------|---|
| Wave Form | Displays the waveform display screen. <a href="#">See the next page.</a>    |
| Menu      | Saves/plays back/deletes screen images. <a href="#">Reference: Page 89.</a> |
| CAL       | Executes calibration. <a href="#">Reference: Page 88.</a>                   |
| Exit      | Ends voltage measurement.   |

## Waveform Display

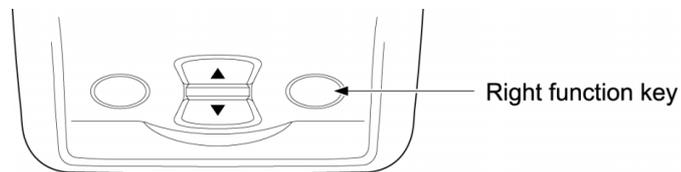
The waveform display screen is displayed.



Waveform display screen

The following operations can be executed on the waveform display screen.

- The voltage (vertical axis) and time (horizontal axis) range settings can be changed.
- Waveform updating can be stopped and resumed.  
Pressing the right function key on the main unit stops waveform updating; pressing it again resumes updating.



## ◆ ACTIVE KEY



Voltage axis  
enlargement

The waveform is enlarged vertically each time the button is touched.  
The current voltage range is displayed at the top of the button.



Voltage axis  
reduction

The waveform is reduced vertically each time the button is touched.  
The current voltage range is displayed at the top of the button.



Time axis  
enlargement

The waveform is enlarged horizontally each time the button is touched.  
The current time range is displayed at the top of the button.



Time axis  
reduction

The waveform is reduced horizontally each time the button is touched.  
The current time range is displayed at the top of the button.

CAL

Executes calibration. *See the next page.*

Meter

Returns the display to the voltage display screen.

Menu

Saves/plays back/deletes screen images. *Reference: Page 89.*

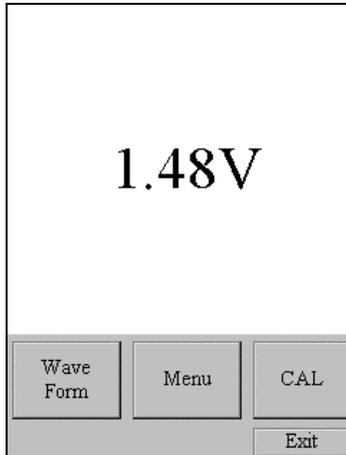
Exit

Ends voltage measurement.

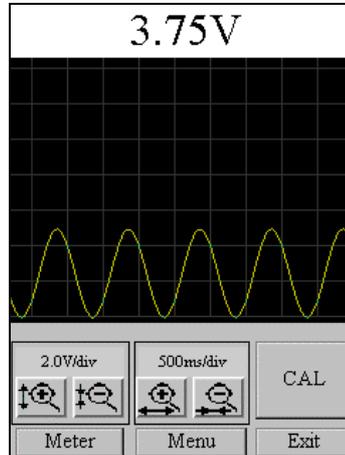
## Calibration

Calibrates the zero point.

1. Touch **CAL** on the voltage display screen or the waveform display screen.  
The calibrating dialog box is displayed.



Voltage display screen

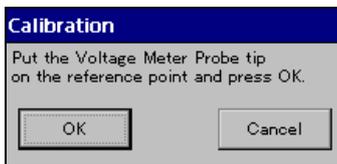


Waveform display screen

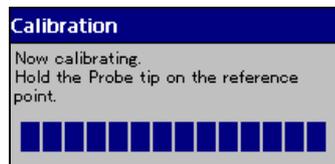
2. Connect the voltage measurement tester probe to the reference point.
3. On the calibrating dialog box, touch **OK**.

The calibrating dialog is displayed. When the calibration is complete, the hint dialog box is displayed.

Do not remove the probe during calibration.



Calibrating dialog box



Calibrating dialog box

4. Check the contents of the hint dialog, then touch **OK**.

When calibration ends, the tip dialog box is displayed automatically.

This dialog displays an explanation for stopping/resuming waveform updating using the right function key on the main unit.



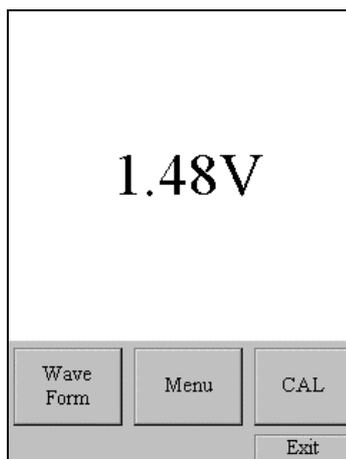
Hint dialog box

## Screen Image Save/Playback/Delete

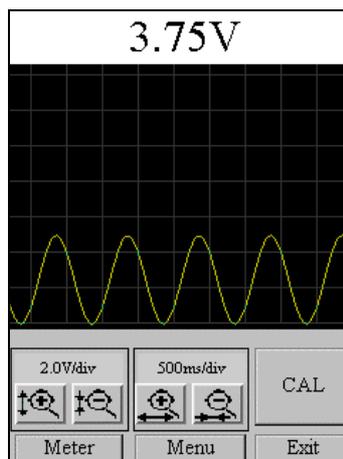
Saves/plays back/deletes screen images.

### Screen image save

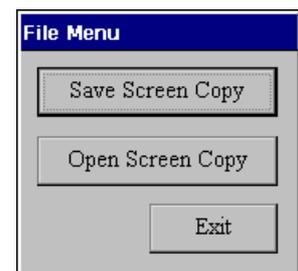
1. Touch **Menu** on the voltage display screen or the waveform display screen.  
The file menu screen is displayed.
2. Touch **Save Screen Copy** on the file menu screen.  
The screen image save screen is displayed.



Voltage display screen



Waveform display screen

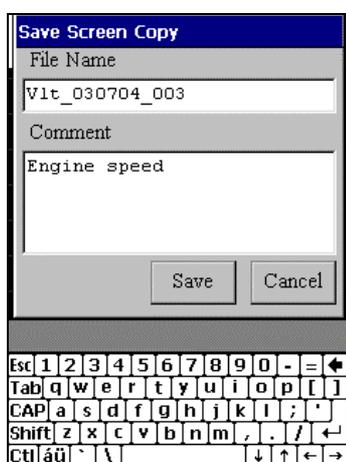


File menu screen

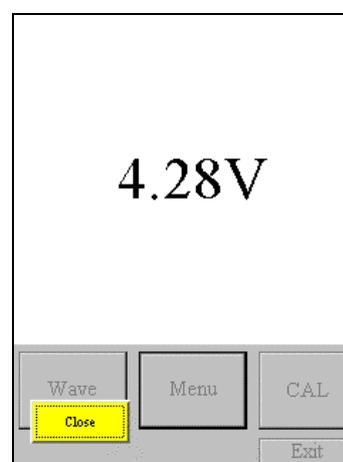
3. The set file name is displayed on the screen image save screen.  
If this file name is correct, touch **Save**.  
To a different file, input the name of that file and then touch **Save**.
- A comment to be attached to the saved data can be input in the comment column.

*Reference: Page 27 Software keyboard operation  
(Chapter 2 Basic Operations/Basic Operations/Display Operations)*

"File creation date and time\_serial number" is set automatically as the file name displayed.



Screen image save screen



Screen image playback screen

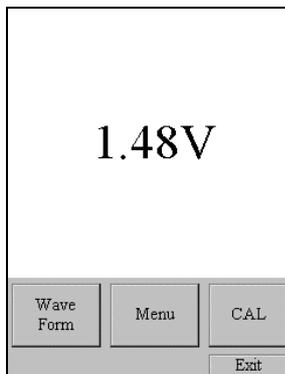
◆ ACTIVE KEY

Save Screen Copy	Executes screen image save processing.
Open Screen Copy	Executes screen image playback/delete processing.
Exit	Returns the display to the previous screen.
Save	Saves a screen image
Cancel	Returns the display to the file menu screen.

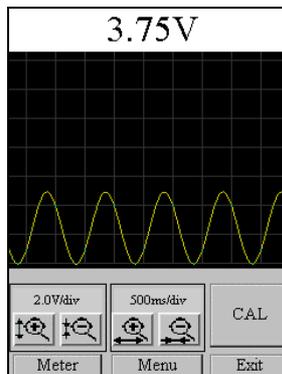
## Screen Image Playback/Delete

### ■ Playing back a screen image

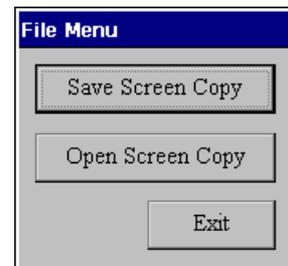
1. Touch **Menu** on the voltage display screen or the waveform display screen.  
The file menu screen is displayed.
2. Touch **Open Screen Copy** on the file menu screen.  
The screen image select screen is displayed.



Voltage display screen

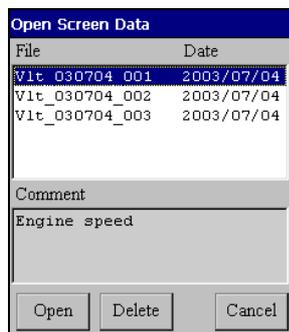


Waveform display screen

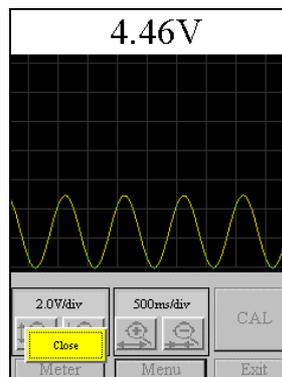


File menu screen

3. After touching the playback screen image on the screen image select screen, touch **Open**.  
The playback screen for the selected screen image is displayed.



Screen image select screen



Screen image playback screen

### ◆ ACTIVE KEY

Save Screen Copy	Executes screen image save processing.
Open Screen Copy	Executes screen image playback/delete processing.
Exit	Returns the display to the previous screen.
Open	Plays back the selected screen image.
Delete	Deletes the selected screen image.
Cancel	Returns the display to the file menu screen.

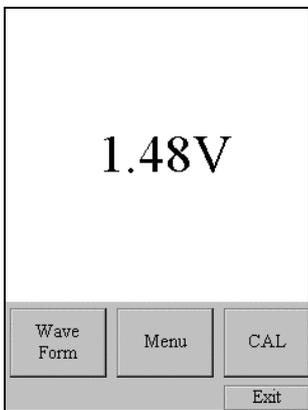
■ **Deleting a screen image**

1. Touch **Menu** on the voltage display screen or the waveform display screen.

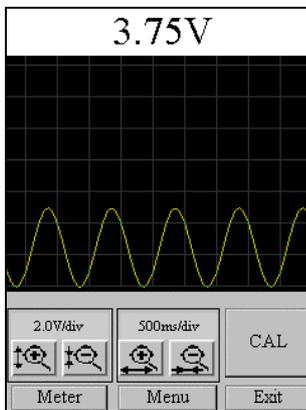
The file menu screen is displayed.

2. Touch **Open Screen Copy** on the file menu screen.

The screen image select screen is displayed.



Voltage display screen



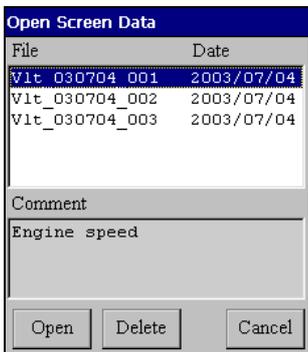
Waveform display screen



File menu screen

3. After touching the screen image for deletion on the screen image select screen, touch **Delete**.

The selected screen image is deleted.



Screen image select screen

◆ **ACTIVE KEY**

- Save Screen Copy** Executes screen image save processing.
- Open Screen Copy** Executes screen image playback/delete processing.
- Exit** Returns the display to the previous screen.
- Open** Plays back the selected screen image.
- Delete** Deletes the selected screen image.
- Cancel** Returns the display to the file menu screen.

## Oscilloscope Functions

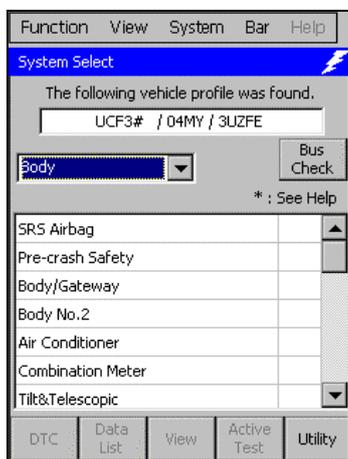
To use the oscilloscope function, it is necessary to connect the optional oscilloscope cartridge.

The oscilloscope probes can be connected to the Intelligent Tester II to observe the voltage waveform for the signals input to the channels.

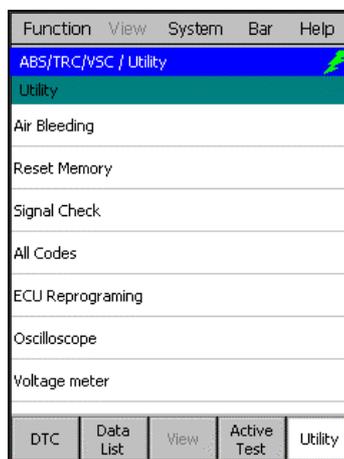
Do not connect the AC/DC adapter to the Intelligent Tester II, when using the oscilloscope function.

### Oscilloscope Measurement Menu

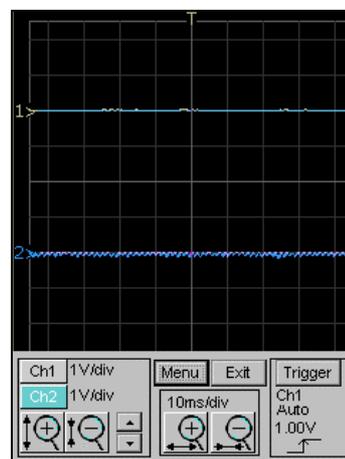
1. From the main menu buttons of the system select screen, touch **Utility** .  
The function select screen is displayed.
2. On the function select screen, touch **Oscilloscope** .  
The oscilloscope measurement screen is displayed.



System select screen



Function select screen



Oscilloscope measurement menu screen

#### ◆ ACTIVE KEY

- |         |  |
|---------|--|
| Menu    | Saves/plays back/deletes screen images and measurement condition setting data.<br><i>References: Page 100.</i> |
| Exit    | Ends the oscilloscope function.  |
| Trigger | Displays the trigger menu screen. <i>Reference: Page 96.</i>   |

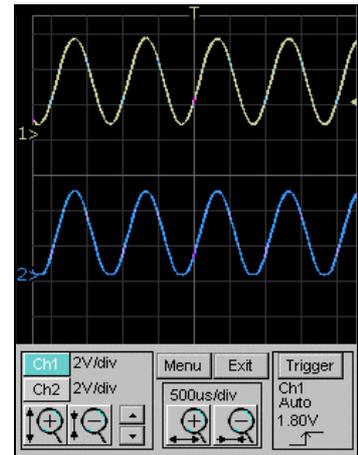
## Waveform Display

The following operations can be executed on the waveform display screen.

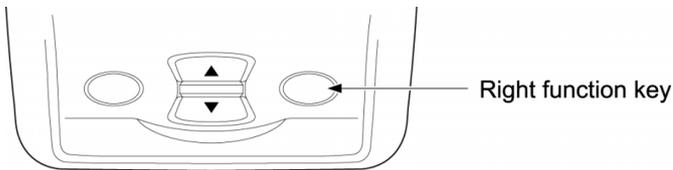
- The voltage (vertical axis) and time (horizontal axis) range settings can be changed.
- The ground level (0V position) can be set for the selected channel.

### Note

- The voltage (vertical axis) range and ground level (0V position) are set for the selected channel.
- Waveform updating can be stopped and resumed. Pressing the right function key on the main unit stops waveform updating; pressing it again resumes updating.



Waveform display screen



## ◆ ACTIVE KEY

Ch1	The channel for the voltage (vertical axis) range and ground level (0V position) is set to "Ch1". When this is selected, the button is displayed in blue.
Ch2	The channel for the voltage (vertical axis) range and ground level (0V position) is set to "Ch2". When this is selected, the button is displayed in blue.
Menu	Saves/plays back/deletes screen images and measurement condition setting data. <i>References: Page 100.</i>
Exit	Ends the oscilloscope function.
Trigger	Displays the trigger menu screen. <i>Reference: Page 96.</i>
 Voltage axis enlargement	Vertically enlarges the waveform for the selected channel. The current voltage range is displayed to the right of the selected channel.
 Voltage axis reduction	Vertically reduces the waveform for the selected channel. The current voltage range is displayed to the right of the selected channel.
 Time axis enlargement	The waveform is enlarged horizontally each time the button is touched. The current voltage time range is displayed at the top of the button.
 Time axis reduction	The waveform is reduced horizontally each time the button is touched. The current voltage time range is displayed at the top of the button.
▲	Raises the ground level (0V position) for the selected channel.
▼	Lowers the ground level (0V position) for the selected channel.

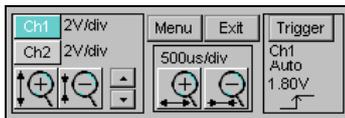
## Trigger Menu

Detailed settings can be performed for a parameter trigger.

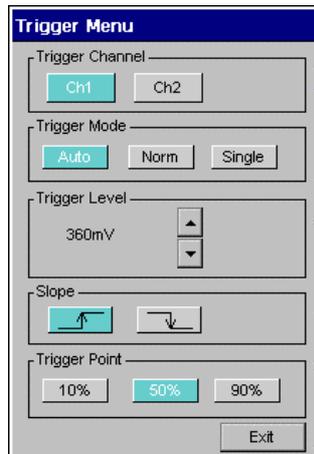
- Trigger channel setting
- Trigger mode setting
- Trigger level setting
- Trigger slope switching
- Trigger point setting

1. On the oscilloscope measurement menu screen, touch **Trigger** .

The trigger menu screen is displayed.



Oscilloscope measurement menu screen



Trigger menu screen

### ◆ ACTIVE KEY



Exits the trigger menu and displays the message dialog.

### ■ Message dialog box

When the trigger menu is exited, the message dialog box on the right is displayed automatically.

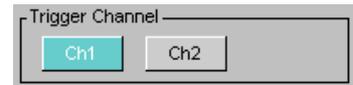
This dialog box displays an explanation of stopping/resuming waveform updating using the right function key on the main unit.



### Trigger channel setting

Switches the trigger channel.

The selected button is displayed in blue.



#### ◆ ACTIVE KEY

Sets the trigger channel to "Ch1".

Sets the trigger channel to "Ch2".

### Trigger mode setting

Sets the trigger mode.

The selected button is displayed in blue.

The meanings of the trigger modes are as follows.



#### ● Auto

The waveform is displayed regardless of the trigger specification.

#### ● Norm

The waveform is only displayed when the specified trigger is detected. (The waveform is updated when the next trigger is detected.)

#### ● Single

The waveform from when the specified trigger is first detected is held (the display is fixed).

#### ◆ ACTIVE KEY

Sets the trigger mode to [Auto].

Sets the trigger mode to [Norm].

Sets the trigger mode to [Single].

### Trigger level setting

Sets the trigger level.

The set trigger level is displayed to the left side of the button.



#### ◆ ACTIVE KEY

Raises the trigger level.

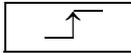
Lowers the trigger level.

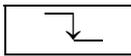
### Trigger slope switching

Switches the trigger slope.  
The selected button is displayed in blue.



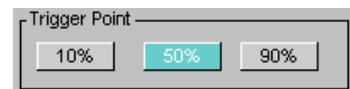
◆ **ACTIVE KEY**

 Sets the trigger to the rising edge.

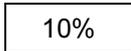
 Sets the trigger to the falling edge.

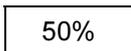
### Trigger point setting

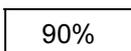
Sets the trigger point.  
The selected button is displayed in blue.



◆ **ACTIVE KEY**

 Sets the trigger point to 10%.

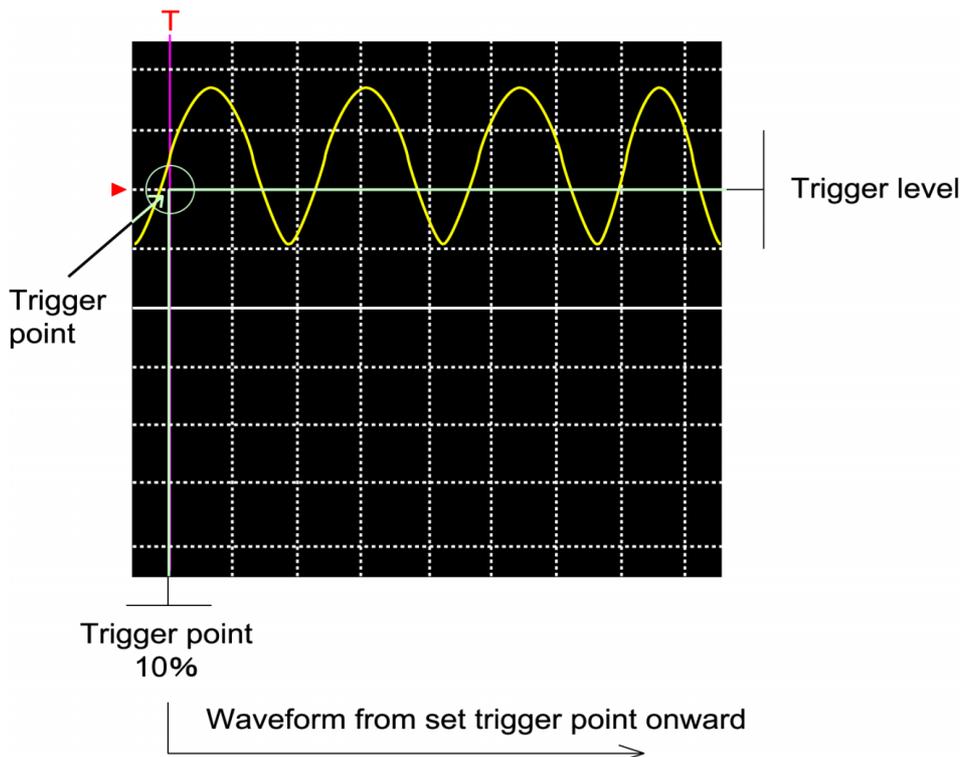
 Sets the trigger point to 50%.

 Sets the trigger point to 90%.

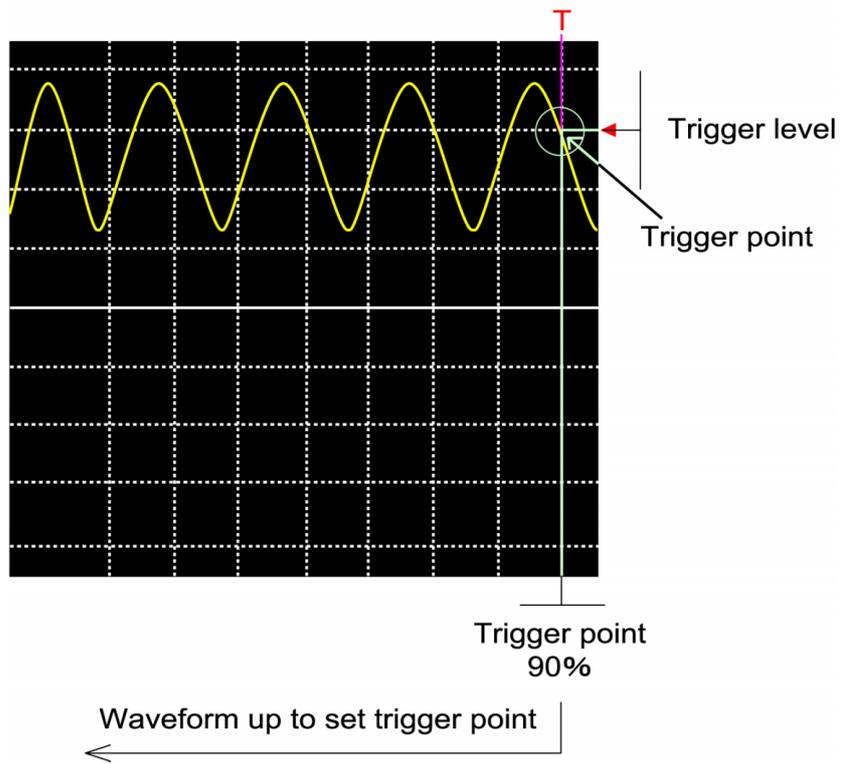
■ **Trigger points**

This section uses the following two examples to explain trigger points.

- To observe the waveform from the set trigger point onward, select a trigger point of 10%.



- To observe the waveform up to the set trigger point, select a trigger point of 90%.



### Screen Image Save/Playback/Delete

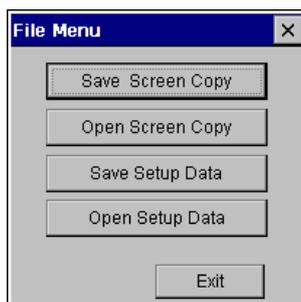
Saves/plays back/deletes screen images and measurement condition setting data.

#### Screen image save

1. On the oscilloscope measurement menu screen, touch **Menu** .  
The file menu screen is displayed.
2. Touch **Save Screen Copy** on the file menu screen.  
The screen image save screen is displayed.



Oscilloscope measurement menu screen

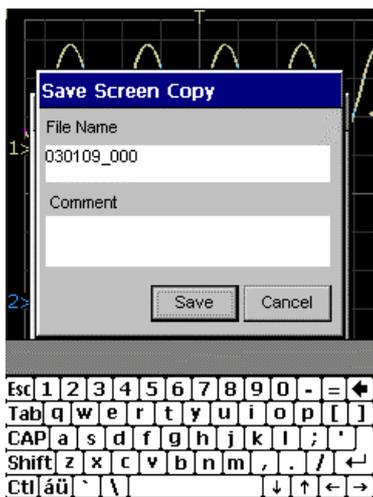


File menu screen

3. The set file name is displayed on the screen image save screen.  
If this file name is correct, touch **Save** .  
To save to a different file, input the name of that file and then touch **Save** .  
A comment to be attached to the saved data can be input in the comment column.

*Reference: Page 27 Software keyboard operation (Chapter 2 Basic Operations/Basic Operations/Display Operations)*

"File creation date and time\_serial number" is set automatically as the file name displayed.



Screen image save screen

**◆ ACTIVE KEY**

Save Screen Copy	Executes screen image save processing.
Open Screen Copy	Executes screen image playback/delete processing.
Save Setup Data	Executes save processing of the measurement condition setting data.
Open Setup Data	Executes the measurement condition setting data playback/delete processing.
Exit	Returns the display to the oscilloscope measurement menu.
Save	Saves a screen image
Cancel	Returns the display to the file menu screen.

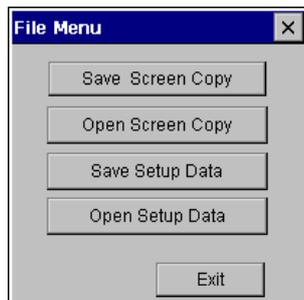
### Screen Image Playback/Delete

#### ■ Playing back a screen image

1. On the oscilloscope measurement menu screen, touch **Menu** .  
The file menu screen is displayed.
2. Touch **Open Screen Copy** on the file menu screen.  
The screen image select screen is displayed.

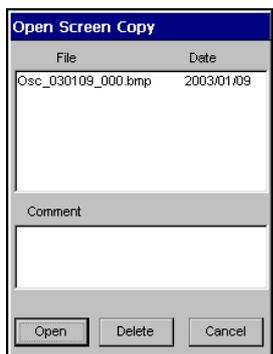


Oscilloscope measurement menu screen

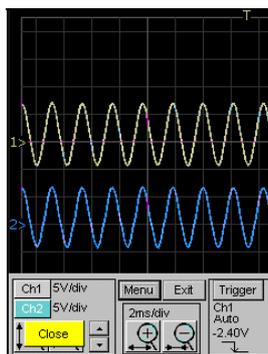


File menu screen

3. After touching the playback screen image on the screen image select screen, touch **Open** .  
The playback screen for the selected screen image is displayed.  
"File creation date and time\_serial number" is set automatically as the file name displayed.



Screen image select screen



Screen image playback screen

#### ◆ ACTIVE KEY

For details on **Save Screen Copy** , **Open Screen Copy** , **Save Setup Data** and **Open Setup Data** see Page 101.

- |        |   |
|--------|---|
| Exit   | Returns the display to the oscilloscope measurement menu. |
| Open   | Plays back the selected screen image.                     |
| Delete | Deletes the selected screen image.                        |
| Cancel | Returns the display to the file menu screen.              |

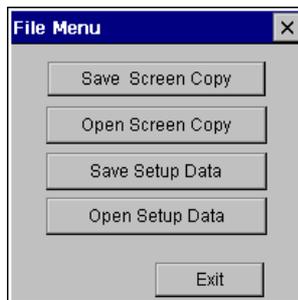
### ■ Deleting a screen image

1. On the oscilloscope measurement menu screen, touch **Menu** .  
The file menu screen is displayed.

2. Touch **Open Screen Copy** on the file menu screen.  
The screen image select screen is displayed.



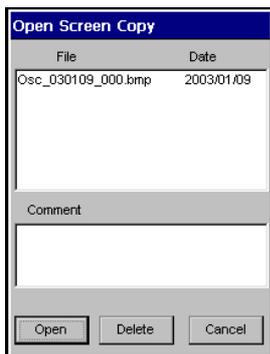
Oscilloscope measurement menu screen



File menu screen

3. After touching the screen image for deletion on the screen image select screen, touch **Delete** .

The selected screen image is deleted.



Screen image select screen

### ◆ ACTIVE KEY

For details on **Save Screen Copy** , **Open Screen Copy** , **Save Setup Data** and **Open Setup Data** see Page 101.

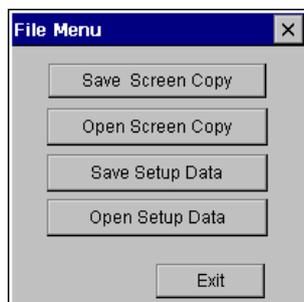
<b>Exit</b>	Returns the display to the oscilloscope measurement menu.
<b>Open</b>	Plays back the selected screen image.
<b>Delete</b>	Deletes the selected screen image.
<b>Cancel</b>	Returns the display to the file menu screen.

**Saves the measurement condition setting data.**

1. On the oscilloscope measurement menu screen, touch **Menu** .  
The file menu screen is displayed.
2. Touch **Save Setup Data** on the file menu screen.  
The measurement condition setting data save screen is displayed.



Oscilloscope measurement menu screen



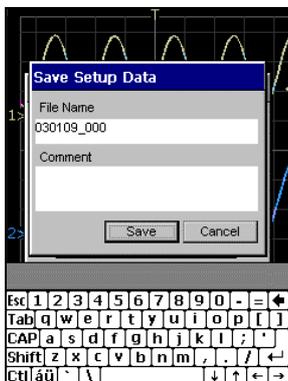
File menu screen

3. The set file name is displayed on the measurement condition setting data save screen.  
If this file name is correct, touch **Save** .  
To save to a different file, input the name of that file, and then touch **Save** .

A comment to be attached to the saved data can be input in the comment column.

*Reference: Page 27 Software keyboard operation (Chapter 2 Basic Operations/Basic Operations/Display Operations)*

"File creation date and time\_serial number" is set automatically as the file name displayed.



Measurement condition setting data save screen

**◆ ACTIVE KEY**

For details on **Save Screen Copy**, **Open Screen Copy**, **Save Setup Data** and **Open Setup Data** see Page 101.

**Exit**

Returns the display to the oscilloscope measurement menu.

**Save**

Saves the measurement condition setting data.

**Cancel**

Returns the display to the file menu screen.

**Plays back/deletes measurement condition setting data.****■ Playing back measurement condition setting data**

1. On the oscilloscope measurement menu screen, touch **Menu** .

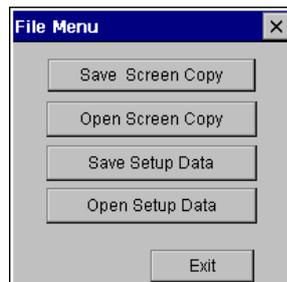
The file menu screen is displayed

2. Touch **Open Setup Data** on the file menu screen.

The measurement condition setting data select screen is displayed.



Oscilloscope measurement menu screen

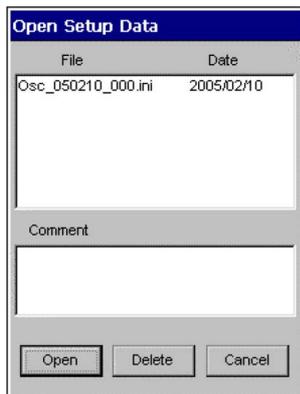


File menu screen

3. After touching the playback screen image on the measurement condition setting data select screen, touch **Open** .

The playback screen for the measurement condition setting data is displayed.

"File creation date and time\_serial number" is set automatically as the file name displayed.



Measurement condition setting data select screen

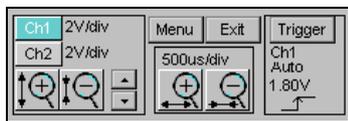
**◆ ACTIVE KEY**

For details on **Save Screen Copy** , **Open Screen Copy** , **Save Setup Data** and **Open Setup Data** see Page 101.

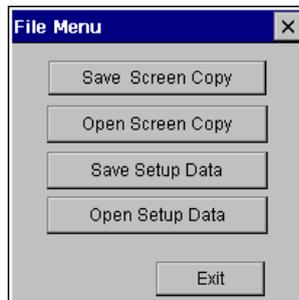
<b>Exit</b>	Returns the display to the oscilloscope measurement menu.
<b>Open</b>	Plays back the selected measurement condition setting data.
<b>Delete</b>	Deletes the selected measurement condition setting data.
<b>Cancel</b>	Returns the display to the file menu screen.

■ **Deleting measurement condition setting data**

1. On the oscilloscope measurement menu screen, touch **Menu** .  
The file menu screen is displayed.
2. Touch **Open Setup Data** on the file menu screen.  
The measurement condition setting data select screen is displayed.



Oscilloscope measurement menu screen



File menu screen

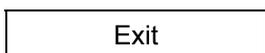
3. After touching the screen image for deletion on the measurement condition setting data select screen, touch **Delete** .  
The selected measurement condition setting data is deleted.



Measurement condition setting data select screen

◆ **ACTIVE KEY**

For details on **Save Screen Copy**, **Open Screen Copy**, **Save Setup Data** and **Open Setup Data** see Page 101.



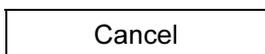
Returns the display to the oscilloscope measurement menu.



Plays back the selected measurement condition setting data.



Deletes the selected measurement condition setting data.



Returns the display to the file menu screen.

# 7 Handling

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# 7 Handling

## Handling Precautions

Pay attention to the following points when handling the Intelligent Tester II and its accessories.

- Do not leave this tester or any of its accessories exposed to direct sunlight for long periods of time.
- In locations with high humidity, the display back light can deteriorate and the brightness decrease. Use and store in locations with low humidity.
- In locations with high temperatures, the display contrast can become fainter. This phenomenon is normal and is caused by the characteristics of the LCD display. Simply, adjust the contrast to compensate. Also, in low-temperature locations, the display response may be slow. This phenomenon is normal and is caused by the characteristics of the LCD display.
- When cleaning the tester or accessories, never use paint thinner or any other solvent or volatile oil product. This could cause deformation, discoloration, and other such problems as well as loss of function. Wipe gently with a soft cloth dipped in a diluted neutral detergent.
- When the Intelligent Tester II is left unused for a prolonged time, the clock may become inaccurate or stop altogether. If this happens, reset the clock.
- If the internal battery is allowed to remain completely drained for a long time, this will drastically reduce its service life. Even when not using the Intelligent Tester II, charge the internal battery at least once a month.

## Disposal

When disposing of the Intelligent Tester II or any of its accessories, please do the following.

- The Intelligent Tester II and its accessories contain electronic parts installed using solder that includes lead. In order to prevent damage to the environment resulting from this lead, ask the waste processing company to handle this equipment separate to ordinary non-burnable material.
- The plastic case of the Intelligent Tester II is made of polycarbonate, ABS, and acrylic. Excluding the clear panel (acrylic), the plastic parts have materials abbreviations stamped inside. In order to recycle these compound plastic products, ask the waste processing company to handle the different plastics separately.
- The main unit of the Intelligent Tester II and the oscilloscope cartridge have a lithium ion internal battery. Dispose of used internal batteries in accordance with the regulations of the nation and region.

## Battery Replacement

This product uses a lithium ion battery. When replacing the battery, read the cautions below carefully and replace the battery correctly and safely.



### WARNING

- Always observe the following rules. Failure to do so can result in heat generation, fire, blowout, or battery fluid leakage.
- Do not use any battery other than the lithium ion battery supplied by DENSO (95171-10340). 
- Do not heat or burn the battery. 
- Do not disassemble or alter this battery. 
- Do not short the terminals. 
- Do not use, charge, or leave the battery in any high-temperature location. 



### CAUTION

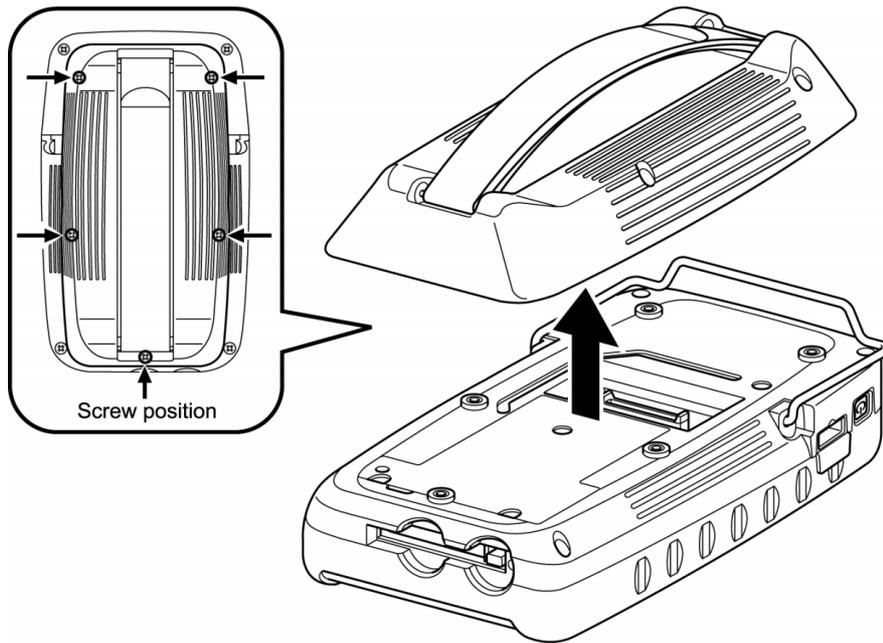
- Correctly dispose of used-up batteries in accordance with legal requirements.

### Items to prepare

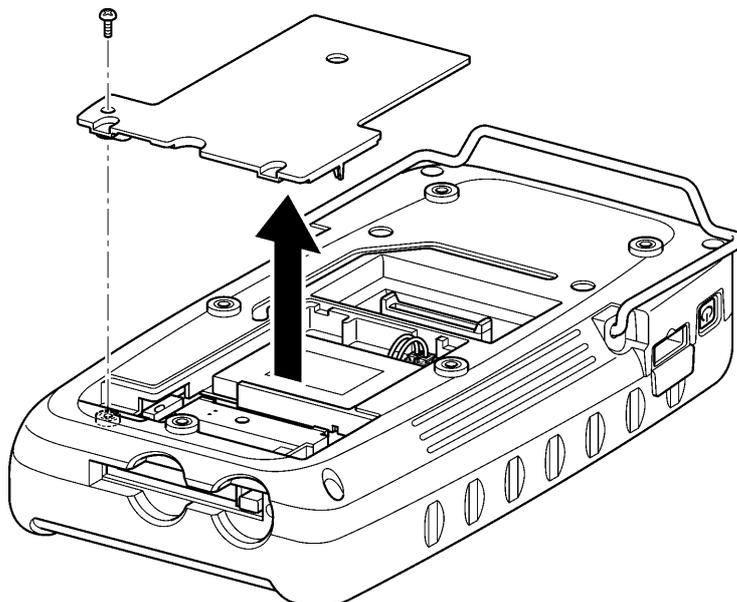
- Philips screwdriver (The standard depends on the region.)
- Replacement battery (DENSO 95171-10340) 1

### Replacement procedure

1. Loosen the five screws on the rear of the main unit with a Philips screwdriver and take out the cartridge.

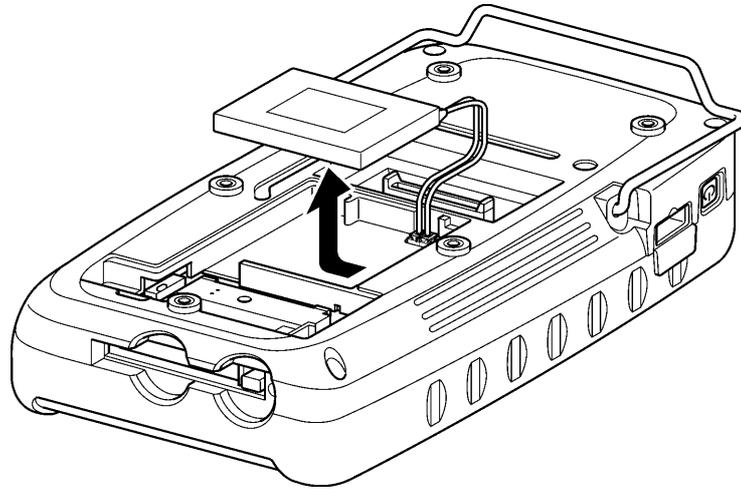
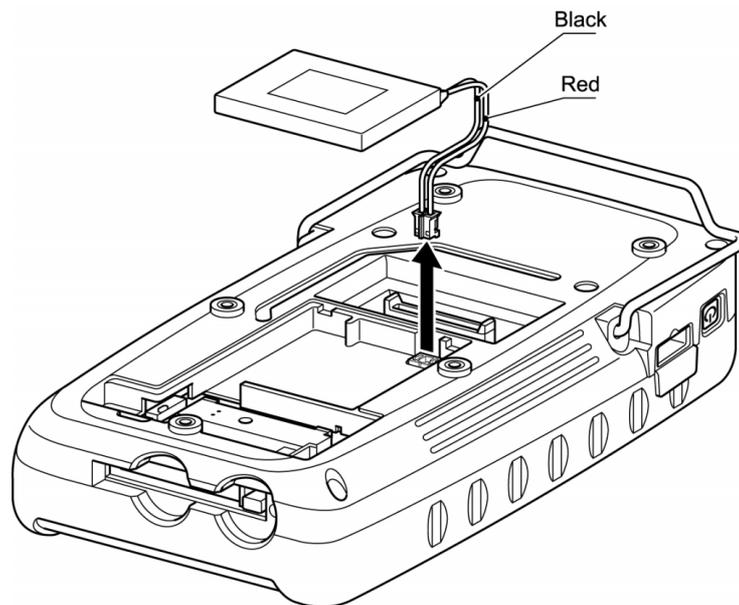


2. Loosen the screw securing the lid of the battery case with a Philips screwdriver and take off the lid.

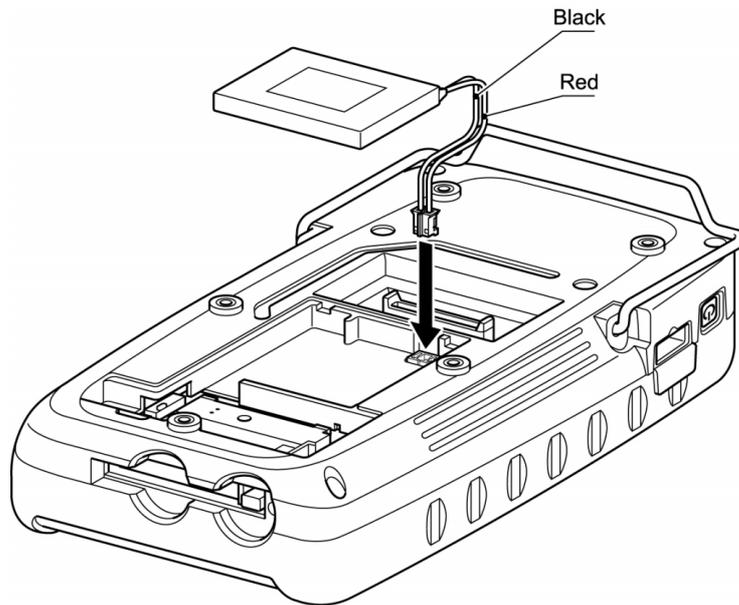


**3.** Pull out the battery from the battery case.

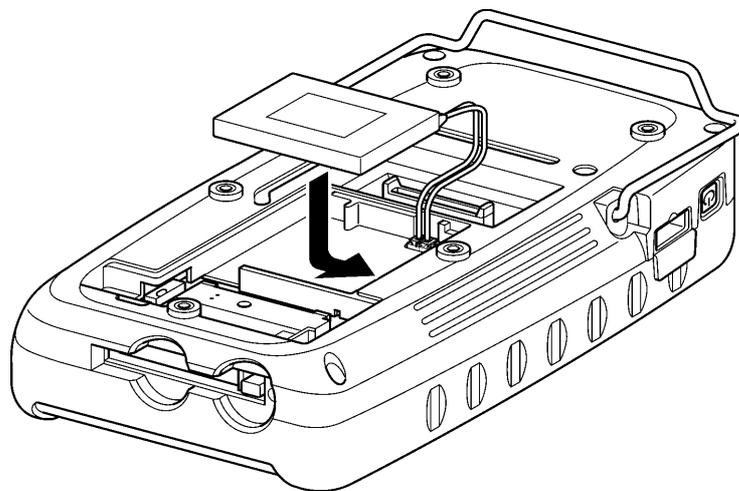
When removing the battery from the battery case, if you disconnect the leads from the connector, protect the tips of the leads with insulating tape to avoid a short.

**4.** Remove the connector.

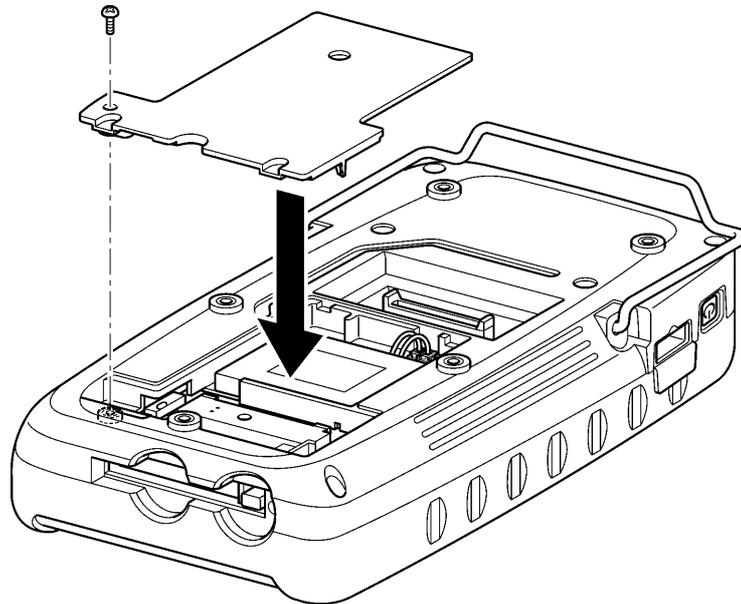
- 5.** Replace the battery with a new one and install the connector. Always connect as in the figure below, so that the red lead is on the right.



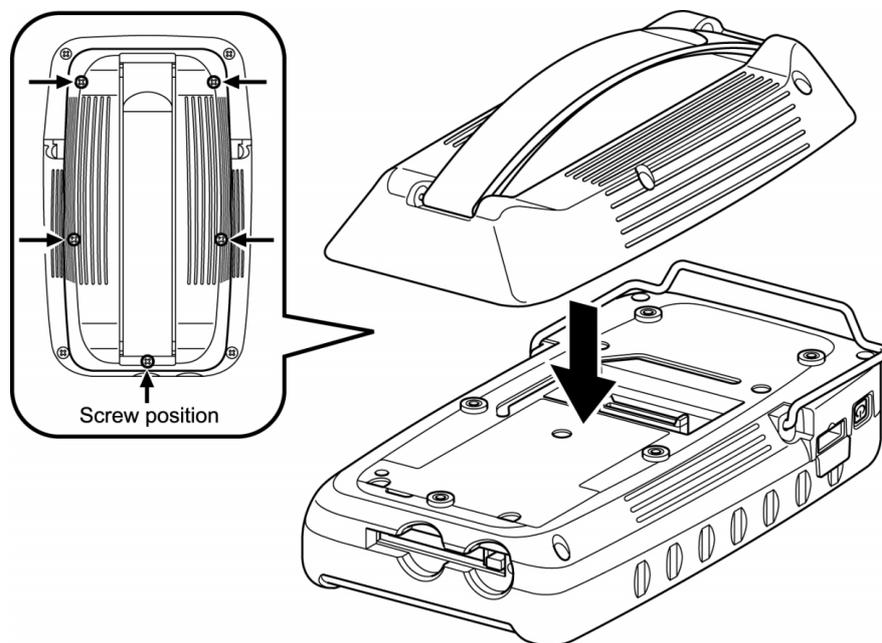
- 6.** Insert the battery all the way into the case so that it fits completely inside the case.



7. Close the lid of the battery case and tighten the screw to a torque of  $0.3 \pm 0.1$  Nm with a Philips screwdriver.



8. Mount the cartridge in the main unit and tighten the five screws to a torque of  $0.5 \pm 0.1$  Nm with a Philips screwdriver.



# 8 Product Specifications

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# 8 Product Specifications

## Intelligent Tester II Specifications

Item		Specifications
Main unit dimensions		145mm (W) x 223mm (H) x 71mm (D)
Main unit weight		Without oscilloscope cartridge: about 1200g With oscilloscope cartridge: about 1380g
Main unit power supply voltage		DC10 – 32V
Power consumption		Without oscilloscope cartridge: Normally 5.5W (12VDC), charging 8.5W (12VDC) With oscilloscope cartridge: Normally 7W (12VDC), charging 10W (12VDC)
Usage temperature		0 – 45°C
Storage temperature		–10 – 60°C
OS		Windows CE (DENSO original HPC type), English OS
CPU		Hitachi SH7727 128 MHz
RAM		32MB
ROM		Flash: 32 MB, internal CF: 32MB
Liquid crystal		5.7-inch color STN (320x240) transparent type 256 colors Adjustable brightness and contrast
Touch panel		Input: Finger Surface strength: Pencil lead hardness 2Hmin. Operating force: 80g max.
Keys		Four (up, down, and two function keys)
Internal clock		Time stamp (backed up by internal battery)
PC communications	PC card slot	CF x 1ch (supports CF standard Type I and Type II)
	USB	Host: 1 channel Function: 1 channel
	Serial	1ch (RS-232C)
Vehicle communications	CAN	1ch (Fast CAN)
	ISO9141	1 channel (standard 12V specifications)
Backup power supply		Lithium ion battery 7.4V 1000mAh
Charge time (at normal temperature)		5 hours (time until full charge)
Battery usage time (at normal temperature)		For normal operation: about 1 hour (with expansion : about 80 minutes)
Regulation		CE

## Voltage Measurement Function Specifications

Item	Specifications
Maximum sampling rate	250s / sec
Number of channels	1ch
Voltage (vertical axis) range	1V / div, 2V / div, 5V / div
Time (horizontal axis) range	100ms / div, 200ms / div – 10s / div

## Oscilloscope Function Specifications

Item	Specifications
Maximum sampling rate	500ks / sec
Number of channels	2ch
Sweep mode	Auto, Normal, Single
Voltage (vertical axis) range	100mV / div, 200mV / div, 500mV / div – 10V / div
Time (horizontal axis) range	50 $\mu$ s / div, 100 $\mu$ s / div, 200 $\mu$ s / div – 10s / div (200 ms and higher is roll mode)
Trigger position	10%, 50%, and 90% of display surface
Battery usage time (at normal temperature)	0.8 hours

# 9 After-Service

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## Intelligent Tester II Warranty and Repair article

### **I. WARRANTY**

1. Intelligent Tester II ("Products") is warranted to be free from defects in material and workmanship (Screen Overlay is excluded from this warranty).
2. The warranty period for the Products is from the date of shipment to you until the date when one year has passed thereafter.
3. This warranty does not cover any part that has been abused, altered, used for a purpose other than that which it was intended, or used in a manner inconsistent with instructions regarding its use, including, but not limited to, the following:
  - Damage due to improper operation or modification of the Products;
  - Damage due to use of the cables and accessory items not originally supplied, or unauthorized peripheral equipment;
  - Damage due to dropping or other severe impact on the Products;
  - Damage due to reverse polarity of 12-volt power and ground;
  - Damage due to exposure to excessive temperatures; or
  - Damage or loss that may occur during shipping.

This warranty excludes failure, breakdown, damage or loss of the Products caused or induced by any faults or defects of software of the Products.

This warranty also excludes all incidental or consequential damage.

### **II. REPAIR SERVICE**

1. If there is a problem with the Products, please read the "Operator's Manual" carefully to make sure that the Product is being operated properly.
2. If this does not resolve the problem, please fill in the required information on the "Repair Order Sheet"\* , including a brief explanation of the problem, the name of the failed Products, and your return address, and send it to a DENSO Overseas Subsidiary (or TOYOTA TSUSHO Japan, if purchased through TOYOTA TSUSHO Japan) by Fax.  
Please fill in the "Repair Order Sheet" in English.  
\*The "Repair Order sheet" is in the Operator's Manual.
3. The DENSO Overseas Subsidiary (or TOYOTA TSUSHO Japan) will send a reply. Please follow the instructions in the reply. If the DENSO Overseas Subsidiary (or TOYOTA TSUSHO Japan) requests the failed parts to be sent back, please send the failed parts with the "Repair Order Sheet"\* attached on a freight collect basis.

4.If the problem is determined to be within the scope of warranty as defined in Paragraph I (one) above, it will be repaired or replaced with no charge and the return freight prepaid.

If the problem is determined to be out of the scope of warranty, the DENSO Overseas Subsidiary (or TOYOTA TSUSHO Japan) will inspect the failed Products and reply with a quotation for the repair cost.

After the DENSO Overseas subsidiary (or TOYOTA TSUSHO Japan) receives your request for repair, the item will be repaired for a nominal service charge plus freight cost.

If you have any questions regarding the procedures for warranty and repair service, please contact a DENSO Overseas Subsidiary (or TOYOTA TSUSHO Japan).

<b>TOYOTA TSUSHO Japan &amp; DENSO Overseas Subsidiary Company name/Address</b>	<b>Tel/ Fax</b>
<b>TOYOTA TSUSHO CORP.</b> MULTI TRADE GROUP PARTS & AFTERSALES MARKETING DEPARTMENT AUTOMOTIVE DIVISION Address: CENTURY TOYOTA BLDG. 9-8, MEIEKI 4-CHOME, NAKAMURA-KU, NAGOYA, 450-8575 JAPAN	Tel: +81-52-584-8023 +81-52-584-5827 Fax: +81-52-584-5291
<b>DENSO EUROPE B.V.</b> Aftermarket Sales Service Address: Hogeweyselaan 165, 1380 JL Weesp, The Netherlands	Tel: +31-294-493-362 Fax: +31-294-417-122
<b>DENSO INTERNATIONAL AUSTRALIA PTY. LTD.</b> Sales & Marketing dept. Address: 255, Melrose Drive, Tullamarine, Victoria 3043, Australia	Tel: +61-3-9279-2979 Fax: +61-3-9279-2902
<b>DENSO INTERNATIONAL SINGAPORE PTE. LTD.</b> Sales & Service Address: 51 Science Park Road, #01-19/26 The Aries, Singapore 117586	Tel: +65-6776-8268 Fax: +65-6776-8698
<b>P.T.DENSO INDONESIA CORP.</b> Marketing dept. Address: JL. Gaya Motor I, Sunter II, Kel Sungai, Bambu, Tanjung Priok, Jakarta Utara, Jakarta, Indonesia	Tel: +62-21-651-2279 Fax: +62-21-651-0566
<b>DENSO SALES KOREA CORP.</b> Aftermarket Sales Address: 大韓民国慶尚南道昌原市外洞 853-11	Tel: +82-2-469-2218 Fax: +82-2-469-2188
<b>DENSO (MALAYSIA) SDN. BHD.</b> Aftermarket Sales & Marketing . Address: Lot 9, Jalan U1/26, Hicom Glenmarie Industrial Park 40000 Shah Alam, Selangor Darul Ehsan, Malaysia	Tel: +60-3-5569-9933 Fax: +60-3-7804-0539
<b>PHILIPPINE AUTO COMPONENTS, INC.</b> Service & After Market Sales Dept. Address: Road 1 Lot 1, Phase II-A, Carmelray Industrial Park, Canlubang, Calamba, Laguna, Philippines	Tel: +63-49-549-3030 Fax: +63-49-549-3088
<b>DENSO TAIWAN CORP.</b> Sales dept. Address: 桃園県楊梅鎮瑞唐里梅獅路二段 525 号	Tel: +886-3-482-8001 Fax: +886-3-482-8003
<b>DENSO INTERNATIONAL (THAILAND) CO., LTD.</b> Aftermarket Sales Address: 369 Moo 3 Teparak Road, Teparak, A. Muang, Samutprakarn 10270 Thailand	Tel: +66-2-384-4646 Fax: +66-2-384-3747

## **Regulatory Information to user**

MODEL : DN-IT2-001

### **1. FCC Regulations**

This device complies with Part 15 of the FCC 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 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 instructions, 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 or 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.

### **2. ICES-003 Regulations**

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

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

### **3. CE Regulations**

#### **CAUTION**

- Replace only with the same or equivalent type batteries recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

**Manufacturer's Declaration of Conformity  
in accordance with EC EMC Directive 89/336/EEC**

We herewith confirm that under product described below is met the requirements of the EC EMC Directive 89/336/EEC, 92/31/EEC and 93/68/EEC.

**Manufacturer**

**Name** : DENSO CORPORATION  
**Address** : 1-1 Showa-cho, Kariya-shi, Aichi-ken, 448-8661 Japan

**Importer**

**Name** : DENSO EUROPE B.V.  
Takayoshi Kawaguchi  
**Address** : Hogeweyselaan 165, 1382 JL Weesp,  
The Netherlands

**Description of Product**

**Product name** : Intelligent Tester II  
**Product model Number** : DN-IT2-001

**Harmonized Standards applied**

: EN 55022  
: EN 61000-6-2

# Intelligent Tester II Repair Order Sheet

Please fill this sheet and send to your distributor with failure products when you request to repair Intelligent Tester II.

**<Your Details>**

Dealer name		Purchasing Date	/ /
Contact Person's Name		Failure Date	/ /
Address	<u>Country</u> <u>Postcode</u>		
Phone No.		Shipping date	/ /
Fax. No.		Warranty	<input type="checkbox"/> In <input type="checkbox"/> Out

**<Description of Failure>** Please tick the boxes below.

<b>WHEN</b>	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes(more than 1/day)	<input type="checkbox"/> Rarely(less than 1 /day) <input type="checkbox"/> Other(                      )
<b>WHAT</b>	<input type="checkbox"/> Tester <input type="checkbox"/> Display <input type="checkbox"/> Touch Panel <input type="checkbox"/> A/C Adaptor <input type="checkbox"/> Communication(vehicle) <input type="checkbox"/> Communication(USB)	<input type="checkbox"/> Cable(Power) <input type="checkbox"/> Cable(Communication) <input type="checkbox"/> Oscilloscope <input type="checkbox"/> Voltage meter <input type="checkbox"/> Others {                      }
<b>HOW</b>	<input type="checkbox"/> Error code displayed <input type="checkbox"/> No display shown <input type="checkbox"/> No response/operation <input type="checkbox"/> No communication <input type="checkbox"/> No charge	<input type="checkbox"/> No measurement <input type="checkbox"/> Command will freeze <input type="checkbox"/> No power <input type="checkbox"/> Others {                      }
<b>COMMENT</b>		

**<Product sent for repair>** Please tick the boxes below and write Serial No.

<input type="checkbox"/> Tester [Software Version <u>Ver. _____</u> ]	<input type="checkbox"/> RS232C Cable
<input type="checkbox"/> Voltage Meter Probe <input type="checkbox"/> USB Cable	<input type="checkbox"/> Others {                      }
<input type="checkbox"/> AC/DC Power Supply <input type="checkbox"/> Oscilloscope Probe	
<input type="checkbox"/> DLC3 Cable <input type="checkbox"/> Cigarette lighter power cable	<u>Serial No. _____</u>

**<Distributor Use Only>**

Distributor Name			
Contact Person's Name			
Phone No.		Comment	
Fax No.			
Shipping Date			

**<DENSO Use Only>**

<u>Body S/No. _____</u>	<u>Jacket S/No. _____</u>	<u>Repair date / /</u>