Copyright Information

Trademark Information

End User License Agreement

IMPORTANT: PLEASE READ THIS END USER LICENSE AGREEMENT CAREFULLY. USING LAUNCH OR LAUNCH-SUPPLIED PRODUCTS AND SOFTWARE CONSTITUTES ACCEPTANCE OF THIS AGREEMENT.

LAUNCH IS WILLING TO LICENSE THE PRODUCTS, INFORMATION, SOFTWARE AND DOCUMENTS (COLLECTIVELY, "MATERIALS") TO YOU ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED IN THIS LICENSE AGREEMENT. BY USING THE MATERIALS, YOU ARE BINDING YOURSELF AND THE BUSINESS ENTITY THAT YOU REPRESENT (COLLECTIVELY, "CUSTOMER") TO THIS AGREEMENT. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF THIS AGREEMENT, THEN LAUNCH IS UNWILLING TO LICENSE THE MATERIALS TO YOU AND DO NOT USE THE PRODUCTS AND DOWNLOAD OR INSTALL THE SOFTWARE.

The following terms of this End User License Agreement ("Agreement") govern Customer's access and use of the product, except to the extent there is a separate signed agreement between Customers and LAUNCH governing Customer's use.

License. Conditioned upon compliance with the terms and conditions of this Agreement, LAUNCH TECH. CO, LTC. or its subsidiary licensing the Materials instead of LAUNCH, grants to Customer a nonexclusive and nontransferable license to use for Customer's internal business purposes the Materials and the Document for which Customer has paid the required license fees. "Document" means written information (whether contained in user or technical manuals, training materials, specifications or otherwise) specifically pertaining to the equipment and made available by LAUNCH with the equipment in any manner (including on CD-Rom, or on-line).

Unless otherwise expressly provided in the Document, Customer shall use the Software solely as embedded in, for execution on or (where the applicable document permits installation on non-LAUNCH equipment) for communication with LAUNCH equipment owned or leased by Customer and used for Customer's internal business purposes.

Note：
For evaluation or beta copies for which LAUNCH does not charge a license fee, the above requirement to pay license fees does not apply.

General Limitations. This is a license, not a transfer of title, to the materials, and LAUNCH retains ownership of all copies of the Materials. Customer acknowledges that the Materials contain trade secrets of LAUNCH, its suppliers or licensors, including but not limited to the specific internal designed structure of individual programs and associated interface information. Accordingly, except as otherwise expressly provided under this Agreement, Customer shall have no right and Customer specifically agrees not to:

(i) Transfer, assign or sublicense its license rights to any other person or entity, or use the Materials on unauthorized or secondhand LAUNCH equipment, and Customer acknowledges that any attempted transfer, assignment, sublicense or use shall be void;

(ii) Make error corrections to or otherwise modify or adapt the Materials or create derivative works based upon the Materials, or permit third parties to do the same;
(iii) Reverse engineer or decompile, decrypt, disassemble or otherwise reduce the Materials to human-readable form, except to the extent otherwise expressly permitted under applicable law notwithstanding this restriction;
(iv) Use or permit the Materials to be used to perform services for third parties, whether on a service bureau or time sharing basis or otherwise, without the express written authorization of LAUNCH;
(v) Disclose, provide, or otherwise make available trade secrets contained within the Materials in any form to any third party without the prior written consent of LAUNCH. Customer shall implement reasonable security measures to protect such trade secrets.
To the extent required by law, and at Customer's written request, LAUNCH shall provide Customer with the interface information needed to achieve interoperability between the Materials and another independently created program, on payment of LAUNCH's applicable fee, if any. Customer shall observe strict obligations of confidentiality with respect to such information and shall use such information in compliance with any applicable terms and conditions upon which LAUNCH makes such information available.

Software, Upgrades and Additional Copies. For purposes of this Agreement, "Software" shall include (and the terms and conditions of this Agreement shall apply to) computer programs, including firmware, as provided to Customer by LAUNCH or an authorized LAUNCH reseller, and any upgrades, updates, bug fixes or modified versions thereto (collectively, "Upgrades") or backup copies of the Software licensed or provided to Customer by LAUNCH or an authorized LAUNCH reseller.
NOTWITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT: (1) CUSTOMER HAS NO LICENSE OR RIGHT TO USE ANY ADDITIONAL COPIES OR UPGRADES UNLESS CUSTOMER, AT THE TIME OF ACQUIRING SUCH COPY OR UPGRADE, ALREADY HOLDS A VALID LICENSE TO THE ORIGINAL SOFTWARE AND HAS PAID THE APPLICABLE FEE FOR THE UPGRADE OR ADDITIONAL COPIES; (2) USE OF UPGRADES IS LIMITED TO LAUNCH EQUIPMENT FOR WHICH CUSTOMER IS THE ORIGINAL END USER PURCHASER OR LESSEE OR WHO OTHERWISE HOLDS A VALID LICENSE TO USE THE SOFTWARE WHICH IS BEING UPGRADED; AND (3) THE MAKING AND USE OF ADDITIONAL COPIES IS LIMITED TO NECESSARY BACKUP PURPOSES ONLY.

Proprietary Notices. Customer agrees to maintain and reproduce all copyright and other proprietary notices on all copies, in any form, of the Materials in the same form and manner that such copyright and other proprietary notices are included on the Materials. Except as expressly authorized in this Agreement, Customer shall not make any copies or duplicates of any Materials without the prior written permission of LAUNCH.

Term and Termination. This Agreement and the license granted herein shall remain effective until terminated. Customer may terminate this Agreement and the license at any time by destroying all copies of Materials and any Document. Customer's rights under this Agreement will terminate immediately without

notice from LAUNCH if Customer fails to comply with any provision of this Agreement. Upon termination, Customer shall destroy all copies of Software in its possession or control. All confidentiality obligations of Customer and all limitations of liability and disclaimers and restrictions of warranty shall survive termination of this Agreement.

Customer Records. Customer grants to LAUNCH and its independent accountants the right to examine Customer's books, records and accounts during Customer's normal business hours to verify compliance with this Agreement. In the event such audit discloses non-compliance with this Agreement, Customer shall promptly pay to LAUNCH the appropriate license fees, plus the reasonable cost of conducting the audit.

Export. Software, including technical data, may be subject to PRC. export control laws, including the PRC. Export Administration Act and its associated regulations, and may be subject to export or import.

Table of Contents

Safety Precautions

Precautions on Operating Vehicle's ECU

- Do not disconnect the vehicle inner consumer when the ignition switch is on. High voltage transients may encounters at the moment of disconnecting, and thus may damage sensors and ECU.
- Protect the computer from magnetic object (such as wireless speaker)
- Do cut off the power supply of ECU system before welding on the vehicle.
- Pay more attention to ECU and sensors when operation is next to them.
- Ground yourself when you disassemble PROM, otherwise ECU and sensors will be damaged by static.
- Do not use the pointer ohmmeter instead of DMM for testing ECU and sensor without special requirement.
- Do not test electric devices in relation with ECU with a test lamp unless otherwise expressly provided.
- Do wear a metal ground strip that one end around your wrist and the other to the vehicle body when you get in and out the vehicle.
- Do connect ECU harness connector firmly, otherwise electro elements, such as IC inside ECU, will be damaged.

Precaution on Operation

- The X431MASTER is a sophisticated electronic device, never have it clashed when in use.
- Main unit screen may flash at the moment engine ignition, it's normal.
- You may unplug the main unit if the program cannot be actuated or confused screen occurs. Plug again to continue the operation.
- Make sure that the X431MASTER is properly connected to the DIAGNOSTIC CONNECTOR to avoid communication interruptions.
- X431MASTER is equipped with a leather Strap for easy handling when traveling or taking it into a car shop.
- Be careful when plugging and unplugging the main cable and diagnostic connector. Tighten the screw before operation to avoid unexpected disconnecting and/or damage to the port.
- Do not insert and pull out CF card when the X431MASTER is working. Press ejector button to pull out the card. Insert the CF in the right place, keep the face labeled "UPSIDE" upward, and make sure the card is fully seated.
- Handle with care and avoid crash. Unplug the power after operation.
- Put the stylus into the slot at back of X431MASTER main unit after operation, and place the cables, connectors and other accessories into box.
- Hold the connector and do not pull the power cord when unplug it.
- Use the Cigarette lighter cable to power up, only from the tested vehicle to prevent the ECU from being damaged

Precautions on Vehicle

- Automotive batteries contain sulfuric acid that is harmful to skin. In operation, direct contact with the automotive batteries should be avoided. Pay attention not to splash the sulfuric acid into eyes. Keep ignition sources away from the battery at all times.
- Engines produce various poisonous compounds (hydrocarbon, carbon monoxide, azotes oxides, etc,), which should be avoided.
- Avoid contacting high temperature assembly such as water tank and vent-pipe, as the temperature of the running engine is very high.
- Before starting engine, put the speed lever in the neutral position or in the P position to avoid injury.
- Wear an ANSI-approved eye shield when testing or repairing vehicles.

- If you are using the battery as a power source, connect the RED (+) battery clip to the positive of the vehicle battery and the BLACK (-) battery clip to the negative.

Introduction

General descriptions

X431MASTER is the third Generation of X-431 Super scanner developed by LAUNCH, which improved the features and function based on all feedback from the user's served by the X431 in their respectively fields of works.

- Performance / Speed: The X431MASTER is now a whole unit (permanently connected) means the communication time between Smartbox and main unit is reduced.
- Appearance: The X431MASTER has a new designed and cover made from high quality materials to stand in a new market.
- Connector: The X431MASTER has a new connector to replace all CAN Bus and OBD Connector called OBDII 16E connector.
- Power source: The X431MASTER can support 12V and 24V means not only small vehicles but also big vehicles can tested.

Features

Universal

X431MASTER is a unique product with universal functions far beyond the original decoder of the tested models. It covers hundreds of models of more than 100 vehicles makes both domestics and abroad, including the followings:

- European series: Mercedes-Benz, BMW, Volkswagen, Fiat, Volvo, Citroen, Renault, Peugeot, Opel, Porsche, LAND ROVER, etc.
- American series: GM, Ford, Chrysler, etc.
- Asian series: Toyota, Nissan, Honda, Mitsubishi, Mazda, Subaru in Japan, and Hyundai, Daewoo, Kia in South Korea, etc.
- China-brand series: Chery, Geely, Great Wall, etc., totaling more than 60 domestic series.
- Others: Local models in Malaysia, Russia, India, Mexico, Australia and other countries.

Online Update

- The function of online update makes it easy for customer to get the latest diagnostic program and keep pace with the development of automotive technology.

Open

- Open operating system. That is, X431MASTER is an open automobile diagnostic platform with multifunction and multi-language based on LINUX operating system.
- X431MASTER provides open interface to support the third party's development.

Advanced

X431MASTER is the most advanced automobile diagnostic unit in the world at present. It is designed compactly with modern outline and large LCD touch screen. With built in printer makes the operation easy.

The product is a combination of the automobile industry and the communication technology, which starts the new development trend in the automobile diagnosis field. This product not only provides a new way of automotive diagnosis for vehicle service station, but also becomes a favorable choice for "DIYers".

Integrative

X431MASTER integrates all functions of PDA.

- Handwriting input, personal database, vast vocabulary English-Chinese dictionary. The large capacity database could achieve multi-purpose management of user's information and resolve language obstacles.
- The games enable you to relax after your work and make your life more enjoyable.

- English-Chinese dictionary stores frequently used automobile vocabulary and abbreviations, which may solve your language obstacles and facilitate your repair work.

X431MASTER Component Description

Figure 1-01

Figure 1-01 shows the main parts of X431MASTER. They are: X431MASTER main unit, SMARTBOX and MINIPRINTER. Each of the three parts has independent function.

For easy operation, the three parts are now connected together permanently and has a leather Strap for easy handling when traveling or taking it into a car shop and preventing accidentally drop or damage. Additional parts, such as main cable, Cigarette lighter Cable, CF card, CF card reader/writer, diagnostic connectors, etc, are also supplied for vehicle diagnosis.

Components

X431MASTER Main Unit

The X431MASTER main unit has all functions of a standard PDA, including personal information management, control panel, game, etc.

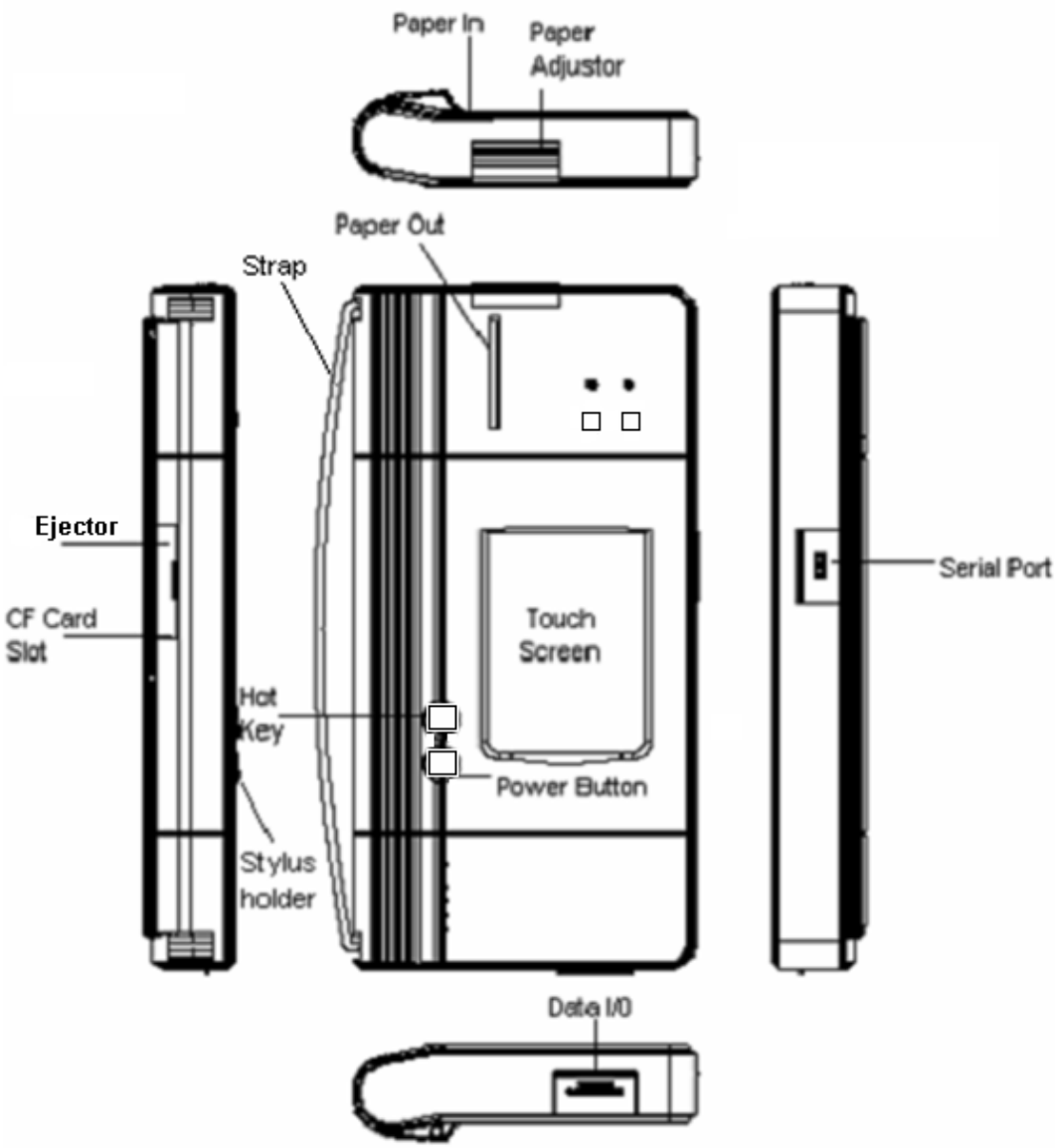
Smartbox

SMARTBOX bears all the functions that are essential for vehicle diagnose. SMARTBOX is designed elaborately in its functions for future update (download and update online).

Miniprinter

It is for printing out the test result. Thermal printing paper in size Φ30×57mm (inner hole: Φ7mm) is used.

Components Sketch



Ports and Indicators

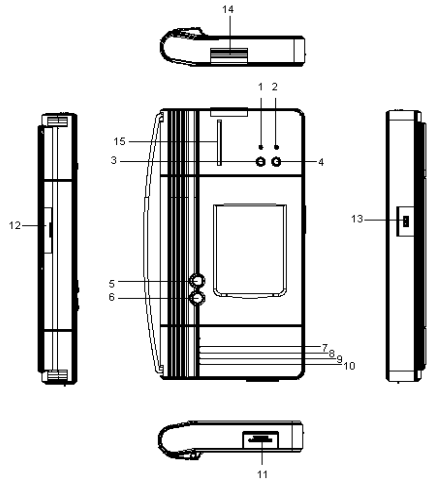


Figure1-03

Ports and indicators descriptions

1	Printer SEL indicator（printer readiness）
2	Printer power indicator
3	Printer SEL button （printer readiness） or printer menu
4	Printer LF button （paper feed）
5	Hotkey of main unit. Press it to calibrate the screen after the appliance is powered on. Or press it to enter the vehicle diagnosis interface after X431MASTER is started.
6	Power key of the main unit.
7	Indicator to show SMARTBOX sending data to the main unit
8	Indicator to show SMARTBOX receiving data from the main unit
9	Indicator to show SMARTBOX sending data to ECU
10	Indicator to show SMARTBOX receiving data from ECU
11	SMARTBOX data port
12	CF Card Slot
13	Serial port
14	Paper Adjustor (lead the paper into slot)
15	Paper out (printed the data)

Check and identify working states and defeat point of X431MASTER by means of the 4 indicators on the SMARTBOX: There are 4 working state indicators on the SMARTBOX: indicator 7, 8, 9 and 10 (see figure 1-03), their functions are described respectively as above. It's necessary to check and identify communications between X431MASTER main unit, SMARTBOX and the vehicle's electronic control unit. For example, indicator 8 should be on when downloading diagnostic program to SMARTBOX, if it's off, it indicates the poor connection between SMARTBOX and main unit or problems in SMARTBOX itself; indicator 9 should be on when vehicle model has been selected and the SMARTBOX is sending data to the vehicle's electronic control unit; similarly, indicator 10 should be on during DataStream reading process when SMARTBOX is receiving data from the vehicle's electronic control unit.

X431MASTER Accessory Description

Universal Accessory

Each unit is supplied with the same universal accessories; X431MASTER configurations (such as diagnostic software, diagnostic connectors, etc.) are differed with different users. Users could consult local dealer for the detailed information or check configuration-packing list supplied with X431MASTER for the specific configuration. The figure below is for the universal accessories:

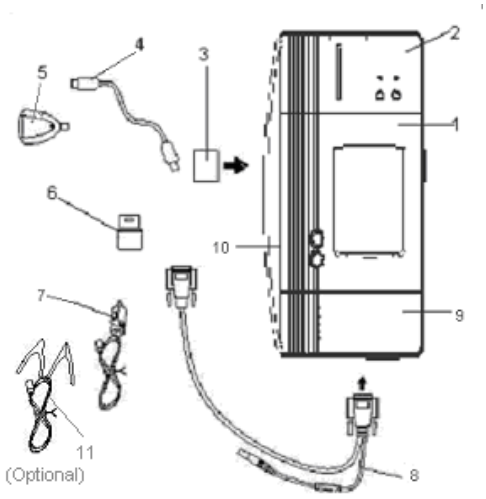


Figure 1-04

The components name and their functions:

1	X431MASTER main unit	To display operation buttons, test result, help information, etc.
2	MINIPRINTER	To print test result. (Optional)
3	CF card	To store diagnostic software and data
4	USB cable	To connect CF card reader/writer and computer
5	CF card reader/writer	To read or write data on the CF card
6	Diagnostic connector	Dozens of connectors are equipped for various vehicles. Here shows a typical one.
7	Cigarette lighter cable	To get power from the vehicle cigarette lighter
8	Main cable	To connect the diagnostic connector and SMARTBOX
9	SMARTBOX	To perform vehicle diagnosis
10	Stylus	Click or write on the screen with the stylus
11	Battery cable w/two clips (Optional)	To get power from the vehicle battery

Printer Operation

Mounting Paper

MINIPRINTER uses heat sensitive paper with size of Φ30×57mm (internal hole Φ7mm). Refer to Figure 1-05a to Figure 1-05e for mounting the paper.

1. Open the paper lid on the back of the printer. See Figure 1-05a.

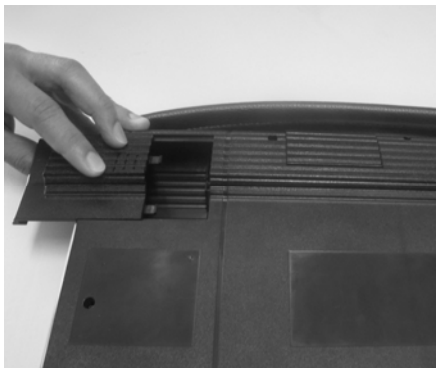


Figure 1-05a

2. Take out the spindle and mount the paper scroll onto the spindle. See Figure 1-05b.

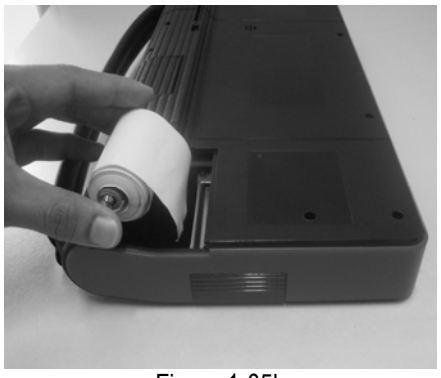


Figure 1-05b

3. Put the paper spindle into the printer with correct direction. The paper may not be fed if the direction is wrong. See Figure 1-05b and Figure 1-05c.

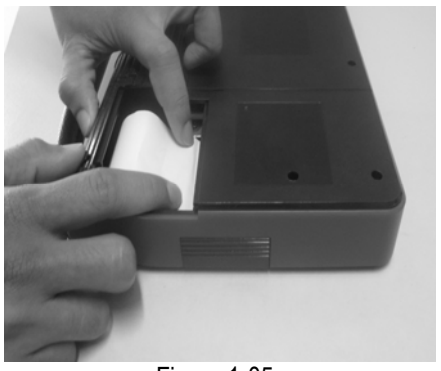


Figure 1-05c

4. Open the side plate, pull up the pressing rod and lead the paper into slot. Turn the feed knob clockwise until the paper comes out of the outlet. See Figure 1-05d.

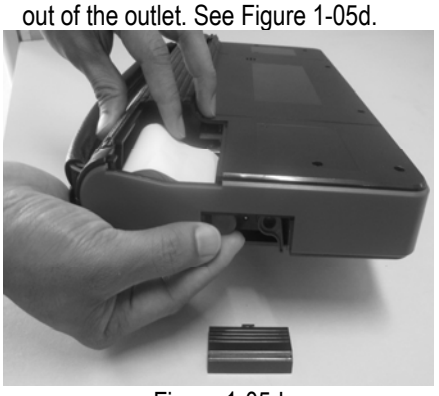


Figure 1-05d

5. Push down the pressing rod, mount the side plate, attach the paper lid and then put it back. See Figure 1-05e.

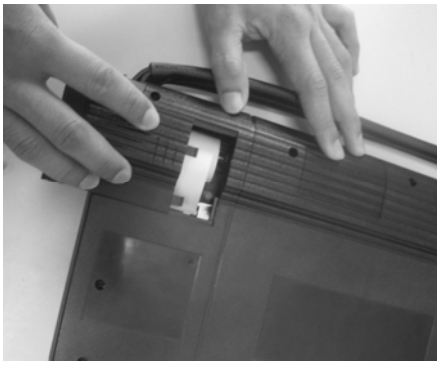


Figure 1-05e.

Printing Test Result

There are two indicators on the printer:

1. [SEL] ：shows the readiness of the printer.
2. [POWER] ：power indicator of the printer.

If the [SEL] indicator is not lit, you can press the [SEL] button to turn it on and make the printer ready. When the [SEL] indicator is lit, it shows that the printer is ready. Click the [PRINT] button (if it appears) on the screen of X431MASTER main unit to print the test result.

Description of buttons and their functions

[SEL]	To select the printer. When [SEL] indicator is lit, the printer is ready to print. If [SEL] indicator is not lit, the printer is not able to print.
[FL]	Paper-feed button.

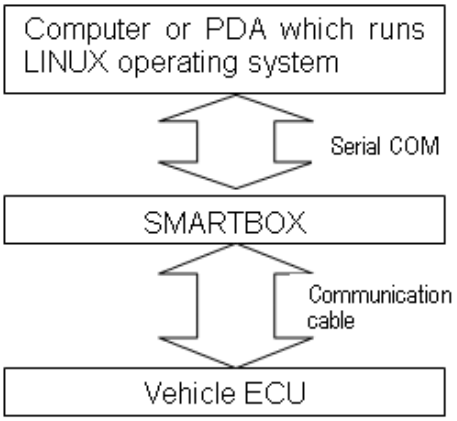
Note: The printer consumes thermal paper, which should be prevented from being heated, otherwise, the paper would be no longer effective or without printing result.

X431MASTER Hardware

Technical Specifications

- Operating System: LINUX
- Memory: 16M
- CF Card: 512M
- Main Unit I/O: Universal Serial Bus /Standard Parallel port
- Main Unit Voltage: DC12V / 24V
- Main Unit Power: approximately 9W
- Printer: Thermal mini-printer
- Display Screen: 240X320 LCD with touch screen and backlit
- Components: Main unit, SMARTBOX and MINIPRINTER
- Ambient temperature: 0-50℃
- Relative Humidity: <90%

Diagram of X431MASTER Hardware



As shown in the above figure. The upper unit is a computer with Linux operating system, which can run diagnostic program. The lower unit is SMARTBOX, which matches the voltage, baud rate and other signal logic. The upper unit and lower unit are connected via serial port. The SMARTBOX is connected to vehicle ECU through cable and connectors.

X431MASTER work flow

Working principles of X431MASTER

X431MASTER is associated with automobile and computer technology. Specifically, it's all about

diagnosing electronic control systems of a vehicle with the use of computer technology. Test result is displayed on the LCD screen in form of characters, numbers, waveforms, etc., or is printed out. With these data, users could learn the type of defeat, and its causes, failure locates, and can also clear the recorded fault code after the vehicle is repaired.
X431MASTER is based on LINUX operating system and with SMARTBOX for vehicle diagnose. It has a wide range of use, and is able to diagnose vehicles of different makes and models. The appliance could achieve diagnostic and repairing work which is difficult for manual work, and able to automates and computerize the diagnose work.

Working Procedure of X431MASTER

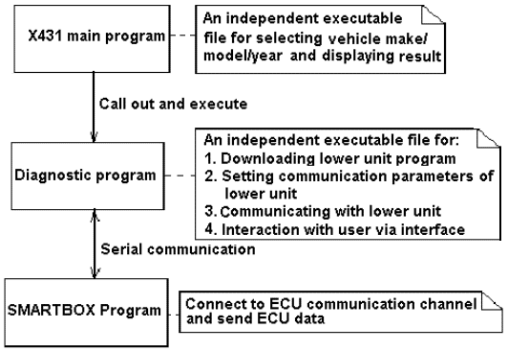


Figure 1-06

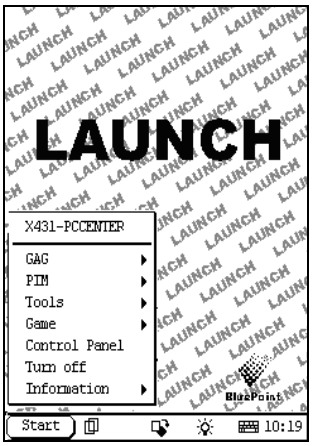
Figure 1-06 shows the working procedure of X431MASTER. In the "X431MASTER main program", after user select vehicle make and diagnostic program, "X431MASTER main program" downloads the SMARTBOX program for the vehicle to the SMARTBOX and makes the SMARTBOX run the program; then creates the diagnostic procedure and calls out the "Diagnostic program", so that the "Diagnostic program" and the SMARTBOX program perform the whole process of diagnosis. "X431MASTER main program" is to display the diagnostic result and interact with user.

X431MASTER Initial Use

X431MASTER Starts

Plug in X431MASTER main unit and press [POWER] key on the main board, tips for calibrating the touch screen will be displayed; press [HOTKEY] to begin calibrating, see chapter 'Calibrate Touch Screen' for operation procedure, if you are not willing to calibrate, please wait and enter into startup interface, see figure on the left (interface for user register will be shown when the appliance starts for the first time, see chapter 'User Information' for register steps).

Press [Power] key for 2 seconds to turn off the main unit.



Taskbar

There is taskbar at the bottom of each operation interface of X431MASTER, and includes several icons, as shown in the left figure, their functions are described as below:

'Start' Button: the same as Windows. Click it with stylus to pop up Start menu, which includes the main functions of X431MASTER, see chapter 3 and 4 for details.

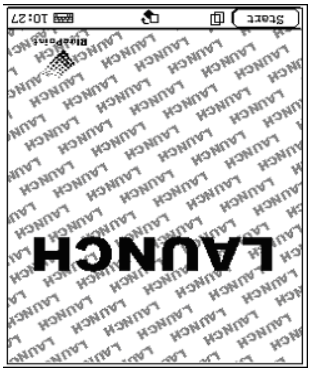
'Active Task' icon: click to display current interface or shift among different interfaces;

'Rotate' button: rotate the interface 180 degrees for easy operation, see chapter 'Rotate' for details.

'Backlit' icon: light on or light off the backlit

'Soft Keyboard' icon: display or hide the soft keyboard, when the soft keyboard is activated, there are 3 input options: handwriting, English input and Chinese input (see chapter 'Input' for details)

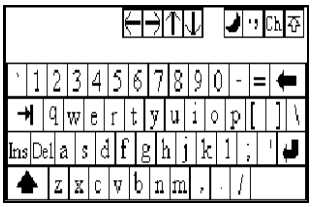
'Current Time' icon: see chapter 'Date/Time' for time setting.

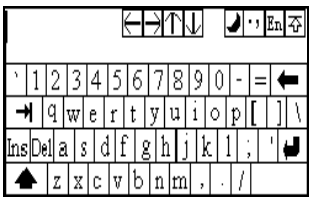


Rotate

Sometimes, you need to convert the perspective for easy operating, button [ ] could achieve it by rotating the interface 180 degrees, as shown in the left figure.

Press [ ] button to perform rotate function, interface displayed before and after clicking the button as shown on the left, click again to resume the interface as shown in the top left figure; click to rotate the interface at any working states, while the operation and function of each button remains the same as before.





Input

Note: Please activate the soft keyboard with stylus before inputting; make sure to use the stylus in the subsequent operations.

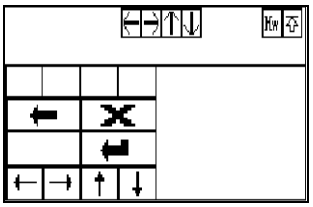
Use Soft Keyboard

1) Activate and hide the soft keyboard

Click icon at the bottom of the screen with stylus to activate soft keyboard, click again to hide it.

2) Input by soft keyboard

You have 2 ways to input by soft keyboard: one is to input with stylus instead of finger input on common keyboard; the other is to input by handwriting. Input method differs for different languages.



When in simplified Chinese, click [En] to shift from English input to Chinese input [Ch], click [Ch] to shift from Chinese input to handwriting [Hw], and click [Hw] to shift from handwriting input to English input.

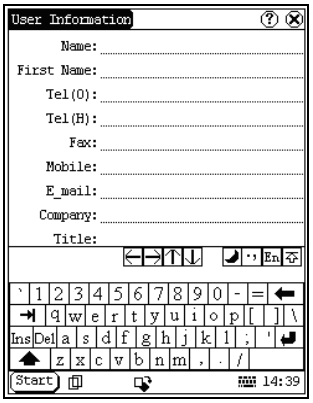
When in Chinese input, the association functions of X431MASTER will facilitate your input by inferring the words you

3) Function keys
There are 4 function keys at the upper right of the keyboard they are DBC/SBC case, punctuation, keyboard input/handwriting and the soft keyboard position (you can choose to have it displayed at the upper or lower position in the screen) from left to right.

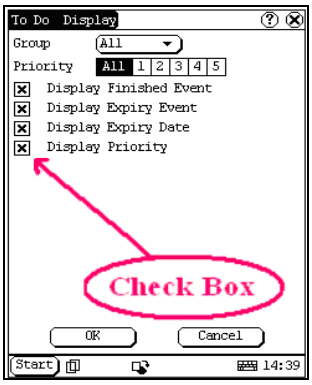
The four function keys at the upper-middle position of the screen are for moving the cursor leftward, rightward, upward or downward.

In keyboard mode, the key ▲ at the bottom left corner of the soft keyboard is [Shift] button, click it with stylus to shift lowercase letter to uppercase letter, and number keys shift to special symbols; the white key at the bottom right corner of the keyboard is the space key.

In handwriting input, there are 8 function keys at the lower-left position of the soft keyboard. The 4 keys at the bottom to perform moving the cursor left ward, rightward, upward and downward; the functions of the other 4 buttons from left to right and from top to bottom are described as followings: to delete the first character before the current cursor, clear handwriting, space and return.



Input by Keyboard
1) Open an interface, says User Information;
2) Click the soft keyboard icon in the Toolbar to activate the soft keyboard;
3) Click characters on the soft keyboard with stylus to input data.



Input by handwriting

1) Open an interface, say memo;
2) Click [New] button;
3) Click the soft keyboard icon in the toolbar to activate the soft keyboard
4) Click function button to shift to handwriting input (see chapter 'Use Soft Keyboard' for details);
5) Write on the whiteboard to the right of the soft keyboard with the assistant of the function keys.

Control of the Application

Check Box

Click the check box to select functions. The selected functions will be marked with [×] in the checkbox, and the function description is provided on the right of the checkbox. More than one function could be selected at a time.

Scrolling Bar

Usually, the scrolling bar is on the rightmost of the screen, click or pull it to operate. Use the scrolling bar for view if the content could not be fully displayed in one page.

Common Buttons

1) ⊗ Button at the top right of the screen: click it to quit a current interface or give up editing in default;
2) ⑦ Button at the top right of the screen: click it to display online help for the current interface.
3) [Cancel] Button: click to quit the current interface or give up editing in default.

Online Help

Click ⑦ button or [help] button to get 'help' information for the current interface.

Vehicle Diagnosis

Preparation and connection

Preparations

Conditions for Test

- Turn on the vehicle.
- The voltage of vehicle battery should be 9 - 37V. The rated voltage of the X431MASTER is 12V / 24V.
- The throttle should be in the closed position.
- Ignition timing and idle speed should be within specification range, water and transmission oil temperature is in normal working range (water temperature is 90 – 110°C and transmission oil temperature is 50 – 80°C).

Select Diagnostic connector

Various diagnostic connectors are supplied with X431MASTER. Select a specific connector according to the tested vehicle.

Location of the DLC on the vehicle

The location of DLC varies for different vehicle make.

Diagnostic Socket Location

The diagnostic socket of Volkswagen vehicle is located in the cab under the instrument at the driver side.

Connection

- Insert the CF card into the CF card slot, *keep the face labeled "UPSIDE" upward, and make sure the card is fully seated*.
- Insert one end of the main cable into the diagnostic socket on SMARTBOX.
- Connect the other end of the main cable to the diagnostic connector.
- Connect the other end of the diagnostic connector to the vehicle diagnostic socket.

See below figures for connection:

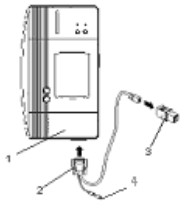


Figure 2-01

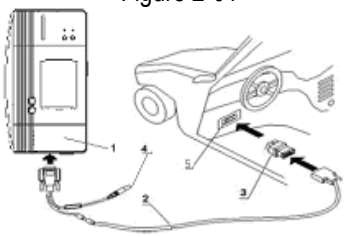


Figure 2-02

1-Smartbox 2-Diagnostic main cable
3-diagnostic connector
4- Power Connector
5- DLC

Note:
If the power supply on vehicle diagnostic socket is insufficient or the power pin is damaged, you can get power from the following ways:

- *From cigarette lighter: insert one end of the cigarette lighter cable into the lighter socket in vehicle and connect the other end to the power connector of X431MASTER main cable.*
- *From battery: clamp the two clips of battery cable on the positive and negative poles of battery and insert another end of the cable into the power connector of X431MASTER main cable.*

Operation

The vehicle makes, vehicle models and systems covered by X431MASTER is increasing, please log in http://www.x431.com for the updates and

download diagnostic program of the latest version.

Entering Function Menu

After connection, press [POWER] key to start X431MASTER.
After starting the main unit, press [HOTKEY] (or click [Start] button on the main menu, and select [GAG]→[GD Scan] on the pop-up menu), the screen will display the home page of vehicle diagnosis as shown in Figure 2-03.

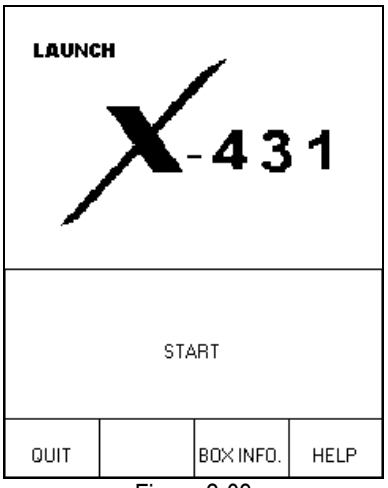


Figure 2-03

Button descriptions:

- *[QUIT]: to exit the diagnostic program.*
- *[BOX INFO.]: to display hardware and software version of SMARTBOX.*
- *[HELP]: to display help information.*
- *[START]: to start the diagnosis.*

Click [START] button, the screen will display the vehicle make menu as shown in Figure 2-04.

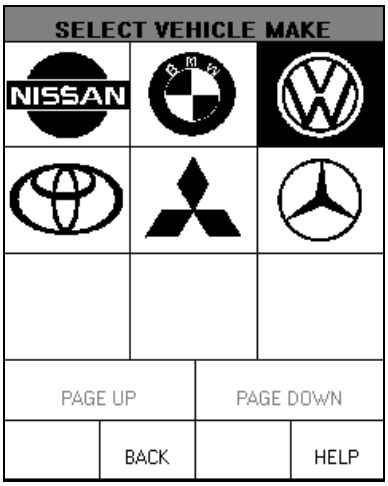


Figure 2-04

Button descriptions:

- *[BACK]: to return to the previous interface.*
- *[PAGE UP]: to display the previous page, it is inactive if the current page is the first page.*
- *[PAGE DOWN]: to display the next page, it is inactive if the current page is the last page.*
- *[HELP]: to display the help information.*

Click the icon of Volkswagen on the vehicle make menu. The screen will be displayed as shown in Figure 2-05.

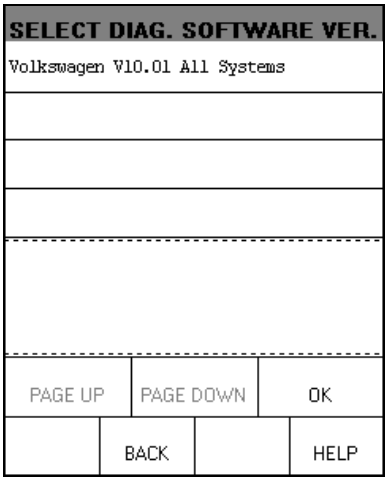


Figure 2-05

Button descriptions:

- *[BACK]: to return to the previous*

interface.

- *[HELP]: to display the help information.*

Click [Volkswagen V10.01 All Systems]. The display will be as shown in Figure 2-06.

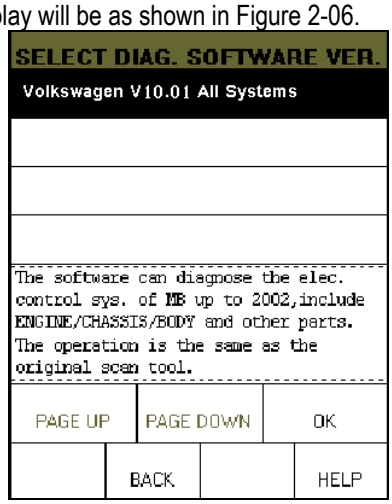


Figure 2-06

The software can diagnose the electronic control systems of Volkswagen up to 2002. The operation is the same as that of the original scan tool.

Click [OK] button, the screen will display the information as shown in Figure 2-07.

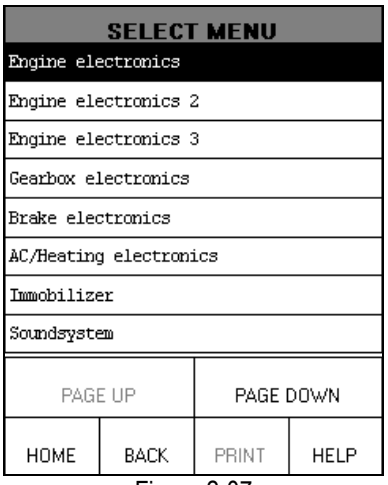


Figure 2-07

There are several pages for the menu. Click [PAGE DOWN] to see the next page.

Note:
The test operation for different systems is similar. Here we take [Engine electronics] as an example to describe.

Button descriptions:

- *[PAGE DOWN]: to display the next page.*
- *[HOME]: to return to the homepage of vehicle diagnosis.*
- *[BACK]: to return to the previous interface.*
- *[HELP]: to display the help information.*

Click [Engine electronics]. If the communication is successful, the screen will display the information on vehicle ECU, as shown in Figure 2-08

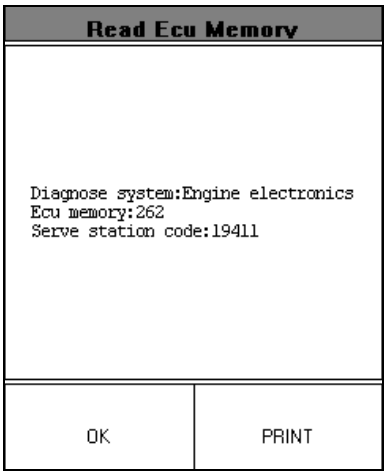


Figure 2-08

Note:
The information is from the vehicle ECU. If you have any question during test, don't hesitate to contact LAUNCH to get answer as soon as possible.

Button descriptions:

- *[OK]: to go on the test.*
- *[PRINT]: to print the displayed information.*

Figure 2-09 shows an example of printed

report

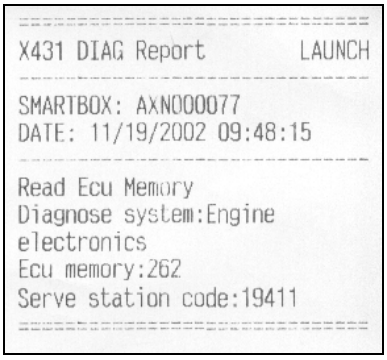


Figure 2-09

Click [OK] button. The screen will display the function menu as shown in Figure 2-10

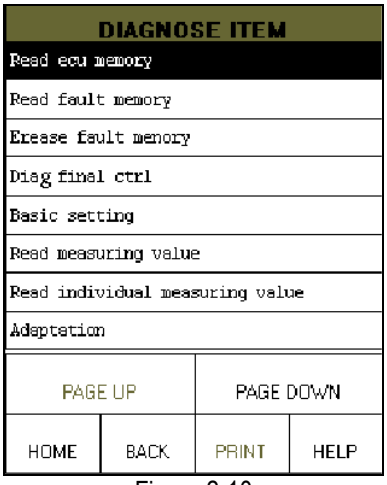


Figure 2-10

Button descriptions:

- *[HOME]: to return to the homepage of vehicle diagnosis.*
- *[BACK]: to return to the previous interface.*
- *[HELP]: to display the help information.*
- *[PAGE DOWN]: to display the next page.*

Click [PAGE DOWN] button to display the second page of the function menu as shown in Figure 2-11

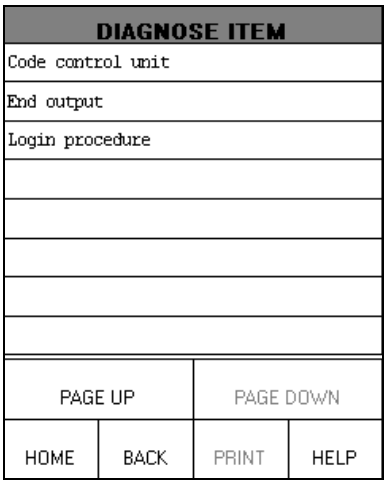


Figure 2-11

Control Module

Read ECU Memory

Click [Read ECU Memory] in the function menu. The screen will display the information on ECU of the tested system. See Figure 2-12

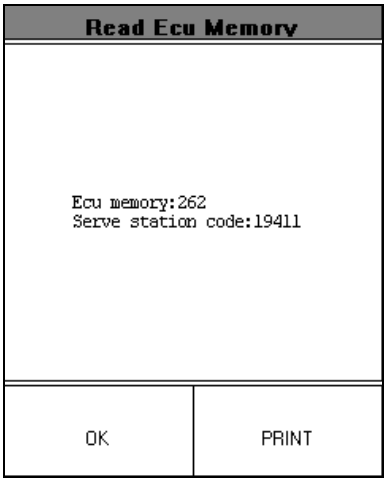


Figure 2-12

Note:
The information is from the vehicle ECU. If you have any question during test, don't hesitate to contact LAUNCH to get answer as soon as possible.

Click [OK] button to return to the function menu.

Read Fault Memory

Click [Read Fault Memory] in the function menu. X431MASTER starts to test the fault code. The screen will display the test result when the test is finished. Figure 2-13is an example of a test.

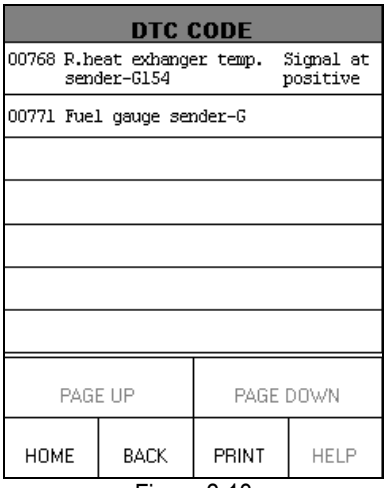


Figure 2-13

Button descriptions:

- *[HOME]: to return to the homepage of vehicle diagnosis.*
- *[BACK]: to return to the previous interface.*
- *[PRINT]: to print the test result.*

Click [PRINT] to print out the test result. Figure 2-14shows an example of printed report.

Figure 2-14

If there is no fault code in the tested system, the display will be as shown in Figure 2-15

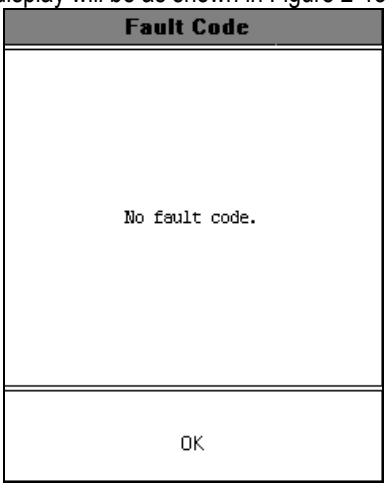


Figure 2-15

Click [OK] button to return to the function menu.

Erase Fault Memory

Click [Erase Fault Memory] in the function menu. X431MASTER starts to erase the fault code. The screen will display the residual fault code after erasing. Figure 2-16 shows an example of the result after erasing.

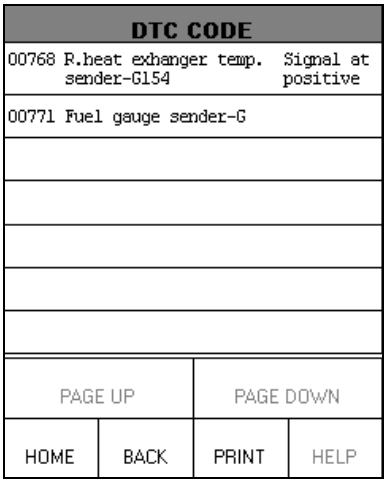


Figure 2-16

Button descriptions:

- *[HOME]: to return to the homepage of vehicle diagnosis.*
- *[BACK]: to return to the previous*

interface.

- *[PRINT]: to print the test result.*

Click [PRINT] to print out the test result. Figure 2-17 shows an example of printed report.

Figure 2-17

If all fault codes are erased or there is no fault code in the tested system, the screen will be displayed as shown in Figure 2-18

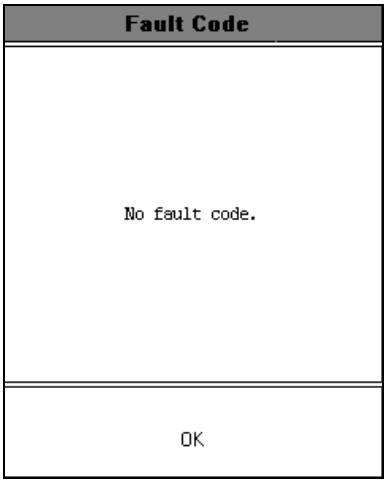


Figure 2-18

Click [OK] button to return to the function menu.

Diagnose Final Control

Click [Diag Final Ctrl] in the function menu. The screen will display the information as shown in Figure 2-19.

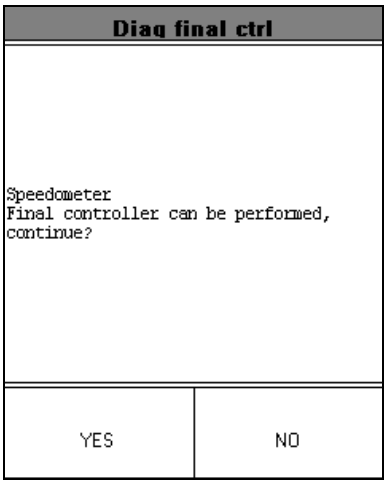


Figure 2-19

Button descriptions:

- *[YES]: to perform the test for next component.*
- *[NO]: to quit the test and return to the function menu.*

When the test for all actuators is finished, the screen will display the information as shown in Figure 2-20.

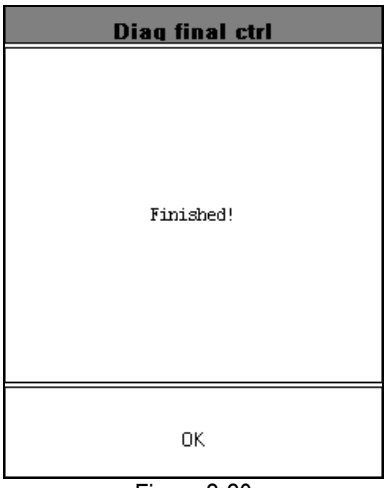


Figure 2-20

Click [OK] button to return to the function menu.

Basic Setting

Basic setting is necessary for some systems after service is done.

Click [Basic Setting] in the function menu. The display will be as shown in Figure 2-21.

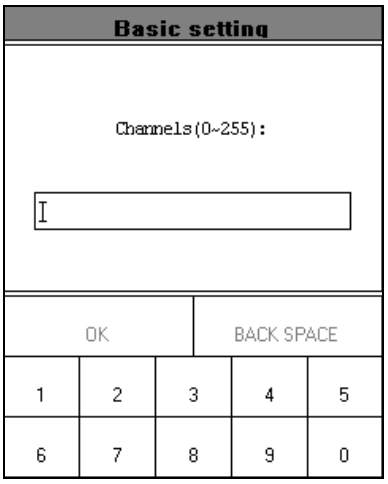


Figure 2-21

X431MASTER prompts user to input the channel No. Click the number button to input the group No., otherwise click [BACK SPACE] to delete the wrong number and input the correct one. After the correct channel No. is inputted, click [OK] button to perform the basic setting for the system.

Read Measuring Value

Click [Read Measuring Value] in the function menu. The screen will be displayed as shown in Figure 2-22.

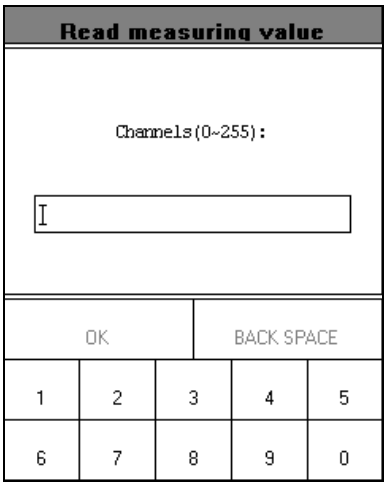


Figure 2-22

X431MASTER prompts user to input the channel No. of data stream. Click the number button to input the group No., otherwise click [BACK SPACE] to delete the wrong number and input the correct one. After the correct channel No. is inputted, click [OK] to perform the function of "read measuring value".

For example, when "1" is inputted for the channel No., the screen will display the live value of data stream of the channel. See Figure 2-23.

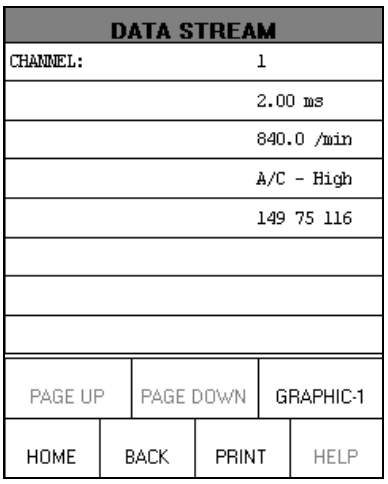


Figure 2-23

To view the waveform of an item, click the item and then click [GRAPHIC-1]. Figure 2-14 shows an example of the waveform.

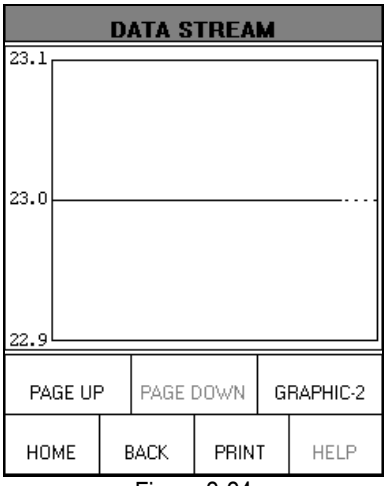


Figure 2-24

Click [GRAPHIC-2] to display the waveforms

of 2 data stream items. See Figure 2-25. It is convenient for the user to make live comparison between two correlative data stream items.

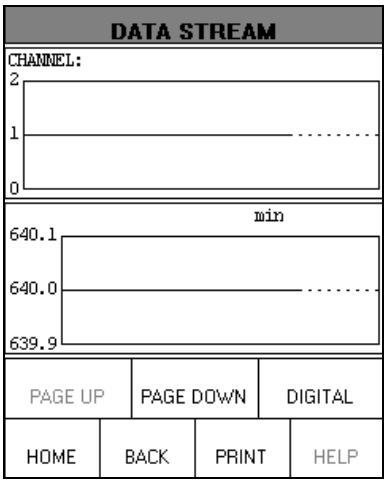


Figure 2-25

Note:

- *The screen will display the live value of data stream again if the [DIGITAL] button is clicked in the interface.*
- *The three display modes -- [DIGITAL], [GRAPHIC-1] and [GRAPHIC-2] can be switched in turn.*

Read Individual Measuring Value

Click [Read Individual Measuring Value] in the function menu. The screen will be displayed as shown in Figure 2-26.

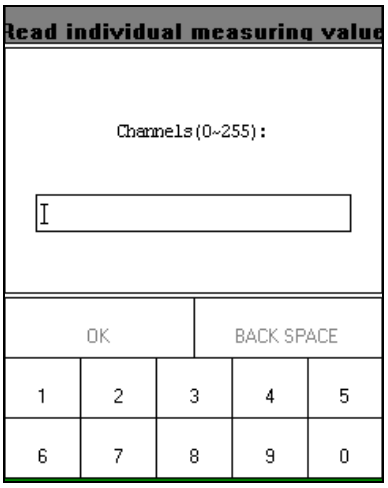


Figure 2-26

X431MASTER prompts user to input the channel No. of data stream. Click the number button to input the group No., otherwise click [BACK SPACE] to delete the wrong number and input the correct one. After the correct channel No. is inputted, click [OK] button to perform the function of "read individual measuring value".

For example, when "1" is inputted for the channel No., the screen will display the live value of the channel. See Figure 2-27.

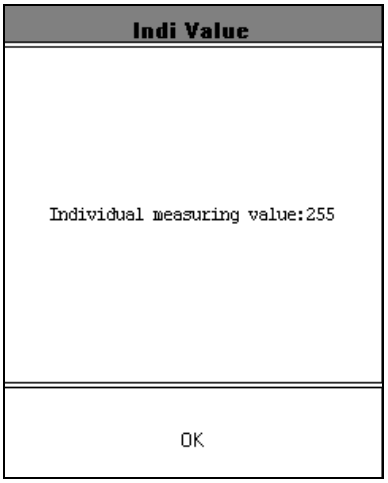


Figure 2-27

Adaptation

Click [Adaptation] in the function menu. The screen will be displayed as shown in Figure 2-28

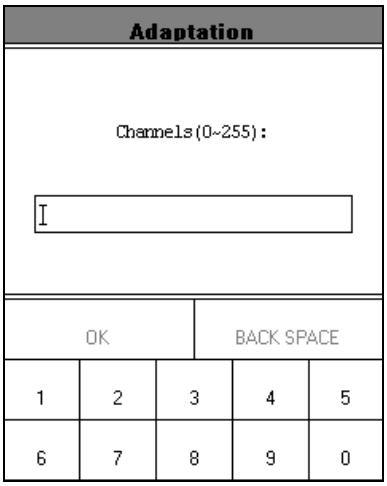


Figure 2-38

X431MASTERprompts user to input the channel No. of data stream. Click the number button to input the group No., otherwise click [BACK SPACE] to delete the wrong number and input the correct one.

After the correct channel No. is inputted, click [OK] button. X431MASTER prompts user to input the service station code. See Figure 2-29.

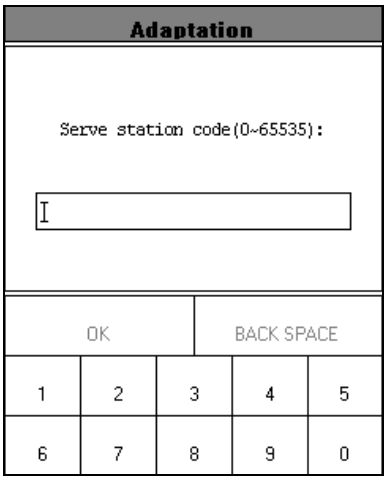


Figure 2-29

After the code is inputted, click [OK] button. X431MASTER prompts user to input the matched data. See Figure 2-30

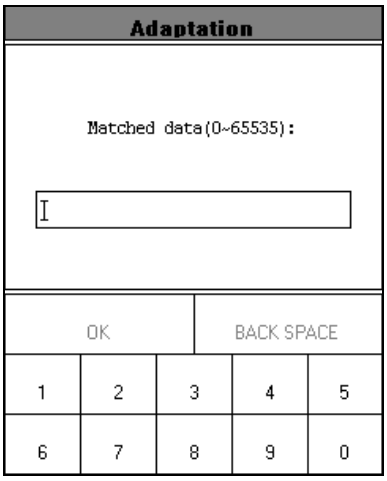


Figure 2-30

After the correct channel No. is inputted, click [OK] button to perform the function of "adaptation".
When the adaptation is successful, the screen will be displayed as shown in Figure 2-31.

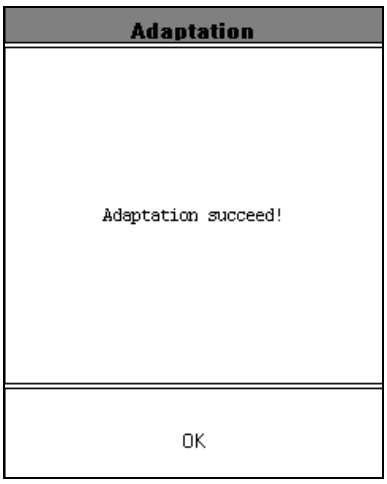


Figure 2-31

Code Control Unit

Click [Code Control Unit] in the function menu. The screen will be displayed as shown in Figure 2-32.

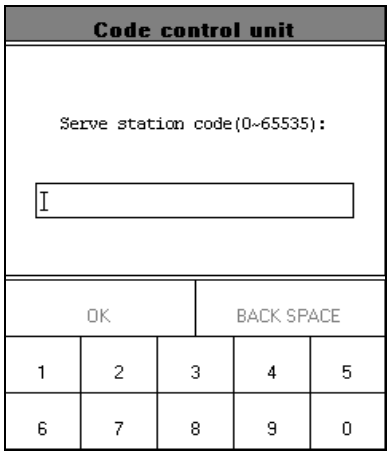


Figure 2-32

X431MASTER prompts user to input the service station code. Click the number button to input the service station code, otherwise click [BACK SPACE] to delete the wrong number and input the correct one.

After the service station code is inputted, click [OK] button. X431MASTER prompts user to input the control unit code. See Figure 2-33.

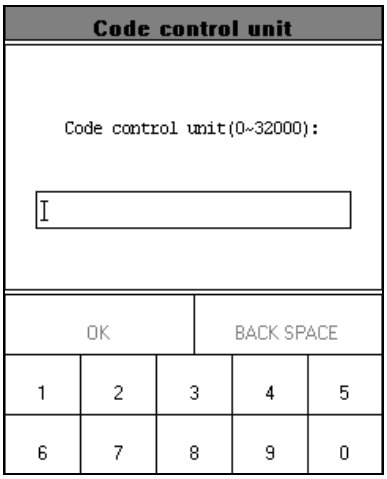


Figure 2-33

Click the number button to input the control unit code, otherwise click [BACK SPACE] to delete the wrong number and input the correct one.

After the correct control unit is inputted, click [OK] button to perform the function of "code control unit".

If the control unit can be coded, the screen will be displayed as shown in Figure 2-34.

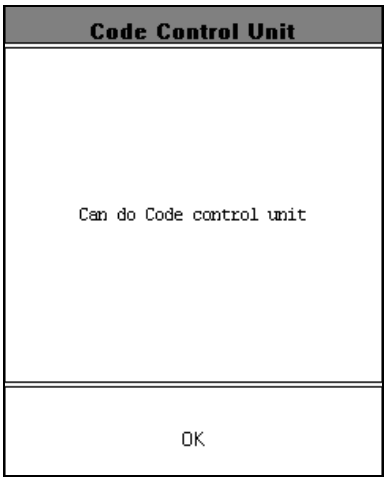


Figure 2-34

If the control unit can't be coded, the screen will be displayed as shown in Figure 2-35.

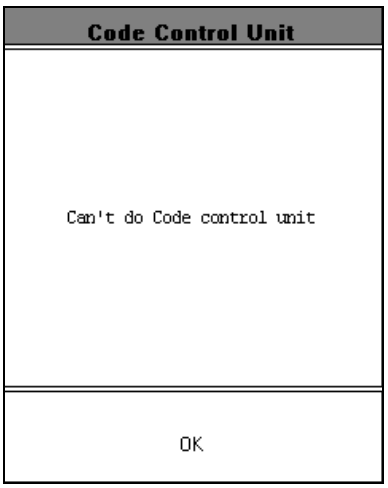


Figure 2-35

End Output

Click [End Output] in the function menu. X431MASTER will return to the menu of tested systems.

Login Procedure

Note:
Perform this function first before performing the functions like "code control unit", "adaptation", etc.

Click [Login Procedure] in the function menu. The screen will be displayed as shown in Figure 2-36.

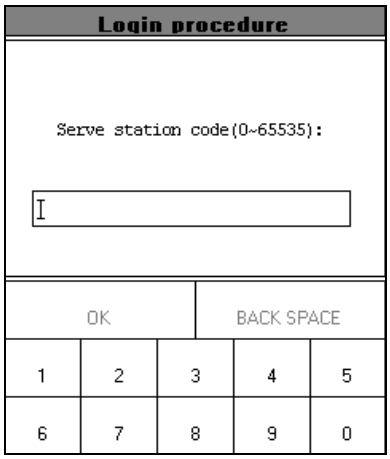


Figure 2-36

X431MASTER prompts user to input the service station code. Click the number button to input the service station code, otherwise click [BACK SPACE] to delete the wrong number and input the correct one.

After the service station code is inputted, click [OK] button. X431MASTER prompts user to input the password. See Figure 2-37.

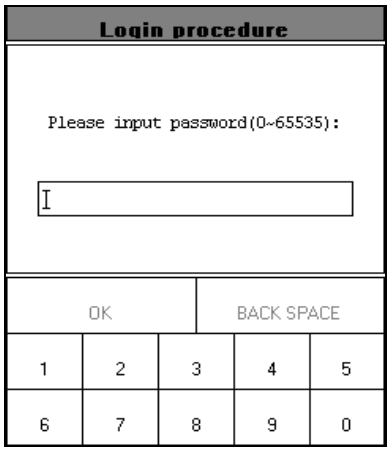


Figure 2-37

Click the number button to input the login password, otherwise click [BACK SPACE] to delete the wrong number and input the correct one.

After the login password is inputted, click [OK] button. X431MASTER starts to log in. When the login is successful, the screen will display the information as shown in Figure 2-38.

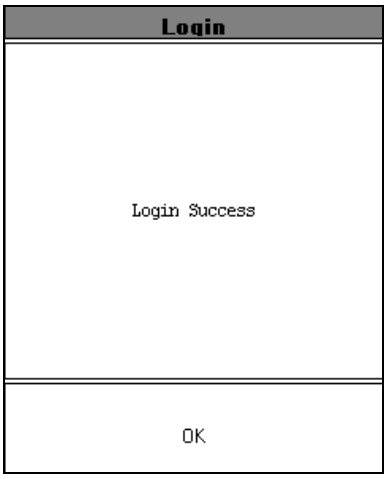


Figure 2-38

Click [OK] button to return to the function menu.

DataStream Record Function

The save and display functions of DataStream enables you get the history DataStream and they are very important when asking for technical support and for troubleshooting.

Save DataStream

Selected 'read data stream' function, as shown in figure 2-39

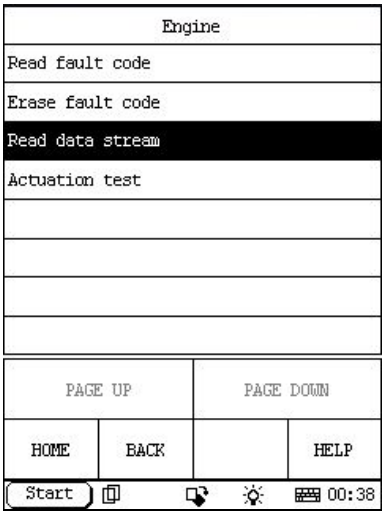


Figure 2-39

Then, the interface will display as shown in figure 2-40.

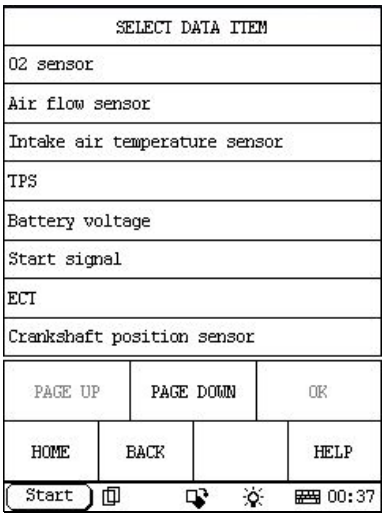


Figure 2-40

Select DataStream you want to view, as shown in figure 2-41

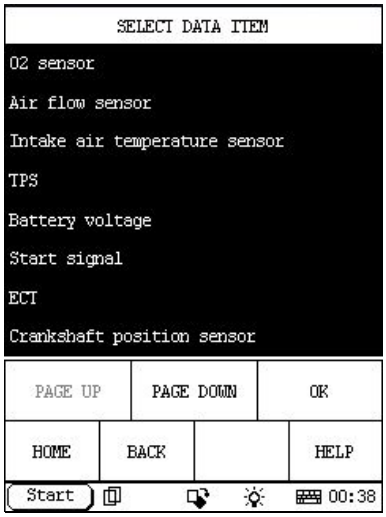


Figure 2-41

Click 'OK' to show the data, as shown in figure 2-42.

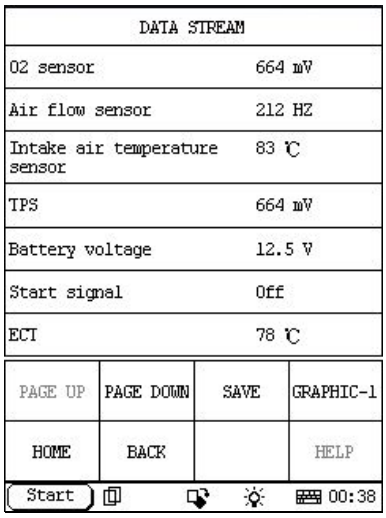


Figure 2-42

Click 'save', the interface as shown in figure 2-43 will appear:

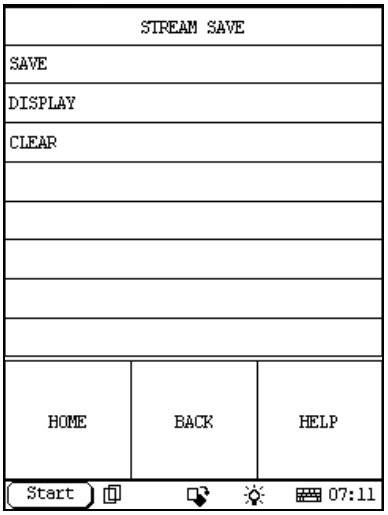


Figure 2-43

Click 'Save', and then input a filename after the soft keyboard has been activated (see figure 2-44):

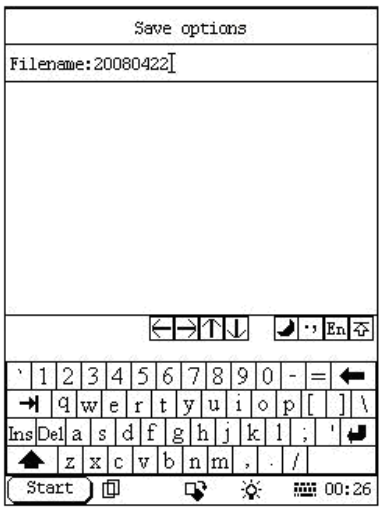


Figure 2-44

After the filename has been input, click the icon of the soft keyboard at the bottom right of the interface to confirm the input, the interface will display as shown in figure 2-45.

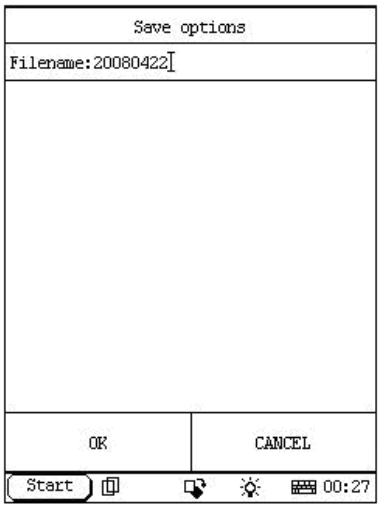


Figure 2-45

Click 'ok' at the bottom left of the interface to begin saving the DataStream.

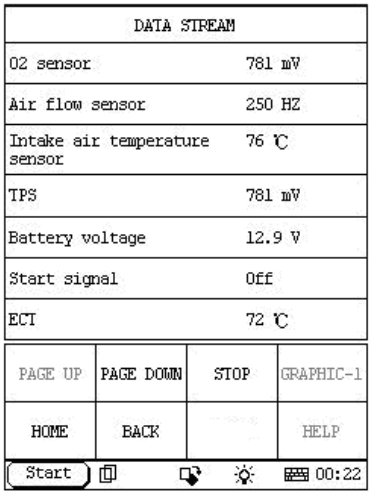


Figure 2-46

Click 'stop' as shown in figure 2-46, DataStream of a specific duration (10 minutes at most) has been saved. The below interface will appear:

Figure 2-47

User could judge working status of the vehicle and select None/Good/Bad accordingly (see figure 2-47), Click 'Good' for example, 'Stream save' interface will appear (see figure 2-48).

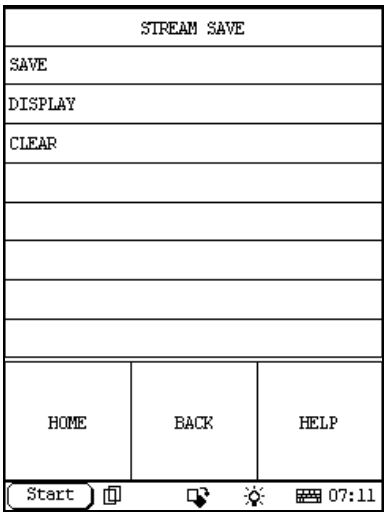


Figure 2-48

Click 'display' to view the saved DataStream of the specific duration.

Display DataStream

To display/view DataStream records, make sure X431MASTER enters Read DataStream function menu, only with this function, could the saved data be available and the related file be visited.

The 2 ways for DataStream display are as follows:

1. Connect and enable communications between X431MASTER and the vehicle, entering interfaces as shown in figures from figure 2-42, to figure 2-56, figure 2-57 and figure 2-58.

2. Download and install Demo program from www.x431.com, actuate Demo program and enter interface as shown in below figures from figure 2-49 to figure 2-58.

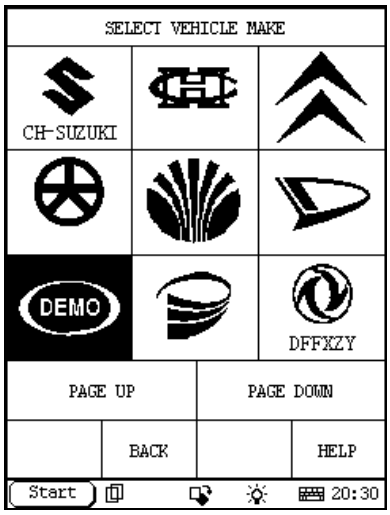


Figure 2-49 (click 'DEMO')

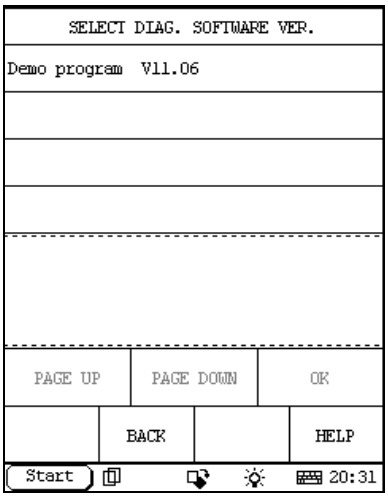


Figure 2-50 (select 'Demo program V11.06)

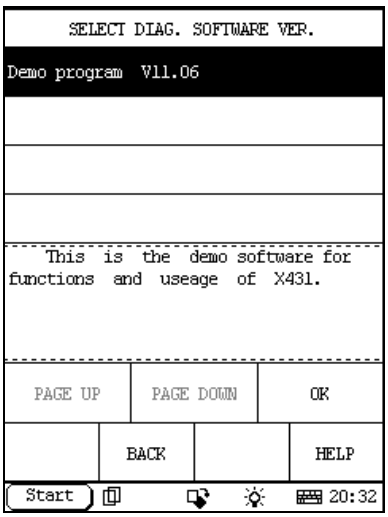


Figure 2-51 (click 'OK')

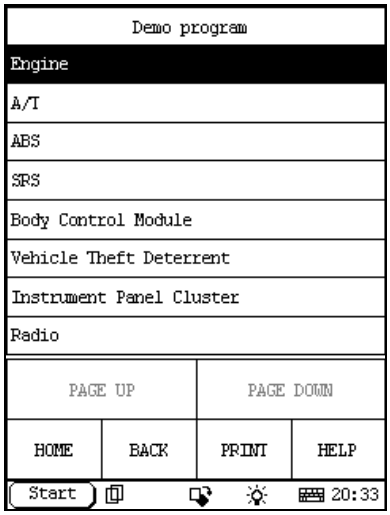


Figure 2-52 (select 'Engine')

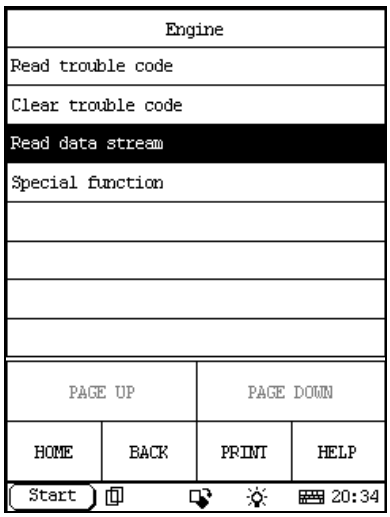


Figure 2-53 (select 'Read data stream)

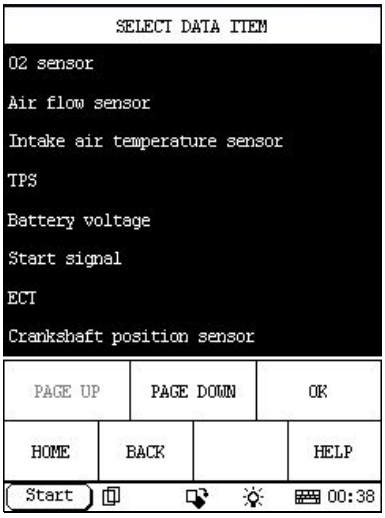


Figure 2-54 (select data items to be viewed)

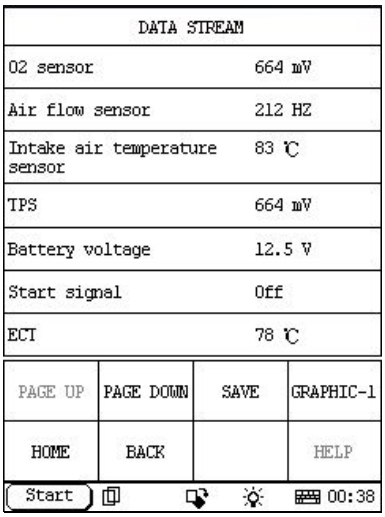


Figure 2-55 (slick 'save')

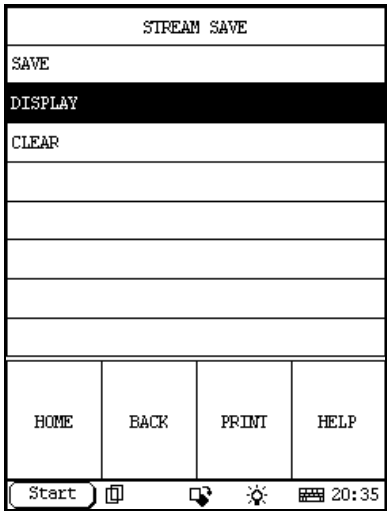


Figure 2-56 (click 'Display')

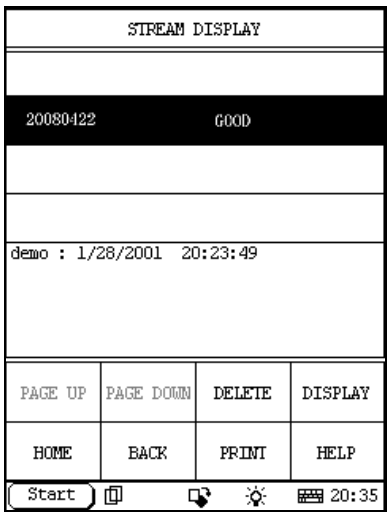


Figure 2-57 (select filename and click 'Display '/ 'Delete')

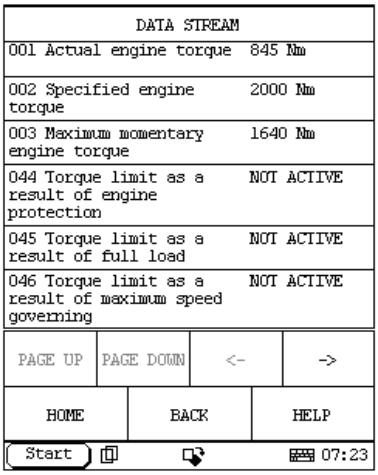


Figure 2-58 (click <— or —> to view data)

In figure 2-56, click Display, all the saved files of the DataStream will be displayed as shown in figure 2-57. A file indicates the name of the diagnostic program used, the date and the time of the recording, these information enable user find out the needed records. In figure 2-60, select a saved file and click Display, one frame of the data will be displayed as shown in figure 2-61, click <—or —> to view the previous or next frame of the data. View and consider the data to find out the changes as well as the similarities and differences before/after the fault, thus to facilitate the analysis and removal of the faults.

Clear DataStream

How many data could be recorded is subject to the storage in the CF card. Clear the data if the CF card storage is not enough or there is some unnecessary data record. The same as DataStream display, entering the interface as shown in figure 2-45 is necessary to clear DataStream and perform relative operations. In the interface as shown in figure 2-45, click Clear, the interface is displayed as shown in figure 2-60, select the file you want to deleted, and click Delete, the file is deleted from the CF card.

Update of Diagnostic Software

The X431MASTER comes preloaded with the software that was available at the time of the unit's production. This software may be several versions behind what is currently available on the Internet, but you can update the X431MASTER through the Internet.

Hardware Requirement:

1. A computer that can access the Internet.
2. A CF card reader/writer and a CF card that need to be updated.

See Figure 3-01 for hardware connection.

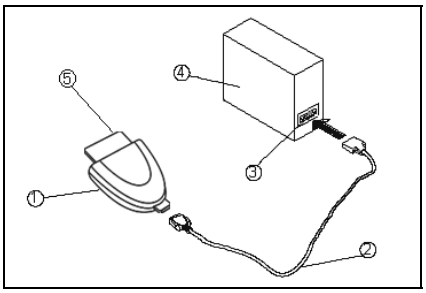


Figure 3-01

1-CF card reader/writer 2-USB cable
3-USB Port 4-Computer 5-CF card

- Insert the CF card into the CF card reader/writer.
- Connect one end of the USB cable② to the port of the CF card reader/writer①, and the other end to the USB port of the computer.

User Registration

Log on www.X431.com. Select language on the pull-down menu at the upper left of the interface to enter the homepage. See Figure3-02.

Figure 3-02

Click "Register" in the interface as shown in Figure 3-02 to open the window as shown in Figure 3-03.

Figure 3-03

Note:
When the member purchases one or more products after registration, he should log onto the member area, and then click "product control" to register the newly purchased product. Refer to the section "Member login".

The terms of service is shown in the screen. After reading and fully understand it, click "I accept" button to enter the interface as shown in Figure 3-04.

Fill in Product Information

Fill in the serial No. of X431MASTER Smartbox, registration No. and dealer code in the interface as shown in Figure 3-04.

Figure 3-04

The serial No. is marked on the back of Smartbox.. The registration No. is in an envelope delivered with the product (the number must be kept confidential). The dealer code is attached on the last page of the user's manual.
After the information is filled, click "Next step" to enter the next interface as shown in Figure 3-06.

Note:
1. *When a product is sold, the dealer will log onto www.X431.com and enter the dealer code in the "Dealer administration" area so that the user can do effective registration later. User should contact the dealer if registration cannot be done effectively.*
2. *If the filled serial No. or registration No. is invalid, the screen will display the message as shown in Figure 3-05. Click "OK" button to return to the previous interface to re-fill the correct numbers.*

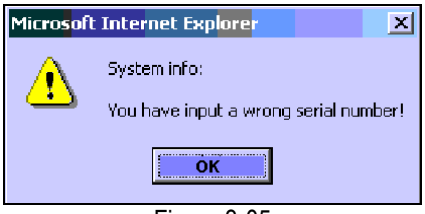


Figure 3-05

Fill in User Information

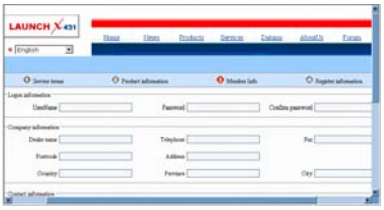


Figure 3-06

After information is filled in the interface shown in Figure 3-06(The red textbox must be filled. After registration, we will send the confidential information to your registered e-mail, so please make sure that your e-mail is valid.), click "Next step", and then the screen will display the interface shown as in figure 3-07. Click "OK' then the registration is completed.

Figure 3-07

Note:
Only the registered user can download and update the software.

Software Update

Member Login

1. Connect to the Internet.
2. Go to: www.x431.com
3. You are now on the entrance page of the X431MASTER Updating area. If you look to the lower left, you will see the Login/Registration area (see figure 3-08).

Figure 3-08

4. In the Username field input your username.
5. In the Password field input your password.
6. In the Verification Code field input the verification code.
7. Make sure the User type is set to Customer.
8. Click Login.

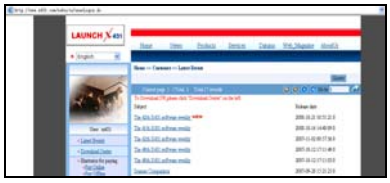


Figure 3-09

9. Click Download Center on the left of the interface.
10. You are now in the Download Center.

The Download Center

You should consider the Download Center as your primary source of information for all X431MASTER software updates.

The Download Center consists of a table with the following 7 columns.

Column 1	Lists the software letter or number. Letters represent system software. Numbers represent software for a particular car line. Lowercase letters are required.
Column 2	Displays the software name.
Column 3	Lists the latest version of the software.
Column 4	Lists the release date of the version in Column 3.
Column 5	Contains information on the latest available software version.
Column 6	Contains a pull-down menu with all of the available languages for that software version.
Column 7	Contains the links to either view information or download the software.

Software Download

The following software downloads are required: X431Master SYSTEM DATA, X431MASTER DISPLAY PROGRAM, and X431 SERIES UPDATE TOOLS. These downloads are grouped in the lowercase letter section.

X431 SERIES UPDATE TOOLS is an Application Download Manager that you install on your PC

and allows you to transfer downloads from your PC to the Compact Flash Card which will discuss on next pages.

The DISPLAY PROGRAM and SYSTEM DATA downloads provide program information for the X431MASTER. These downloads are necessary for the X431MASTER to function correctly. Both of these downloads have multiple versions, so be sure to check them once in a while to make sure you have the most current version.

Typically though, all three of these downloads are performed infrequently.

The first download is the X431 Series Update Tools. This file can be downloaded from this page, as noted in figure 3-10, you will not save this file, you will select RUN after clicking 'DOWN' (Download) as noted in figure 3-10. This program will update your CF card when you are completed with downloading each of the software updates. After clicking "Down", you will complete the following steps.

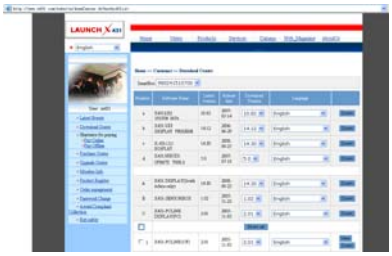


Figure 3-10

NOTE：It's important to note that the X431 Series Update Tools download is the only download in which you will select "Run" when the download window appears. All subsequent downloads will utilize the "Save" function. This is explained in step-by-step detail in the pages ahead.

NOTE：If you click Download and nothing happens, it may be because you have pop-up blocker software enabled. Try holding the CTRL key at the same time as you click Download. Hold the CTRL key until you see the download begin. If that does not work, you will have to disable your pop-up blocker software in order to download. This may be crucial for AOL users.

1. The File Download window appears. Be sure that File name is the file that you just selected. Click Run (see figure 3-11).

Figure 3-11

2. The following window shows the download progress (see figure 3-12).

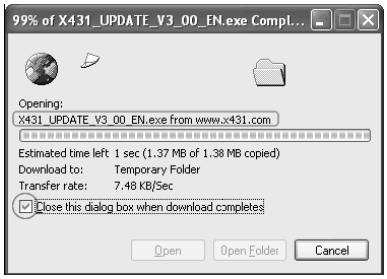


Figure 3-12

3. When the download completes, you will be shown the following dialog box. Select Run (see figure 3-13).

Figure 3-13

4. The X431 SERIES UPDATE TOOLS install wizard appears, with the Welcome window displayed (see figure 3-14). Click Next.

Figure 3-14

5. The Choose Destination Location window appears. Click Next to accept the default destination or click Browse to choose a different folder (see figure 3-15).

Figure 3-15

The Setup Complete window appears (see figure 3-16). Click Finish.

Figure 3-16

Once you click Finish, you will be returned to the Download Center.

NOTE: If you click 'Download' and nothing happens, it may be because you have pop-up blocker software enabled. Try holding the CTRL key at the same time as you click 'Download'. Keep the CTRL key depressed until the download begins. If that does not work, you will have to disable your popup blocker software in order to download. This may be crucial for AOL users.

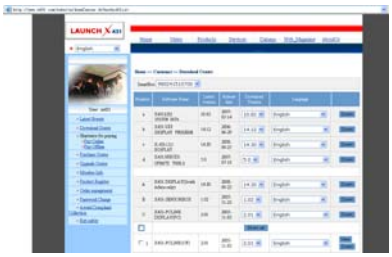


Figure 3-17

6. You are now ready to begin downloading the latest version of X431MASTER DISPLAY PROGRAM, which will be immediately followed by the downloading of X431MASTER SYSTEM DATA. These utilities must be downloaded. You will click on the 'Down' button in the last column for each of the files (see figure 3-17).

7. The File Download window appears after clicking 'Down' (see figure 3-18). Click Save.

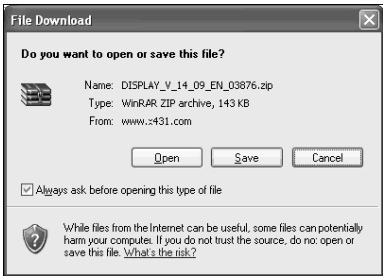


Figure 3-18

Next, the Save As window appears. Here you will need to select the folder where you will store all of your downloads. We recommend that you create a folder on your local drive called *X431MASTER*

Downloads, so that you will always know where to find all of your updates. Make sure to save all your downloads in the same folder or location. To do this, follow these steps. If you have already completed this step, you will continue saving updates in this location.

8. On the left-hand side, click My Computer. Then from the Save in: pull-down at the top, select Local Disk(C:) (see figure 3-19, and most likely your local drive is the C: drive).

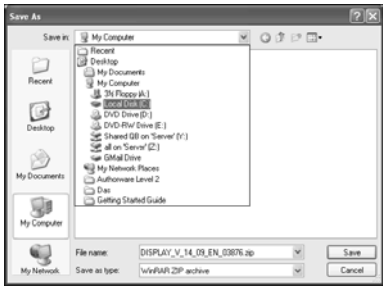


Figure 3-19

9. The folders contained in your local drive are displayed in the main window. Click the Create New Folder icon (as shown circled below). A New Folder will appear in the main window underneath the other folders (see figure 3-20). Type X431MASTER Downloads and press ENTER.

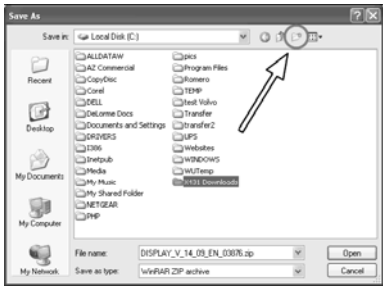


Figure 3-20

10. You have now created your X431MASTER Downloads folder. Select this folder and click Open.

11. A new Save As window will appear. It should resemble the window as shown in figure 3-21.

Click Save. The download will now begin.

Figure 3-21

a. The window as shown in figure 3-22 will appear notifying you of your downloads progress.

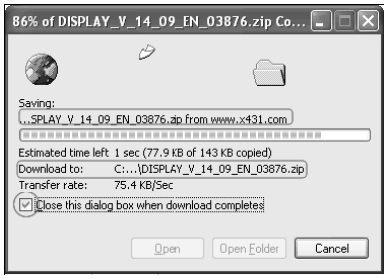


Figure 3-22

Click the checkbox that reads, "*Close this dialog box when download completes*" if you want to return directly to the previous window once the download is finished.

12. Repeat steps 6-11 for the remaining software downloads.

Show All

If you need to download many car lines, and would like to see all available car lines while downloading, click the Show All link just above vehicle car lines (see figure 3-23). Note, the checkbox to the left is not associated with 'Show All'.

Figure 3-23

NOTE: You may not need to download every car line. In the United States, it is unlikely that you will work on Opel or Fiat. Keep in mind that you can always come back and download anything else you might need later.

After you have finished downloading all of the car lines that you need, your next step is transfer the software to the CF Card.

Downloading to the CF Card Reader

If you go to your Desktop, you will notice a new icon has been added to it. 

You will use this program to transfer software to the CF Card.

Updating the CF Card

1. If you have not already done so, connect one end of the USB cable to the CF Card Reader and the other end to a free USB port on your PC.
2. Install CF Card into reader.
3. Double-click the X431MASTER Update icon on your Desktop. The X431MASTER Update program opens.

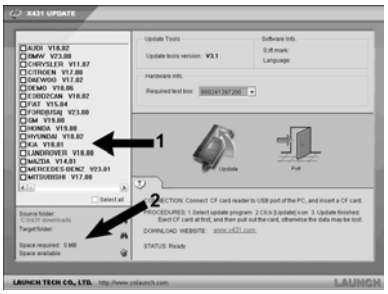


Figure 3-24

There are two areas on this window to which you need to pay attention (see figure 3-24). In the upper left corner is the vehicle list, which is taken directly from the *X431MASTER Downloads* folder that is on your local drive. Each vehicle line title is followed by its version number. Also notice the empty checkboxes next to each line. You can check these off one by one to select the lines that you want to make available to the X431MASTER. Or at the bottom of the list you can check off the *Select all* checkbox to select all of the lines in the list. Any programs you load onto the CF Card remain there until you manually delete them.

The second area is below the vehicle list and contains your *Source folder* destination, *Target folder* destination, and the space statistics for your CF Card. Your *Source folder* is the *X431MASTER Downloads* folder that you created previously. The *Target folder* is the *CF Card Reader*. The space statistics will change depending on the contents of the *X431MASTER update* folder and the capacity of the CF Card.

4. To change the *Source folder*, click the binoculars  to the right.

a. Select the correct folder, and click OK (see figure 3-25)(C: -> X431MASTER Downloads)

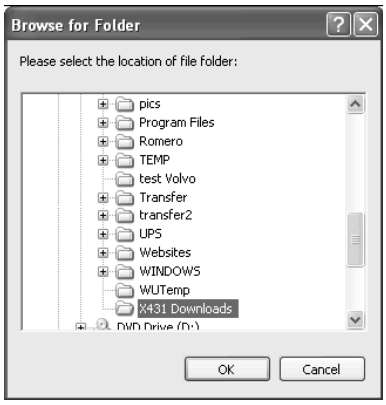


Figure 3-25

b. If you need to change the *Target folder*, click the binoculars, select the correct drive, and click

OK.

Figure 3-26

You only want the outermost file in the target drive selected. For example, if the removable drive is E:, and it has two subfolders, DATA & GAG, you want the target to read E:, not E:\DATA or E:\GAG. The update program will place the software into the appropriate folders automatically.

NOTE: The correct drive is a Removable Disk drive. If you are not sure which is the right drive, the way to check is when the CF Card is inserted in the Reader, the correct drive will have two folders in it: DATA and GAG (as shown in figure 3-26).

5. Once you have selected your updates and determined your source and target folders, click the X431MASTER Update icon 

.
NOTE: The light on the CF Card Reader will flicker while the card is being updated.

6. When it is finished updating, a pop-up window will appear as shown in figure 3-27.

Figure 3-27

Click OK.

7. Your CF Card is now updated. Click the Exit icon. 

WARNING: DO NOT REMOVE THE CF CARD YET.

Ejecting the CF Card

If you pull out the CF Card without ejecting it, you can lose data. Always follow these steps to eject the CF Card (see figure 3-28).

1. Open My Computer from your Desktop or the Start menu.
2. Right-click Removable Disk. A pop-up menu appears. Click Eject.

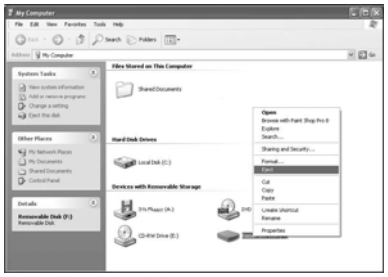


Figure 3-28

It is now safe to remove the CF Card.

Formatting the CF Card

Formatting the CF Card deletes all of the files that are stored on it. You may experience errors while trying to update your card. Formatting your card clears the data and allows a fresh update to complete successfully.

To do this, follow these steps (see figure 3-29).

1. Open My Computer from your Desktop or the Start menu.
2. Right-click Removable Disk. A pop-up menu appears. Click Format.

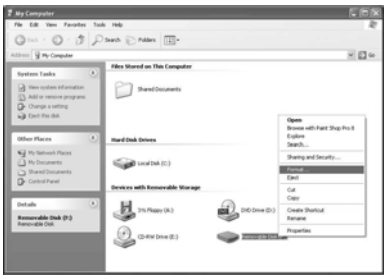


Figure 3-29

The CF Card is now formatted.

NOTE: You may want to format your CF Card if you do not plan to use all of the car lines. Format your card first and then update it.

Deleting Old Software Versions from CF Card

You can delete old versions of software from your CF card using the same X431MASTER Update software on your desktop.

1. Connect your CF Card to the reader
2. Double Click the X431MASTER Update software icon on your desktop
3. Select the software versions you'd like to delete by placing a checkmark next to its name (See figure 3-30)
4. Click the trashcan icon (See Figure 3-30)
5. Select 'Delete' when the program asks you to confirm the delete

Figure 3-30: Software Deletion from CF Card using X431MASTER Update software

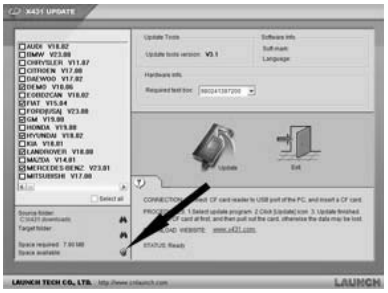


Figure 3-30

Software Purchase and Update

If users can't find the software that he needed, at this time users should buy the software in the purchase center. Log on the www.X431.com then enter the interface as shown in Figure 3-31.

Figure 3-31

Click [purchase center] to choose the serial number, and then tick in front of the serial number (see figure 3-32).

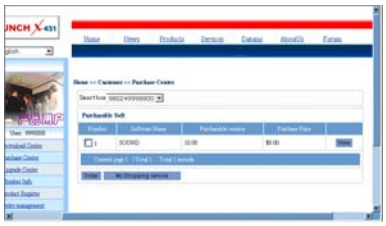


Figure 3-32

Take the Transporter & V Class as an example, click the [view], that is in the same line with the Transporter& V Class. The screen will display the concrete information about the Transporter & V Class diagnostic software.

A new page will appear when user clicks "Download" button. The pop-up window will show the description for updating the downloaded software.

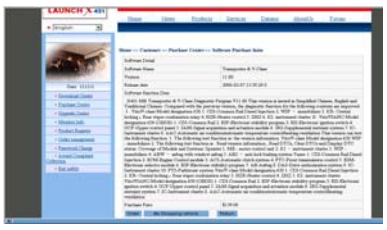


Figure 3-33

Click 'order' to add the selected software to shopping chart. (See Figure 3-33).

Figure 3-34

Click 'pay' to buy the software. The bought software will be automatically added to the user's download center.

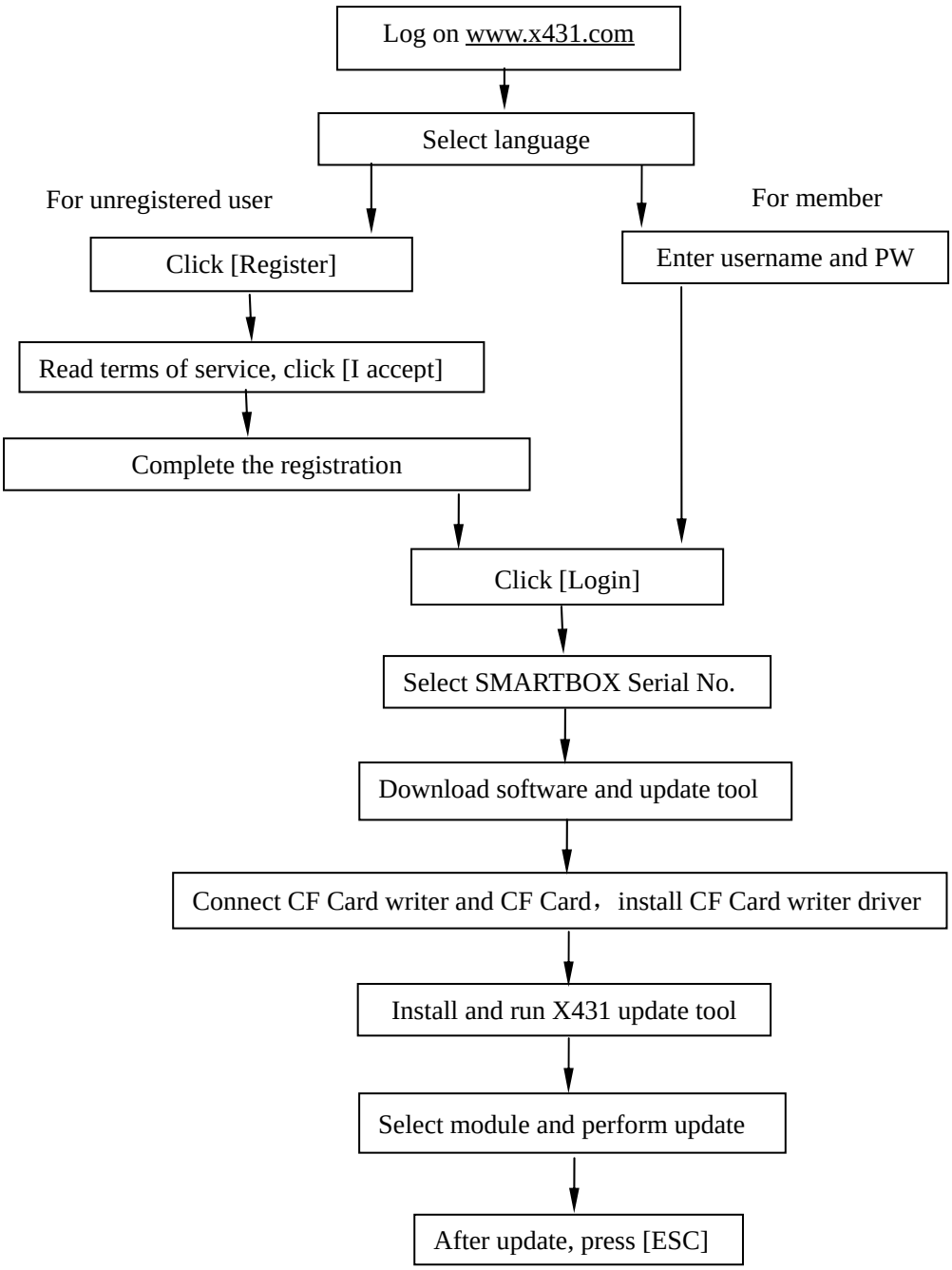
Click 'clear' to clear all the software in the shopping cart.

Click 'purchase other' to buy other software. (See Figure 3-34).

Note:

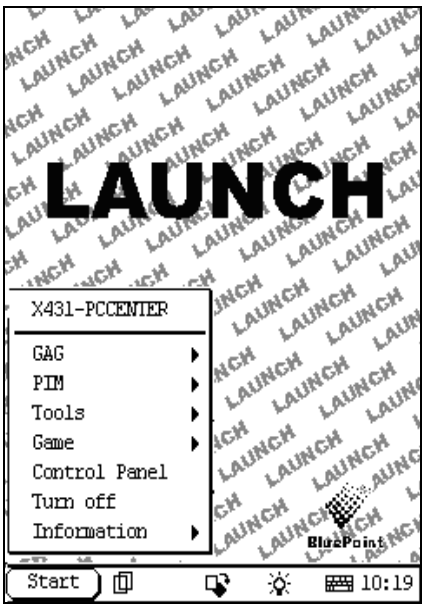
The operation for update center is the same as for the purchase center.

Flow Chart of X431MASTER Update for New User



PDA function of X431MASTER

The Start menu, which includes PDA functions of X431MASTER is shown in the below figure. Select with stylus to actuate these functions.



List of PDA functions (Figure 4-01)

PIM (Personal Information Management)	Memo	To record all kinds of important information and ideas, and make corresponding classification.
	Address	To store the detailed information of relative, friends, colleagues and business partners, which can be easily edited, retrieved and searched.
	To Do	It is convenient for user to record the business to do or being done, to delete or add task records, to arrange the priority of tasks, and to browse the classified tasks.
	Schedule	To arrange the appointments, journeys and meetings in a whole day; to check time schedule on business daily, weekly, monthly and/or annually; and to describe the place, time and other details for each schedule record.
Tools	Calculator	Both simple and scientific calculators are available.
	World Time	The time of many big cities in the world are offered. It is a helpful assistant for your travel.
	Mini Dictionary	An English-Chinese dictionary embodies a large number of words, which cover all fields to overcome your inconvenience in language.

	Picture View	To enjoy all kinds of pictures which can be zoomed in/out.
	Run	To start executable applications which are based on the operating system of the unit.
Game	FIR	It is a kind of chess.
	Reversi	To play for a while in your leisure time.
Control Panel	Application	To link the application with the 'Start' menu, or delete it from the 'Start' menu.
	Power Management	To preset the use of power to save on electricity as possible.
	Clock Set	To set the system time.
	Contrast	To adjust the contrast of display.
	Language Set	To select language to be used.
Vehicle maintenance	Vehicle diagnosis	Professional function of vehicle diagnosis.
	Sensor test and simulation	To test the sensor on vehicle and simulate the output signal from the sensor.

System Information

User Information

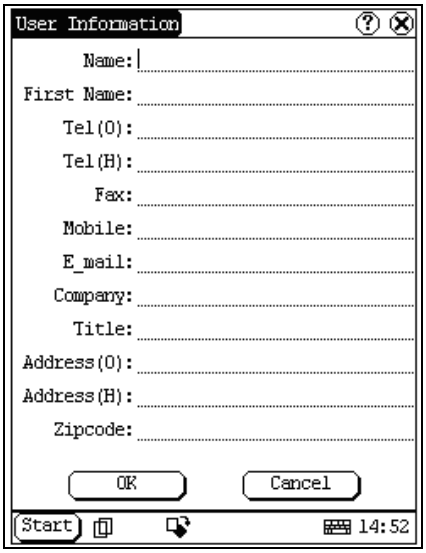


Figure 4-02

User information was input by user. Registration of your information will better guarantee your rights and interests.

1) Click [Start] Button;
2) Select [System Information] in the pop-up menu.
3) Select [User Register] from the pop-up list of [System Information] to open User Information interface.
4) Activate soft keyboard for inputting the information
5) Click [OK] to save and quit current interface.

About

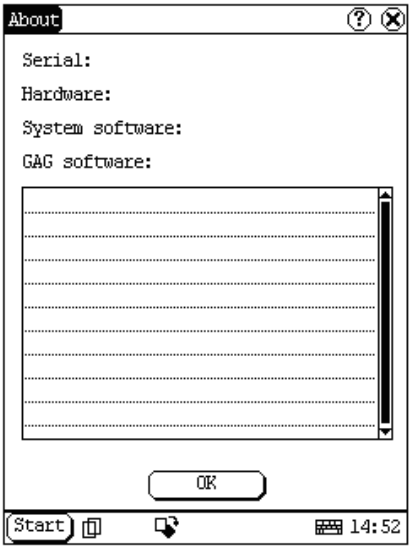


Figure 4-03

Click [About] in the list of [System Information] to display the hardware and software information of the related system. Click [OK] to quit the about interface.

Tools and Games

Tools

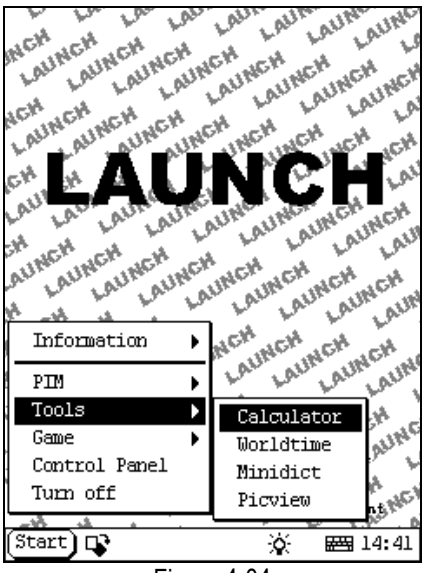


Figure 4-04

1) Click [Start] button.

2) Select 'Tools' in the pop-up menu.
3) Select the function needed in the pop-up submenu. (Refer to Figure 4-04)

Calculator

This calculator can perform not only common calculations as a simple calculator, such as addition and subtraction, but also the function operations as a scientific calculator, such as logarithm and factorial. (Refer to Figure 4-06).

1) In the pop-up menu of 'Tools', select 'Calculator' to open the Calculator interface.
2) Click the square overlap icon on upper left of the screen to switch between scientific calculator and simple calculator.
3) Click 'Unit Conversion' button to switch between unit conversion calculator and simple calculator.

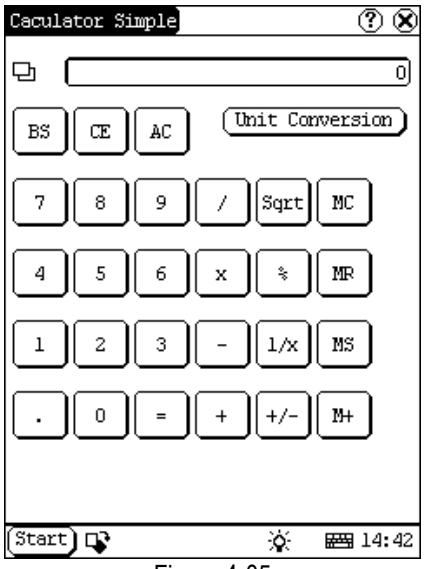


Figure 4-05

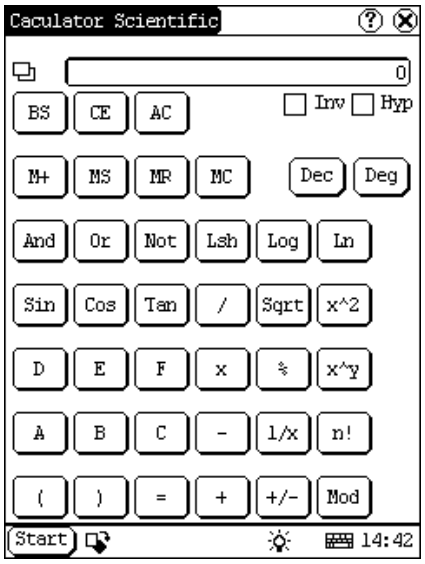


Figure 4-06

Common Calculator (Refer to Figure 4-05):

1) Click numeral keys on the screen to input.
2) Or activate Soft Keyboard, and click numeral key on Soft Keyboard to input.
3) The operation is the same as that for normal calculator.

Unit Conversion Calculator (Refer to Figure 4-07):

1) Click 'Unit type' button at the top right corner to select unit type.
2) Input the number to be converted in the blank next to the unit name, and then you will see the conversion result.
3) If you want to return to simple calculator, please click 'X' button at the top right corner to close the current interface.

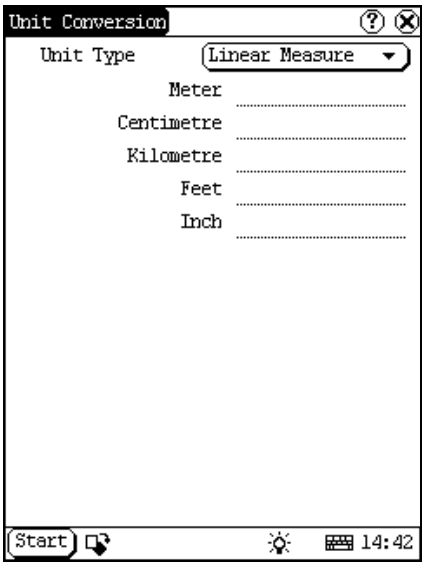


Figure 4-07

World Time

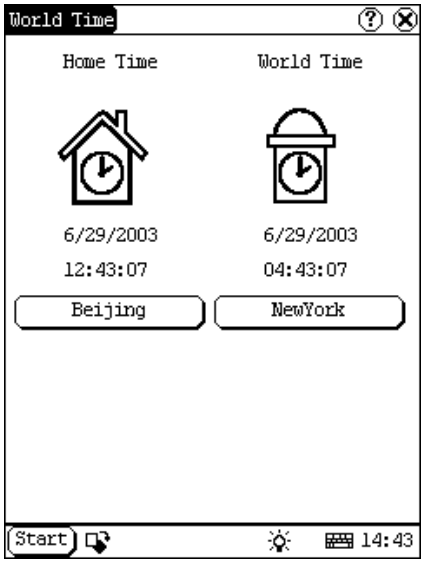


Figure 4-08

1) In the pop-up menu of 'Tools', select 'world time' to open the world time interface.
2) Click the button under the 'Home Time' icon to select region.
3) Click the button under the 'World Time' icon to select region.
4) Then you can see the time directly. (See Figure 4-08).

Dictionary

1) In the pop-up menu of 'Tools', select 'Dictionary' to open the Dictionary interface. (See Figure 4-09)
2) Activate Soft Keyboard, and input words.
3) Select the word from the list on the left.
4) Click the word, and then you can find the translation in the right list.

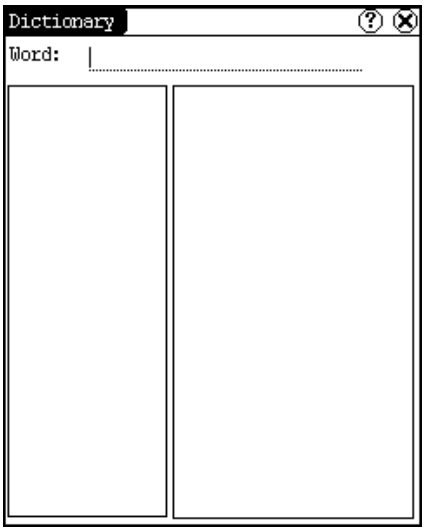


Figure 4-09

Picture View

1) Click [Start] button.
2) Select 'Tools' in the pop-up menu. (See Figure 4-10)
3) In the pop-up 'Tools' list, select 'Picview' to open the Picture interface.
4) In the Picture interface, click  icon in the toolbar on the top. (See Figure 4-11)
5) Select directory from the left list interface.
6) Select file from the right list interface.
7) Click [Parent Dir] button, and you can see the directory of current directory's parent.
8) You can see the directory of the picture at the right side of 'Path'.
9) You can see the file name of the picture at the right side of 'File'.
10) Click [OK] button to open the picture.

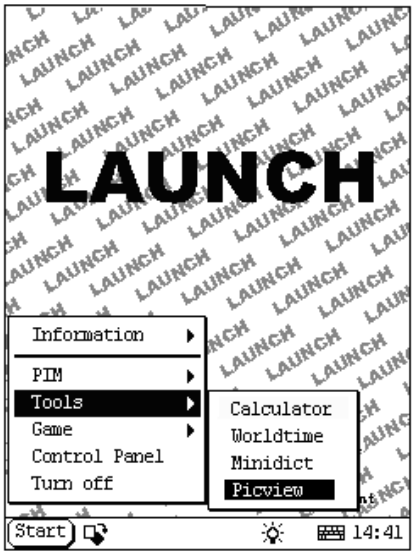


Figure 4-10

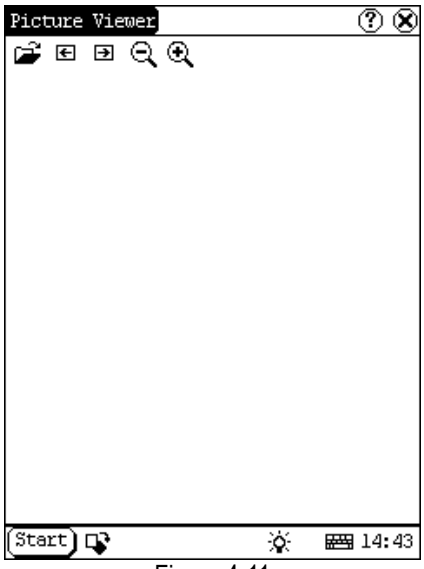


Figure 4-11

Browse the pictures in current directory

1) In the Picture interface, click icon on the top to browse the previous picture.
2) In the Picture interface, click icon on the top to browse the next picture.

Note:
This operation is needed only when more than one picture has been stored.

Zoom in and zoom out:

In the Picture interface, click or icon on the top, then you can zoom in or zoom out the current picture at will.

Game

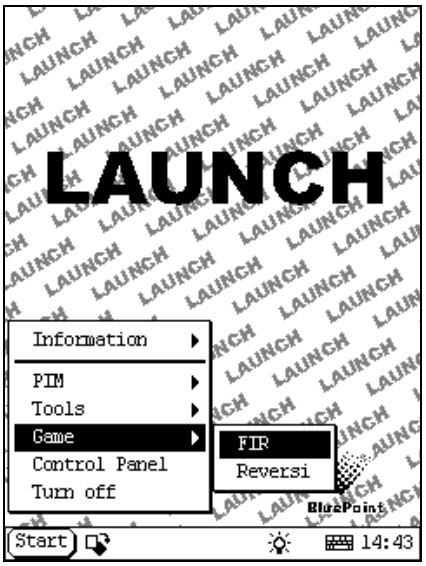


Figure 4-12

1) Click [Start] button.
2) Select 'Game' in the pop-up menu.
3) Select the function in the pop-up submenu. (See Figure 4-12)

FIR

1) In the pop-up submenu of 'Game', select 'FIR' to open the Chess Board.
2) Click black or white chessman to begin the game. The one who select the black chessman will start first. (See Figure 4-13)

Rules for the game:
You must try to make your five chessmen line up and prevent your opponent from achieving this goal in the process. The one whose 5 chessmen are lined up first is winner. You can choose the black or white chessman at the bottom of the Chess Board before starting playing.

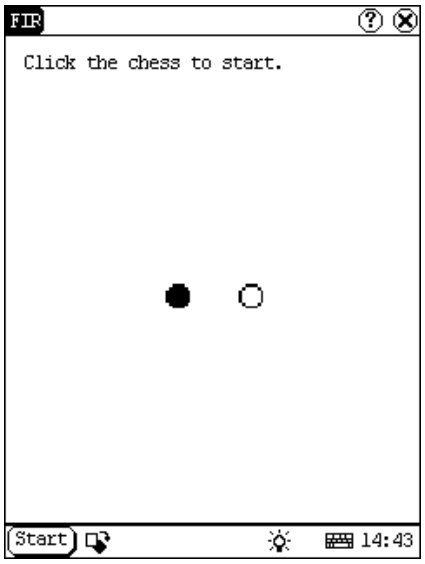


Figure 4-13

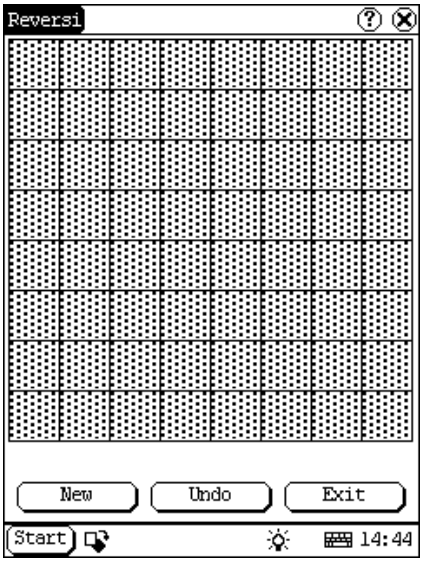


Figure 4-14

Reversi

1) In the pop-up menu of 'Game', select 'Reversi' to open the Chess Board. (See Figure 4-14)
2) Click [New Game] button to start.
3) Click [Undo] button for pull back.
4) Click [Close] button to close the Chess Board.

Rule:

The one who chooses white chessman can play first. All black chessmen between two white chessmen will turn to white ones and all white chessmen between two black chessmen will turn to black ones. So the player should be able to reverse opponent's chessmen in each step. When the chessboard is full of chessmen, the number of the chessmen for each color should be counted. The one who conserve more chessmen on the chessboard is winner.

PIM

1) Click [Start] button.
2) Select 'PIM ' in the pop-up menu.
3) Select the function needed in the pop-up list. See Figure 4-15.

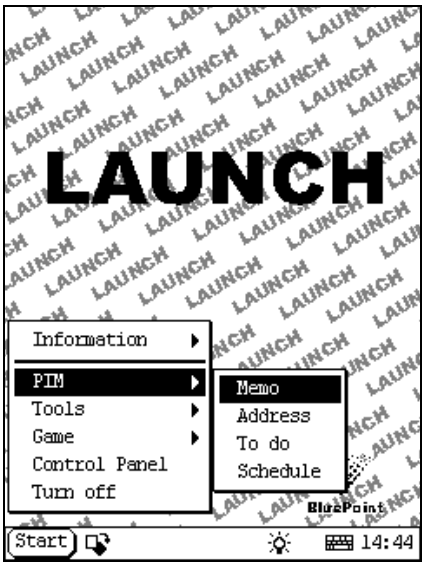


Figure 4-15

Memo

The basic functions of Memo include: add new memo, view memo, delete memo, browse by types, etc.

1) In the pop-up 'PIM' list, select 'Memo' to open the Memo interface. (See Figure 4-16)
2) After you click the [▼] button on top right corner, the type list will pop up. Then you can select the type of the memo.
3) You can also select the Edit Group in the type list to open the Edit Group interface.
4) The memo list of corresponding type will

be displayed in the list box on the midst of the Memo interface.

5) Click one memo in the memo list to open the Memo Edit interface.
6) Click [New] button to open the New Memo interface.

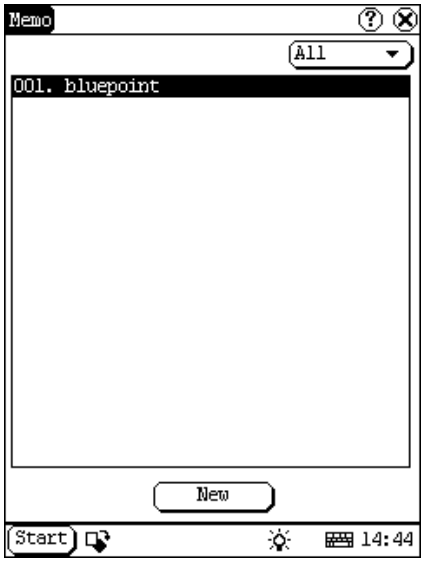


Figure 4-16

Add New Memo

1) In the Memo interface, click [New] button to open the New Memo interface.
2) Activate Soft Keyboard, and fill the subject and contents.
3) Click the button on top right corner, then select the type in the pop-up list
4) Click [OK] button to save and close the New Memo interface.
5) Then you can see the new memo in the list box of the Memo interface.

View Memo

1) In the list box of the Memo interface, click the memo that you want to view.
2) Then you can view the contents of the memo in the opened Memo Edit interface.
3) Click [OK] button to close the Memo Edit interface.

Edit Memo

1) In the list box of the Memo interface, click the memo that you want to edit.
2) Then you can edit the contents of the memo in the opened Memo Edit interface. See Figure 4-17.
3) After editing, click [OK] button to save the edited contents and close the Memo Edit interface.

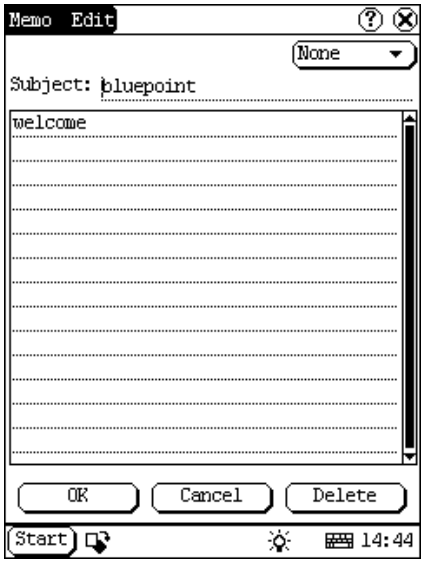


Figure 4-17

Delete Memo

1) In the list box of the Memo interface, click the memo that you want to delete.
2) Then you can delete the memo in the opened Memo Edit interface.
3) Click [Delete] button to delete the memo and close the Memo Edit interface.

Edit Type

1) Click the [▼] button on the top right of the interface ① so that the type list pops up.
2) In the type list, select the Edit Group to open the Edit Group interface.
3) In the Edit Group interface, activate Soft Keyboard.
4) In the text box at the bottom of the interface, input the name of the type.
5) Click [Add] button to add a new type and it will be displayed in the list box of the Edit Group interface. (See Figure 4-18)
6) Select one type in the list box, and then click [Delete] button to delete it.
7) Click [Close] button to close the Edit Group interface.

The interface ① : It represents the Memo Interface, the New Memo interface and the Memo Edit interface.

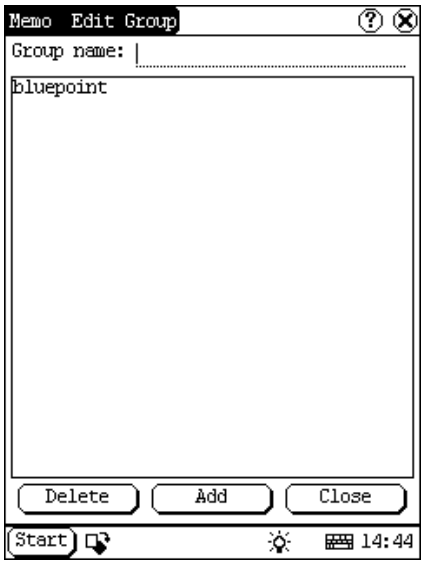


Figure 4-18

Browse By Types

1) Click the [▼] button on the top right of the Memo interface so that the type list pops up.
2) Select the type in the list.
3) Then you can see the memo belonging to the type in the list box.

Note: Only the memo belonging to the type can be displayed here. If you want to browse all memos, please select 'All' in the steps 1 and 2.

Address

The basic functions of Address Book include: add new address, view address, delete address, to search address, etc.

1) In the pop-up 'PIM' list, select 'Address' to open the Address Book interface.
2) It lists the name of persons whose communication information has been stored.
3) Click [New] button to open the Address New interface. (See Figure 4-19)
4) Click [Find] button to pop up the Find People interface.

The operation guide for each function is described below:

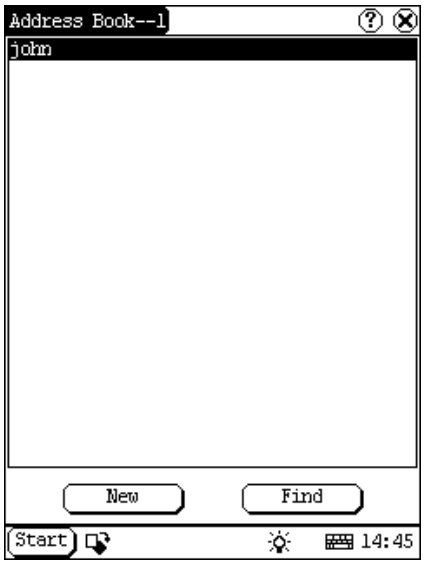


Figure 4-19

Add New Address

1) In the Address Book interface, click [New] button to open the Address New interface. (See Figure 4-20)
2) Activate Soft Keyboard, and fill the detailed information on relatives and friends.
3) Click [OK] button to save and close the Address New interface.
4) Then the added name will be displayed in the list box of the Address Book interface.

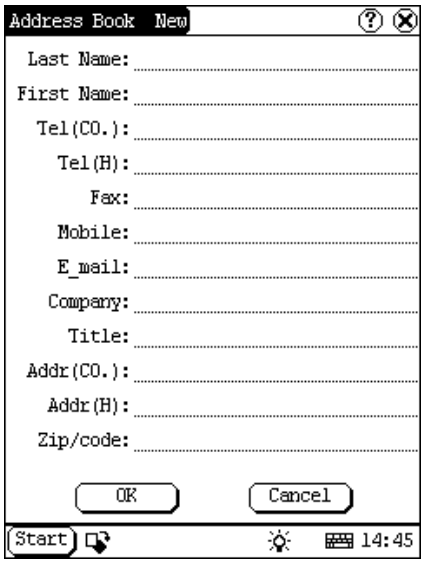


Figure 4-20

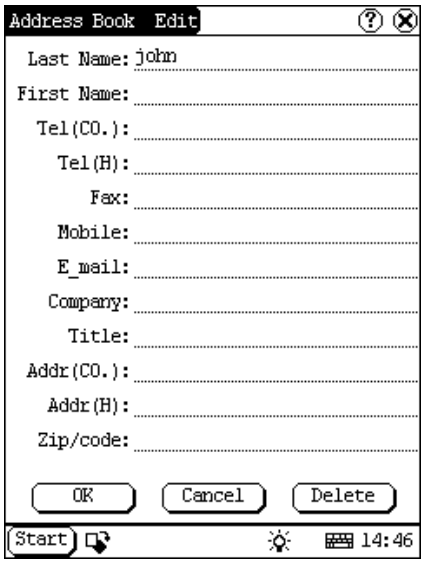


Figure 4-21

View Address

1) In the list box of the Address Book interface, click the name that you want to view.
2) Then the detailed information about the person will be shown in the opened Address Edit interface.
3) Click [OK] button to close the Address Edit interface.

Edit Address

1) In the list box of the Address Book interface, click the name that you want to edit.
2) Then the information about the person can be edited in the opened Address Edit interface. See Figure 4-21
3) After editing, click [OK] button to save the edited contents and close the Address Edit interface.

Delete Address

1) In the list box of the Address Book interface, click the name that you want to delete.
2) Then the information about the person will be shown in the opened Address Edit interface.
3) Click [Delete] button to delete the person's information and close the Address Edit interface.

Search Address

1) In the Address Book interface, click [Find] button to pop-up the Find People interface. See Figure 4-22.
2) Activate Soft Keyboard, and input the name you want to search.
3) Click [OK] button, and then you will see that the name you search is highlighted in the list box.

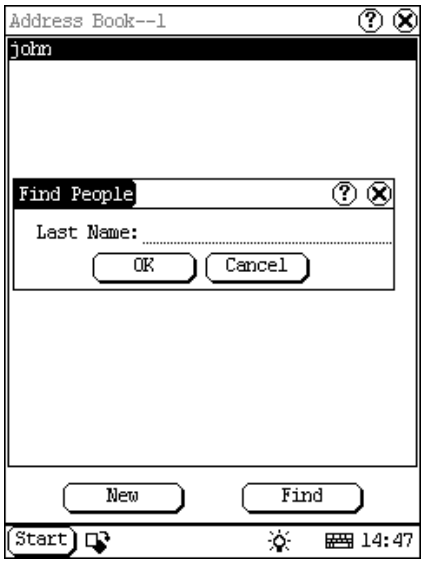


Figure 4-22

To Do

The basic functions of To Do include: add new To Do, view To Do, delete To Do and set To Do, etc.

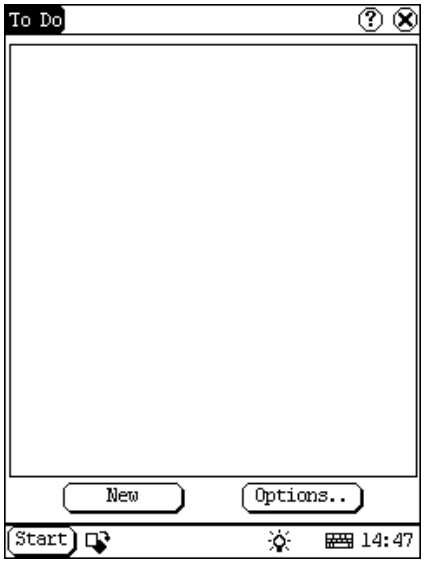


Figure 4-23

1) In the pop-up 'PIM' list, select 'To Do' item to open the To Do interface.
2) The To Do list of corresponding items will be displayed in the list box on the midst of the Memo interface.
3) Click [Options] button to open the To Do Display interface. (See Figure 4-23)
4) Click [New] button to open the To Do New interface.

Add New To Do

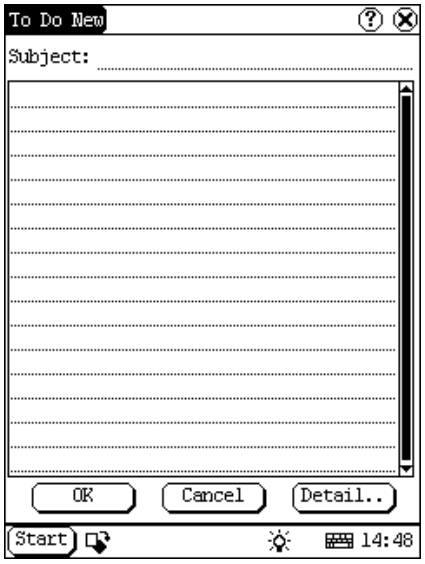


Figure 4-24

1) In the To Do interface, click [New] button to open the To Do New interface. See Figure 4-24.
2) Activate Soft Keyboard, and fill in the subject and contents.
3) Click [Detail] button to open the To Do Detail interface. See Figure 4-25.
4) In the To Do Detail interface, click the button to the right of 'Group' to pop-up the type list.
5) Click the button to the right of 'Expired', and select the data in the pop-up list.
6) Click the number to the right of 'Priority' to set the priority of the To Do.
7) If the To Do has been finished, please click the box to the right of 'Finished'. When the function is selected, 'X' will be marked in the box.
8) Click [OK] button to save and close the To Do Detail interface.
9) In the To Do Detail interface, click [OK] button to save and close the To Do New interface.

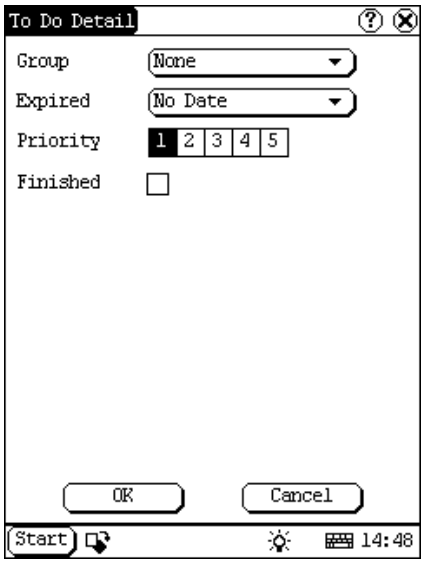


Figure 4-25

View To Do

1) In the list box of the To Do interface, click the to do that you want to view.
2) Then the contents of the To Do will be shown in the opened To Do Edit interface.
3) Click [OK] button to close the To Do Edit interface.

Edit To Do

1) In the list box of the To Do interface, click the memo that you want to edit.
2) Then the contents of the memo will be shown in the opened To Do Edit interface.
3) Click [Detail] button to open the To Do Detail interface, please refer to step 4~8 in the section "Add New To Do".
4) After editing, click [OK] button to save the edited contents and close the To Do Edit interface.

Delete To Do

1) In the list box of the To Do interface, click the to do that you want to delete.
2) Then the contents will be shown in the opened To Do Edit interface.
3) Click [Delete] button to delete the To Do and close the To Do Edit interface.

Edit Type

1) Click the [▼] button to the right of 'Group' in the interface ① so that the type list pops up.
2) In the type list, select 'Edit Group' to open the Edit Group interface. See Figure 4-26.
3) In the Edit Group interface, activate Soft Keyboard.
4) In the text box at the bottom of the interface, input the name of the type.
5) Click [New] button to add a new type and it will be displayed in the list box of the Edit Group interface.
6) Select one type in the list box, and then click [Delete] button to delete it.
7) Click [Close] button to close the Edit Group interface.

The interface ①: It represents the To Do Detail Interface (Refer to step 1-3 in the section "Add New To Do" and "Edit To Do"), and the To Do Display interface (Refer to step 1 in the section "The Set of Display ").

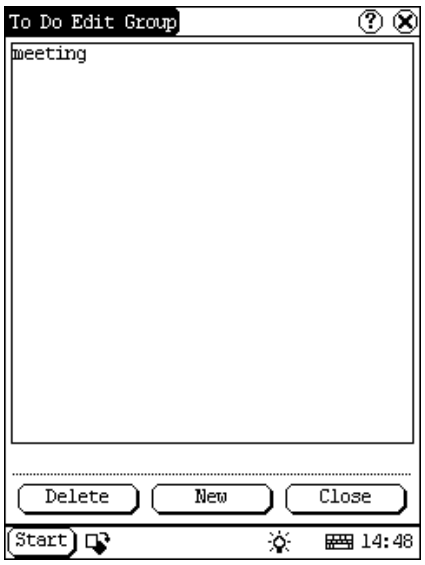


Figure 4-26

The Set of display

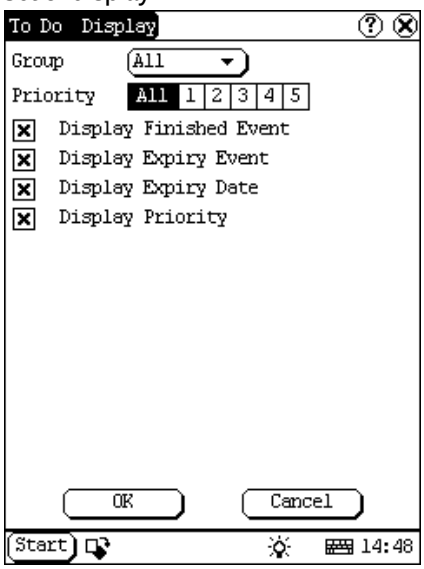


Figure 4-27

1) In the To Do interface, click [Options] button to open the To Do Display interface.
2) In the To Do Display interface, click the button to the right of 'Group' to pop-up type list, and select the type in the pop-up list.
3) Click the button to the right of 'Expired', and select the data in the pop-up list.
4) Click the number or 'All' to the right of 'Priority' to set the priority of the displayed To Do.
5) Click the box to the right of each function. When 'X' is displayed in the box, the function is selected. (See Figure 4-27)
6) Click [OK] button to close the To Do Display interface.
7) Then you can see the corresponding To Do in the list box of the To Do interface.

Schedule

The basic functions of Schedule include: add new schedule, view schedule, delete schedule, etc.

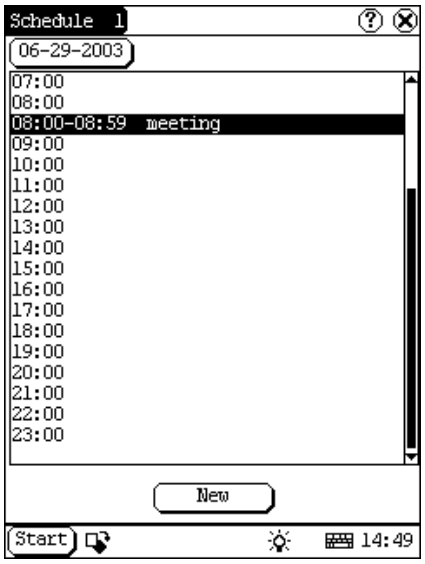


Figure 4-28

1) In the pop-up list of 'PIM', select 'Schedule' to open the Schedule interface.
2) Click the Date button on the upper left of the interface to open the Select Date interface.
3) In the list box in the middle of the interface, all schedules on that day corresponding to the Date button will be displayed. (See Figure 4-28)
4) Click [New] button, and then the cycle list pops up. You may select 'Common', 'Daily', 'Weekly', 'Monthly' and 'Annual'.
5) In the cycle list, select one item to open the Schedule New interface.

Add New Schedule

Set the date of the schedule:

1) In the Schedule interface, click the Date button on the upper left to open the Select Date interface.
2) In the Select Date interface, click [◀] icon to the left of the month or year to select the previous month or year.
3) Click the [▶] icon to the right of the month or year to select the next month or year. (See Figure 4-29)
4) Click to select the date in the current month. When it is highlighted, it is selected.
5) Or click [Today] button to display the

current year, month and date directly.

6) Click [OK] button to save the date setting and close the Select Date interface.
7) You may see the date you set on the button on the top right of the Schedule interface.

Figure 4-29

Set the cycle of the schedule:

1) In the Schedule interface, click [New] button so that the Cycle list pops up. See Figure 4-30.
2) In the Cycle list, select 'Common' if it is done on the selected date.
3) Select 'Daily' if it is done every day.
4) Select 'Weekly' if it is done on a fixed day every week.
5) Select 'Monthly' if it is done on a fixed day every month.
6) Select 'Annual' if it is done on a fixed day every year.
7) After selecting, open the New Schedule interface.

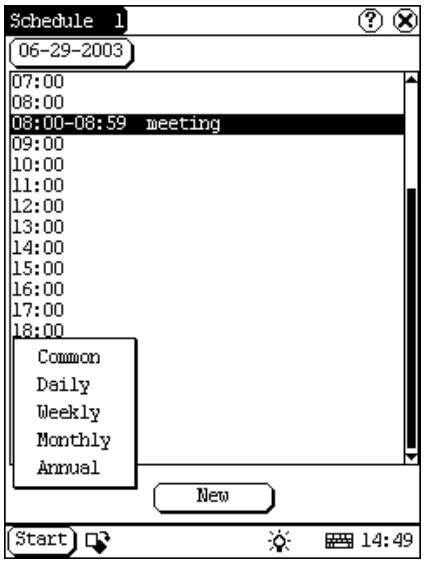


Figure 4-30

Set the content of the schedule:

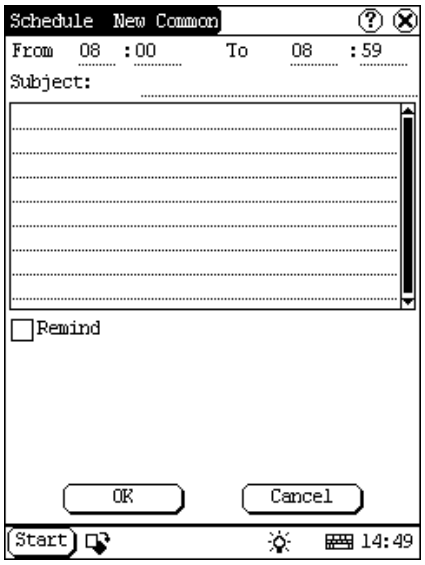


Figure 4-31

1) In the Schedule New interface, activate Soft Keyboard, and fill the subject and contents.
2) In the textbox on the top of the interface, fill the time of the schedule.
3) If the selected cycle is 'Daily', 'Weekly', 'Monthly' or 'Annual', you can input the repeat time in the textbox on the bottom of the interface. See Figure 4-31.

4) "Remind" function can be selected and the reminding time can be set in the interface. The "Remind" function will not be available when the machine is turned off.
5) Click [OK] button to save and close the Schedule New interface

View Schedule

1) In the Schedule interface, select the date that has been scheduled. (Refer to the section "Add New Schedule → Set the date of the schedule")
2) In the list box of the Schedule interface, click Scrolling Bar to turn to next page, and click the schedule you want to view.
3) Then the contents of the schedule will be shown in the opened Schedule View interface.
4) Click [OK] button to close the Schedule View interface.

Edit Schedule

1) In the Schedule interface, select the date that has been scheduled. (Refer to the section "Add New Schedule → Set the date of the schedule")
2) In the list box of the Schedule interface, click Scrolling Bar to turn to next page, and click the schedule you want to edit.
3) Then the contents of the schedule will be shown in the opened Schedule View interface.
4) If the edited affair is 'Daily', 'Weekly', 'Monthly' or 'Annual', you can edit the repeat time in the textbox on the bottom of the interface.
5) After editing, click [OK] button to save the edited contents and close the Schedule View interface.

Delete Schedule

1) In the Schedule interface, select the date that has been scheduled. (Refer to the section "Add New Schedule → Set the date of the schedule")
2) In the list box of the Schedule interface, click Scrolling Bar to turn to next page, and click the schedule you want to edit.
3) Then the schedule will be shown in the opened Schedule View interface. See Figure 4-32.
4) Click [Delete] button to delete it and close the Schedule View interface.

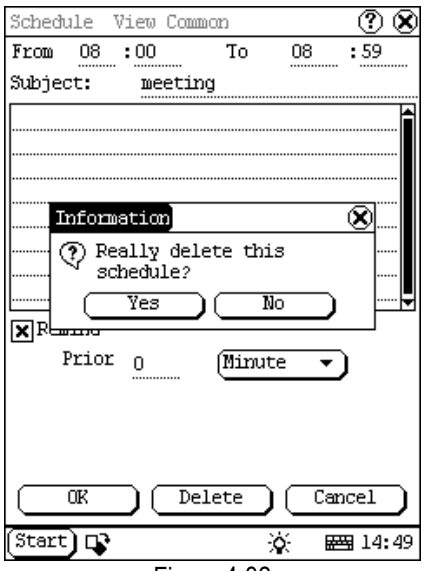


Figure 4-32

System

Control Panel

The control panel includes all interrelated software and hardware configurations. It makes the software more custom-built for you by configuring.

1) Click [Start] button.
2) Select 'Control Panel' in the pop-up menu.
3) Open the Control Panel interface. (See Figure 4-33)

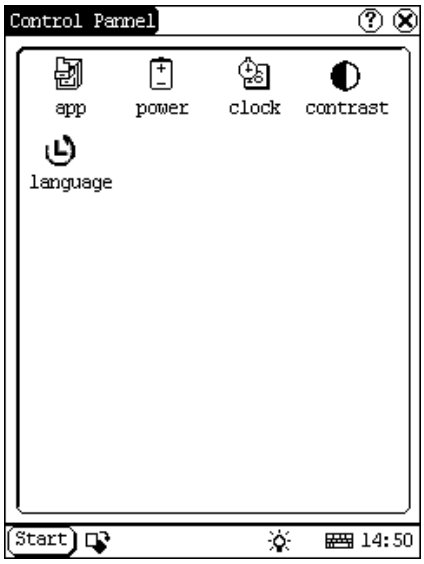


Figure 4-33

Application

It displays the application information contained in the 'Start' menu, including the group name, the submenu, etc.

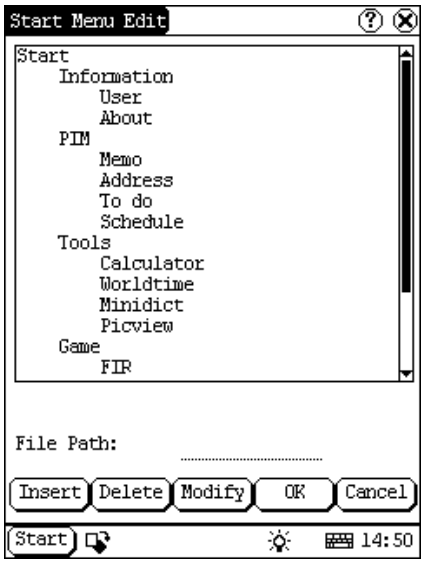


Figure 4-34

1) In the Control Panel interface, click 'App' icon to open the Application Manager interface.

2) Then you can see the corresponding information in the list box of the interface. (See Figure 4-34)

3) Insert a new group:
Click [Insert] button and input the item name. Then choose "Start" as its parent and click [OK] button.

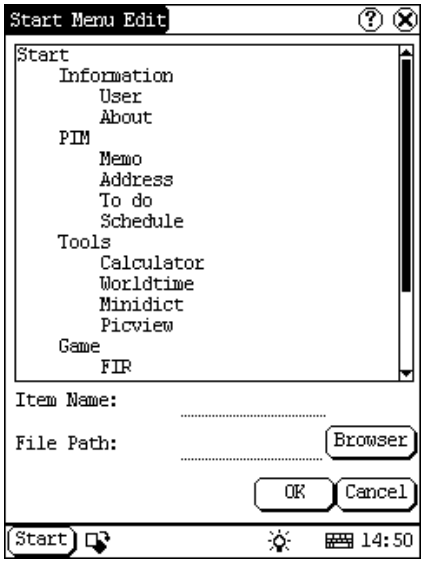


Figure 4-35

4) Insert a new submenu:
Click [Insert] button and input the item name and the file path. Then choose a group as its parent and click [OK] button.
The path can be inputted directly or found out in a dialogue box after clicking [Browser] button. See Figure 4-35 and Figure 4-36. Click [OK] button after selecting an item in the list. Then the selected file will be automatically copied to the edit box.

The submenu should be linked to a present group instead of the "Start" item or another submenu.

5) Delete a group or a submenu:
Select a group or a submenu and then click [Delete] button. When a group is deleted, all of its submenus will be deleted.

6) Modify a group or a submenu:
Click [Modify] button and then select the group or submenu from the list. Now you can modify the item name, file path and so

on followed by clicking [OK] button.

7) Save the information:
After editing the application, click [OK] button. The modified information will be saved in the corresponding file. If you want to quit the modification, click [Cancel] button.

Note:
Quit all other applications before saving the modification.

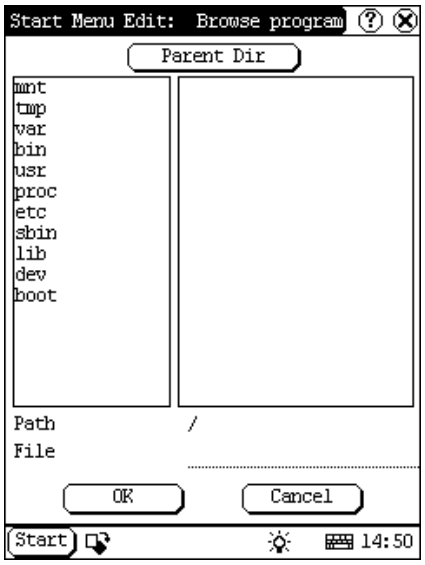


Figure 4-36

Power Management

In the Power Manager interface, you can see the condition of memory, and set the standby time. (See Figure 4-37)

1) In the Control Panel interface, click 'Power' icon to open the Power Manager interface.
2) Click the button to the right of 'Standby time', and select the time or 'None' in the pop-up list.
3) Click [OK] button to save the setting and close the Power Manager interface.

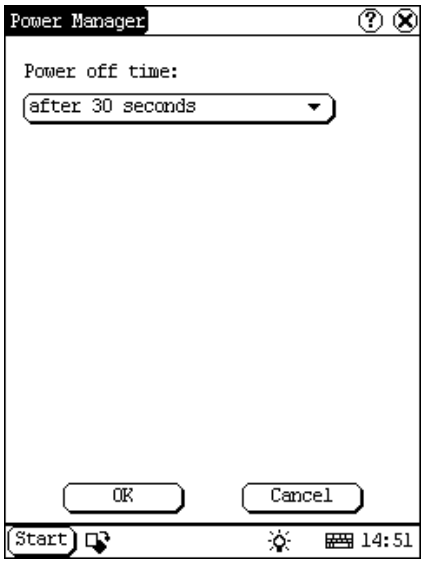


Figure 4-37

Clock

User can set the time and the time zone of the system.

Figure 4-38

Set Time:

1) In the Control Panel interface, click 'Clock' icon to open the Date/Time interface as shown in Figure 4-38.
2) In the Date/Time interface, click [Set Time] button to open the Set Time interface as shown in Figure 4-39.
3) Click the characters to the right of 'Day' to

set AM and PM, the selected one will be highlighted.

4) Activate Soft Keyboard, and then you can set 'Hours', 'Minutes' and 'Seconds' directly.
5) Click [OK] button to save and close the Set Time interface.

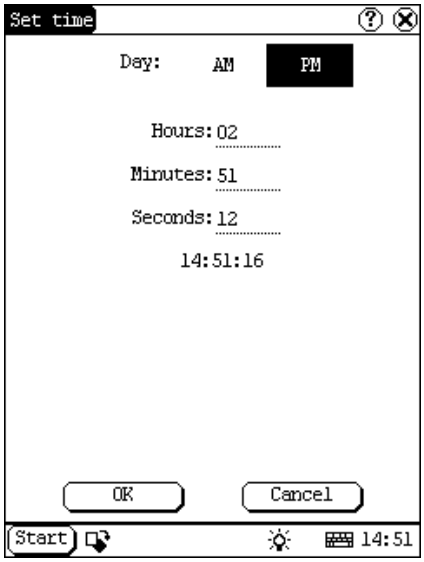


Figure 4-39

Set Date:

1) In the Date/Time interface, you can set date directly.
2) Click [◀] icon to the left of the month or year to select the previous month or year.
3) Click the [▶] icon to the right of the month or year to select the next month or year. (See Figure 4-38)
4) Click the date in the current month. It will be highlighted when it is selected.
5) Click [Set Time] button to save the setting.
6) Click [Quit] button to exit.

Set Time Zone

1) In the Date/Time interface, click [Set Time zone] button to open the Set Zone interface as shown in Figure 4-40.
2) Click Scrolling Bar to turn to next page of the list, and select your zone. It will be highlighted when it is selected.
3) Click [OK] button to save and close the Set Zone interface.

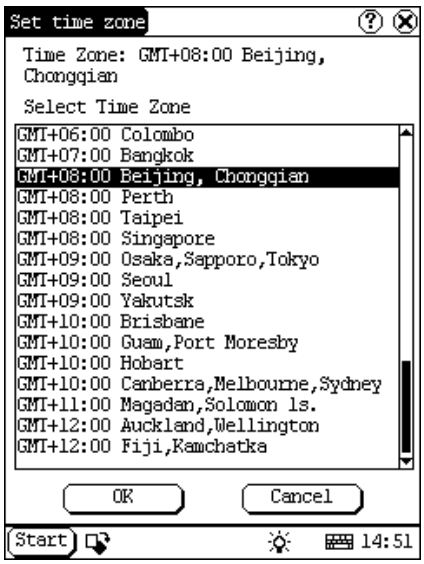


Figure 4-40

After finishing all settings, click [OK] button in the Date/Time interface to exit and close the interface.

Contrast

It is for adjusting the contrast of the screen to make the interface clearer.

1) In the Control Panel interface, click 'Contrast' icon to open the Contrast interface. See Figure 4-41.
2) In the Contrast interface, click the position you want, and then you can set it.

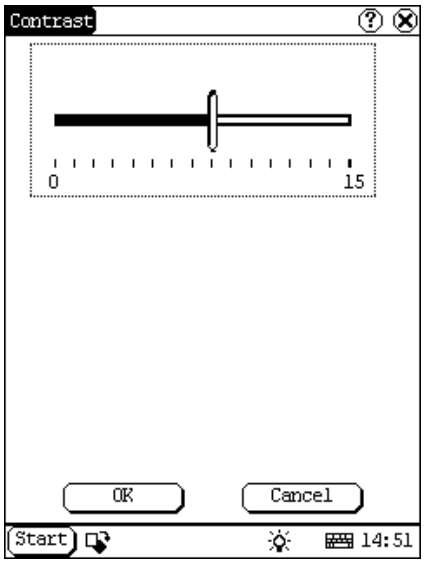


Figure 4-41

Language

You can make selection among several languages for convenient operation of the system.

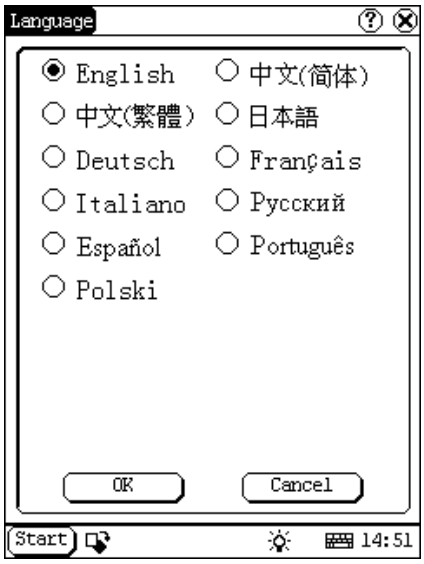


Figure 4-42

1) In the Control Panel interface, click 'Language' icon to open the Language interface. See Figure 4-42.
2) Select the language you want to use.
3) Click [OK] button to confirm the selection and close the language interface and the Control Panel interface.

Note: Before selecting language, be sure to quit all applications.

System Information

Calibrate Touch screen

It is for getting the desired accuracy of the touch screen. Calibrating of touch screen can be divided into two steps. The first step is to detect noise automatically. If you click the touch screen at this step, the noise value would be affected. After detecting the noise, the system will come to the calibration step. Then the cross cursor will be displayed.

1) After switching on the machine, follow the tips to press the hot key. The calibration interface will be opened.
2) Click the cross cursor on the screen accurately, and wait until it changes. Then one step of calibration is finished.
3) After calibration is finished for all corners, the system will automatically return to the start-up main interface.

Note:

- *Do not click the touch screen before the cross cursor appears.*
- *In the calibration step, if you fail to click the cross cursor accurately, the cross cursor will be displayed on the screen again and again until the calibration is finished completely.*

User Register

The user's right can be well protected after registration.

1) Click [Start] button.
2) Select 'Information' in the pop-up menu.
3) Select 'User' in the pop-up list to open the User Information interface. (See Figure 4-43)
4) In the User Information interface, activate Soft Keyboard, and input the user information. (See Figure 4-44)
5) Click [OK] button to save the information and close the User Information interface.

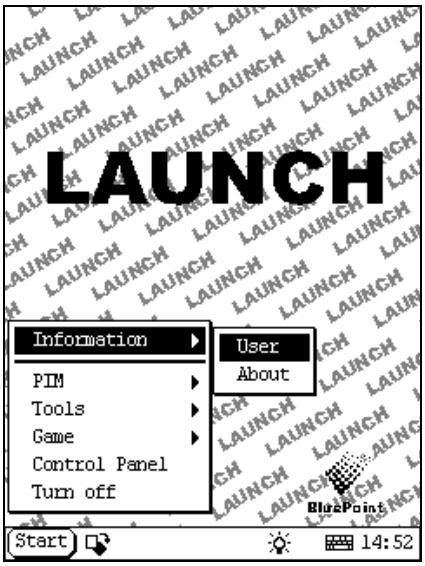


Figure 4-43

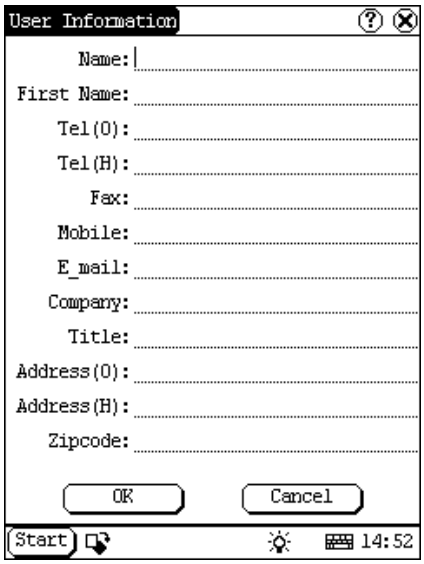


Figure 4-44

About

In 'Information' list, click 'About' to display the information on system software and hardware, then click [OK] button to close it. (See Figure 4-45)

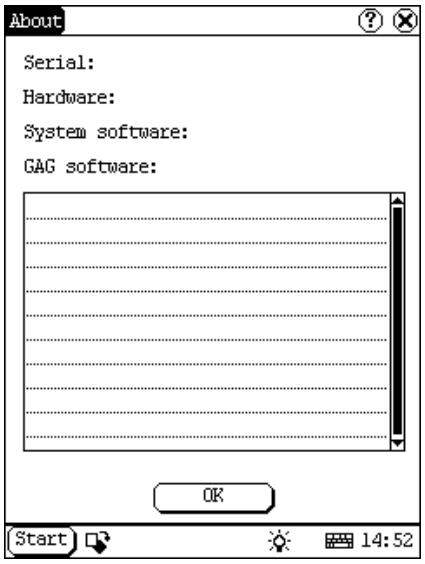


Figure 4-45

Turn Off

Click "Turn Off" in the Start menu when you attempt to turn off the machine.

FAQ

X431MASTER is a hi-tech product. With the development of modern automotive industry, more and more new technology will be adopted and there may be questions during operation. Read the user's manual to get the answer whenever you have any question, or contact our Customer Service Center for help.

Here we list some frequently asked questions and answers relating to X431MASTER.

About Update via Internet

Question: "Removable Disk" icon does not appear in the catalogue of "My computer" after the CF card reader/writer is connected to the USB port of computer. Why?

Answer:
Possible cause: there may not be driver for CF card reader/writer in the computer. The default driver is with the operating systems like Windows Me/2000/XP, Mac OS 9.x/Mac OS X and Linux 2.4.X. However, there is no such default driver with Windows 98.

Solution: Check if there is the driver for CF card reader/writer in the computer. If the computer uses Windows 98 operating system, it is necessary to install the driver into computer by using the CD-ROM provided with CF card reader/writer.

When the CF card reader/writer driver is installed successfully, a "Removable disk" icon will appear in the catalogue of "My computer". Usually it is listed after original disk drive. For example, if there were drives A, B, C and D originally, the removable disk will be "E". If there were drives A, B, C, D and E originally, the removable disk will be "F". The rest may be deduced by analogy.

Question: Some downloaded diagnostic program is not listed in the update tool, what is the reason?

Answer: There are two possible causes:
1. The downloaded diagnostic program is not put in the same folder as other diagnostic programs. Please move it to the same folder as others.
2. The diagnostic program is not fully downloaded. Please download the program again.

Question: When the updated software is used in vehicle diagnosis, some diagnostic program cannot be downloaded successfully from the CF card. Why?

Answer: possible causes and solutions:
1. The Display Program may have not been updated. Please update the Display Program.
2. The diagnostic program for the vehicle make is damaged. Please re-download the diagnostic program and update.

Question: Why can't the main unit recognize the replaced CF card?

Answer: There are two possible causes:
1. The original 32M CF card has not been fully copied. Please delete the incomplete file and copy again.
2. The CF card reader/writer is not compatible with the CF card. Monofunctional CF card reader/writer is better in such situation.

Question: How to make a new X431MASTER CF card when the data in old one is lost or damaged?

Answer: In case X431MASTER CF card is damaged and the program in the card cannot be used, please use the following procedure to make a new CF card:

1. Log onto the website "www.X431.com". Enter your username and password to log in.

   Select the SMARTBOX No., and then download the following programs into your computer:

1) Necessary programs for making CF card:

- X431 SERIES UPDATE TOOLS---- for writing the program from computer to CF card when doing X431 update
- DISPLAY PROGRAM---- for displaying the X431MASTER diagnostic information and managing the X431MASTER diagnostic programs
- SYSTEM DATA---- system data used by X431MASTER system

2) Optional programs that can be selected according to user's demand:
Diagnostic program for various vehicles

2. Install the X431 SERIES UPDATE TOOLS into computer.

3. Format the X431MASTER CF card.

4. Run the X431 SERIES UPDATE TOOLS and write the display program, system data and diagnostic programs onto CF card.

About Hardware

Question: After X431MASTER downloads the diagnostic program from the CF card it prompts "Please contact your local dealer". What is the reason?

Answer: It is because the license No. in CF card does not match the SMARTBOX. It can be solved in the following way:
1. Download the software that is corresponding to the SMARTBOX so that the CF card can match the SMARTBOX.
2. Use the UPDATE TOOL that is provided on http: // www.X431.com for update. Never use WINZIP or other decompressing tool for update.

Question: Why does the LCD screen respond so slowly?

Answer: It is because the ambient temperature is close to the lower limit of operating temperature range (0-50℃). In this situation, it is necessary to warm up the machine for 20 minutes before test.

Question: Power cannot be turned on with the power button on the main unit after the machine is connected to vehicle diagnostic socket through cables and connectors. What can I do?

Answer: Check the power pin of vehicle diagnostic socket with multimeter for power. The power pin in diagnostic socket varies from one vehicle to another. Please refer to the User's Manual of specific vehicle diagnostic program to find the power pin. If there is no power supply from the diagnostic socket, please get power in other ways, such as from battery or cigarette lighter.

Question: There is no character on the backlit screen. What should I do?

Answer: Check if the power is well connected. Turn off the machine, unplug the power connector and re-plug it. Turn on the machine after it has been connected to the power for 1 second.

Question: Why does X431MASTER fail in communication with ECU?

Answer: Please make sure that the diagnostic connector and diagnostic program are matching vehicle make.

Question: The screen keeps blank after flashing when the machine is turned on. What should I do?

Answer: Take out the CF card and re-start the machine to see if there is normal display. If the display is normal when the CF card is taken out, the CF card should be replaced. If the screen is still blank, please contact the local service engineer.

Question: Why does the system prompt that no CF card is found when the machine is turned on?

Answer: The possible cause is that no CF card is in the machine, or CF card is inserted improperly or damaged. If it is damaged, it is

necessary to make a new one.

Question: What should I do if I can't get into the diagnostic interface during test?

Answer: The possible cause is that no CF card is in the machine, or CF card is inserted improperly or damaged. If it is damaged, it is necessary to make a new one.

Question: What can I do if the system halts or fails during self-detection?

Answer: Please make sure that cables and CF card are well connected.

Question: Why can't the data be inputted after Soft Keyboard is activated?

Answer: The position where the cursor lies can't be edited. Or you have not activated the cursor on the input position. Please use the stylus to click the part to edit. When the cursor twinkles, you can input the data.

Question: The screen is inactive after the cross cursor appears on the screen. Why?

Answer: The system is calibrating the touch screen. The machine will work after the screen is calibrated. Refer to the section "Calibrate Touch Screen" in User's Manual".

Question: Why does the saved data disappear?

Answer: There are two possible causes:
1. Your CF card is damaged.
2. You've changed language and the data is related to language. You may find the data after switching back to the former language.

Question: How to know what applications (interfaces) are opened.

Answer: Click the active taskbar icon, then the pop-up list will display the applications (interfaces) opened.

Question: Why can't I do operation in current interface?

Answer: There are two possible causes:
1. Your current interface has exited illegally. In this situation, you may not see the name of the application (interface) in the pop-up list when you click the active taskbar icon.
2. The system is busy, please wait patiently, or click the active taskbar icon to switch to another application.

Question: The listed icons of vehicle make occupy more than one page of screen. I may have to turn several pages to find a specific icon of vehicle make. How can it be simplified?

Answer: X431MASTER can test many vehicle makes and the vehicle makes are still increasing. We have considered the convenience when designing the software. The system will count the clicks and move the icon with more clicks forward.

About System Setting

Question: The screen is too white and characters cannot be seen. What is the reason and what should I do?

Answer: It may be caused by improper contrast. Please refer to the section "Contrast" to adjust the contrast.

Question: The screen is inactive after the cross cursor appears on the screen. Why?

Answer: The system is calibrating the touch screen. The machine will work after the screen is calibrated. Refer to the section "Calibrate Touch Screen" in User's Manual".

Question: The screen does not respond or responds wrongly when I click it with stylus. What should I do?

Answer: It is necessary to calibrate the screen. Please refer to the section "Calibrate Touch Screen" in User's Manual.

Question: The time displayed in the lower right

corner of the screen is incorrect. How to adjust it?

Answer: It is because the time was set incorrectly. Please refer to the section "Clock" in the User's Manual to set correct time.

About Operation

Question: System halts when reading data stream. What is the reason?

Answer: It may be caused by a slackened connector. Please turn off the machine, firmly connect the connector, and switch on the machine again.

Question: Why is the screen inactive when the cross cursor is clicked during screen calibration?

Answer: You may have touched the screen when the system is detecting noise before the cross cursor appears. Please turn off the machine and then turn on. Calibrate the screen after the cross cursor appears.

Question: Why is the machine automatically powered off during standby?

Answer: It is because the machine has been set for energy saving. Automatic shutdown will take place if the machine is not operated for a specified period of time. Refer to the section "Power management" in User's Manual to set the "Power off time" to "None" or select a longer standby time.

Question: Why can't the tested result be printed out?

Answer: There may be no paper in the printer or the printer. Please mount a roll of new paper. See the section "Printer Operation" in the User's Manual.

Question: Why is there no character in the printed-paper?

Answer: The paper is mounted reversely. Please take out the paper and mount it again. See the section "Printer Operation" in the User's Manual.

Question: The displayed information cannot be seen clearly when the ambient light is not good. What should I do?

Answer: There is a [ ] icon at the lower right corner of the screen. Click it to turn on the backlight so as to see the displayed information clearly. Click the icon again for turning off the backlight.

Question: Why can't I input data after activating Soft Keyboard?

Answer: The position where the cursor lies can't be edited. Or you have not activated the cursor on the input position. Use the stylus to click the part to edit. When the cursor twinkles, you can input the data.

Question: What should I do if I am not able to switch from Active Taskbar to the running application interface?

Answer: Please close interfaces related to the application, such as the Help or Detail.

Question: Why does the saved data disappear?

Answer: There are two possible causes:
1. Your CF card is damaged. It is necessary to make a new CF card.
2. You've changed language and the data is related to language. You may find the data after switching back to the former language.

Question: What can I do when the screen is confused?

Answer: Please quit the current application (interface), and run it again. If the problem still exists, please restart the system.

Question: How to know what applications (interfaces) are opened.

Answer: Click the active taskbar icon, then the pop-up list will display the applications (interfaces) opened.

Question: Why can't I do operation in current interface?

Answer: There are two possible causes:
1. Your current interface has exited illegally. In this situation, you may not see the name of the application (interface) in the pop-up list when you click the active taskbar icon.
2. The system is busy, please wait patiently, or click the active taskbar icon to switch to another application.

Questions Related to Vehicle

Question: Why does the screen flickers during engine starting?

Answer: It is caused by the electromagnetic interference. No problem with X431MASTER.

Question: Why is operation interrupted during diagnosis?

Answer: It may be caused by electromagnetic interference or incorrect connection of connector.

Question: Why is there no response from vehicle ECU at communication?
Answer: Make sure that the voltage of vehicle battery, ignition timer and idle speed are in standard range; the throttle is in the closed position; and all electric devices, such as A/C, headlight, stereos etc, are turned off. Refer to the section "Conditions for Test".

Question: Some systems cannot be diagnosed. Why?

Answer: The diagnostic socket for the system on some early vehicle may be separated. Refer to the vehicle instruction manual.

Question: No trouble code is found. Why?

Answer: It may be caused by the shared circuit. Find the nearest trouble code and circuit for analysis.

Question: Why are there too many trouble codes?

Answer: It may be caused by poor contact or poor grounding. Make sure that the vehicle model/year is selected correctly and the vehicle is equipped with the system.

Maintenance

Storage

- Leave X431MASTER where it's smooth, dry and with suitable temperature.
- Do not leave X431MASTER where it's may be exposed to direct sunlight or near a heater.
- Do not place it near a stove or may be susceptible to smoke corrosion or expose to water and oil.
- Do not place it where it may be expose to shake, dust, moisture or high temperature.
- If the main unit is very dirty, please clean the out shell or screen with a soft and dry cloth. Please note to shutdown the machine, plug out the power before clean.
- If the machine is not used to diagnose vehicles for a long time, please actuate X431MASTER main unit regularly to avoid expose to moisture.

Take Care of the Screen

- When entered Calibrate Touch Screen interface, never click on the touch screen until the cross cursor appears.
- Do not place an irrelevant stuff on the surface of the main unit, avoid heavy pressure, which may cause damage to the inner components.
- Do not place the machine near electrical appliance, which incurs electromagnetic interference.
- It's better to click the screen with stylus, do not click on the screen with fingernail or sharp stuffs (hard object) to avoid scratch.
- The LCD may be apt to dust, suggest using the specific cleaning cloth for LCD screen to wipe the screen carefully, do not remove dirty with fingernails to avoid scratch.
- Do not clean the screen with mechanical detergent.
- If X431MASTER is not used for a long time, please switch off X431MASTER main unit to save power and extend the life span of the screen as well.

Maintenance of CF card

- Do not take out the CF card when the main unit is running.
- Take out the card when the main unit is shutdown. Please prevent the card from electromagnetic; the main unit should be kept far away from the magnetic field. Do not power on and off the main unit frequently.
- CF card is necessary for online upgrading. Do not remove the CF card when the card reader is in use, otherwise, data in the card may be lost. Follow the below steps to take out the CF card: open 'My Computer' interface on the desktop, right click 'removable disc' and select '"Eject (J)' in the pop-up menu, then you can remove the card. If remove the card without doing this, the input data would be lost.
- In case X431MASTER CF card is damaged and the program in the card can not be used, please use the following procedure to remake the CF card:
  - ♦ Log onto the website "www.X431.com". Enter your username and password to log in. Select the SMARTBOX No., and then download the X431MASTER SERIES UPDATE TOOLS, DISPLAY PROGRAM, SYSTEM DATA and necessary diagnostic program into your computer.
  - ♦ Install the X431MASTER SERIES UPDATE TOOLS into computer.
  - ♦ Format the X431MASTER CF card.
  - ♦ Run the X431MASTER SERIES UPDATE TOOLS and write the display program, system data and diagnostic programs onto CF card.

Consumption Material

- X431MASTER consumes heat sensitive paper with sizeΦ30×57mm (inner hole isΦ7mm).
- Printing paper is consumable, not to replace it timely.

Get help

X431MASTER enables users to get help on the unit or on the website.

When testing vehicles, users can get help information for any current interface with the use of [Help] button or ⓘ icon in each interface. For more information about the latest products or diagnostic information, please visit website at http://www.cnlaunch.com or http://www.x431.com; you will sure get more considerate help.

About ECU

In the last two decades, we have seen more and more extensive application of IT and electronic technologies in modern vehicles. Many vehicle control systems, typically EFI (Electronic Fuel Injection), ABS (Anti-block Braking System), SRS (Air Bag), TC (Traction Control), AT (Automatic Transmission), etc., are computerized. Computerization makes the control precisely, quickly, effectively and safely. Consequently, a significant progress in vehicle driveability, fuel economy, power performance, comfortability, emissions, safety and so on has been made.

Composition and Working Principle of Computer-Control System

The Computer Control System consists of the on-board computer, and several related control devices (sensors, switches, and actuators). Most on-board computers are located inside the vehicle behind the dashboard, under the passenger's or driver's seat, or behind the right kick panel. Some manufacturers may still position it in the engine compartment. The sensors, switches, and actuators are devices such as oxygen sensors, coolant temperature sensors, throttle position sensors, fuel injectors, etc., that are located throughout the engine, and are connected by electrical wiring to the on-board computer. As an example, the diagram of engine control system is shown in Figure 6-01.

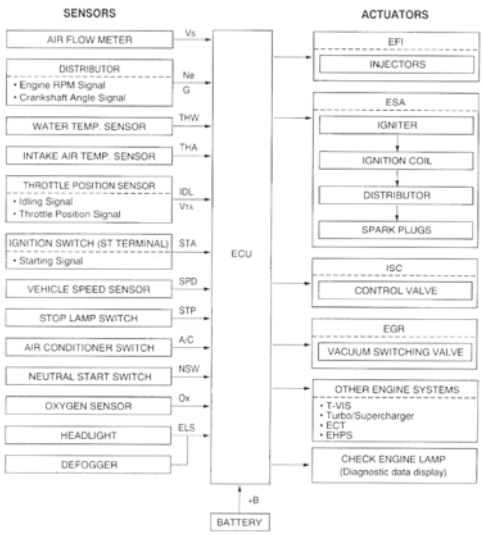


Figure 6-01

Sensor

It is a device that converts non-electric variable into electric signal. More than 50 types of sensor are used in modern vehicles, most of which are found in power train, chassis control systems, body control system, safety system, etc.

According to the physical variables controlled, sensors are sorted into following types: temperature sensor, pressure sensor, air flow sensor, position/angular sensor, gas concentration sensor, rotary speed sensor, acceleration sensor, vibration sensor, light sensor, distance sensor, electrical current sensor, angular speed sensor, shaft sensor, liquid level sensor, etc.

The commonly used sensors in corresponding control systems of vehicle are:

1) In engine management system: intake air pressure (or air flow), air/fuel ratio, crankshaft position, knock, RPM, intake air temperature, coolant temperature and O_2 sensors.

2) In transmission system: vehicle speed, throttle position, RPM, A/T output shaft

speed, toque, oil pressure/temperature and shift position sensors.

3) In braking system: vehicle speed, wheel speed, deceleration, sliding rate, braking pedal force, braking pedal position sensors, etc.

4) In steering control system: steering, vehicle acceleration, vehicle speed sensors, etc.

5) In suspension system: vehicle speed, vehicle height, steering angle, throttle position, braking force sensors, etc.

6) In A/C system: external temperature, internal temperature, sunshine, coolant temperature, refrigerant pressure and humidity sensors, etc.

7) In instrument, alarm and diagnosis systems: remaining fuel, coolant temperature, oil pressure, oil status, intake air pressure, windshield washer fluid level, battery liquid level, door lock, braking fluid level sensors.

ECU

The electronic control unit is composed of input circuit, A/D converter, SMC, output circuit, etc. See Figure 6-02.

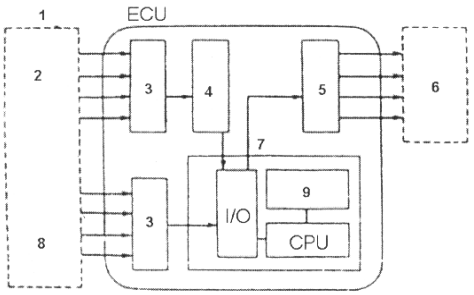


Figure 6-02

1- Sensor	4- A/D converter	7- SMC
2- Analog signal	5- output circuit	8- Digital signal
3- Input circuit	6- Actuator	9- ROM/RAM

1) Input circuit: digital signal from sensor will enter the CPU directly. However, the analogue signal will be treated in the A/D converter before getting into CPU. The input circuit filters out the noise, converts sine wave into rectangular wave and then into electrical parameter.

2) A/D converter: it converts the analogue signal from the sensor into digital signal. Then the digital signal can get into SMC.

3) SMC: it consists of I/O interface, CPU, RAM/ROM, etc. The received digital signal is computed here with the pre-programmed parameters from ROM. The computed result is transmitted through I/O interface to the output circuit, and then to the corresponding actuators.

   The data in ROM is written by manufacturer and will not be lost when power is off. However, the data in RAM will be lost when power is off.

4) Output circuit: it is to amplify the signal from SMC. The weak current from SMC is not able to activate the actuator. So it has to be amplified.

Actuator

Actuator is to convert the electrical signal into force or displacement. The popular actuators are listed below:

1) Solenoid valve: This actuator is to convert electrical signal into linear movement. Two types of solenoid valves are used in the vehicle. One is directly driven with linkage, e.g. the magnetic switch of starter motor. The other is for controlling pressure and flow by transferring the movement to relevant valves. For example, in engine intake air control, electronically controlled automatic transmission, suspension control, etc.

2) Motor: DC motor is the most popular actuator used in automobile. It can be divided into two types according to its use. One is rotated by power, e.g. windshield wiper, seat adjuster, etc. The other is used in servo mechanism. In this situation,

external force makes the rotor rotate around the stator, e.g. the servo motor for damper.

Besides the two types listed above, there are other types, such as relay, electronic switch, etc.

Self-diagnosis of Electronic Control System

All modern cars are controlled by an Electronic Control Unit (ECU). The main purpose of the electronic control system is to provide maximum engine performance with the least amount of air pollution and the best fuel efficiency possible. However, the complexity of the system may increase the difficulty for it's troubleshooting. The function of self-diagnosis is for solving such problem with electronic control system.

Working Principle of Self-diagnosis

The composition of self-diagnosis system is similar to electronic control system. The basic component is electronic control unit. The main purpose of self-diagnosis system is to diagnose the sensors, actuators, circuits and ECU in vehicle.

The computer assigns a numeric code for each specific problem that it detects, and stores these codes in its memory for later retrieval, and turns on the fault indicator on the dash panel to warn the driver. The problem detected may be: inputted/outputted signal exceeds the specified range, or some circuit is short-circuited or open.

Now let's take gasoline injection control system as an example to describe the working principle of the self-diagnosis system. When problem occurs, the process of diagnosis and treatment will be as follows:

1) For sensor
If the output signal from the sensor is out of the specified range of voltage when engine is running, it will be deemed as fault. For example, the normal output voltage from coolant temperature sensor should be in the range of 0.3-0.4V. If not, the situation will be deemed as fault and fault code will be stored in memory. Self-diagnosis system can detect damaged sensor, or short/open circuit, but it cannot appraise the performance of sensor. Occasional occurrence of abnormal signal will not be deemed as fault immediately. For not being interrupted by the sensor fault, the engine will be controlled by the pre-stored normal coolant temperature (e.g. 80℃) from the self-diagnosis system.

2) For actuator
When the engine is running, ECU sends commands to actuators according to the practical situation. If the actuator cannot work normally, the monitoring circuit will transmit the message to the ECU. ECU can make the message displayed and take measures to ensure the safe running of engine. For example, when the power tube in engine ignition system is out of order, the ignition monitoring circuit sends feedback to the ECU. ECU emits warning signal and sends commands to actuator for stopping injection so as to prevent the unburnt mixture from damaging the catalytic converter of exhaust system.

3) For ECU
There is no monitoring circuit, but a monitoring clock in the ECU for resetting ECU regularly. If ECU is out of order, its program will not be run and the clock will not reset the ECU so that overflow may occur. This situation is deemed as fault for displaying.

For preventing unexpected stopping of vehicle caused by problem with ECU, there is a backup circuit in ECU. When the backup circuit receives the signal of abnormality from the monitoring circuit, a spare control program will be started for keeping the engine running as pre-programmed.

Readout of Fault Code in Automotive Self-diagnosis System

The fault in vehicle electronic system is stored

in KAM of ECU as fault code. The fault code can be read out by the on board diagnostic system or external scan tool.

The on board diagnostic system in different vehicle may indicate the fault in different way. In general, the following ways are popular:

1) Blinking of fault indicators on the instrument panel
2) Swing of multimeter index
3) Blinking of red/green LED on ECU
4) Shown by a special device

The more intuitionist way for showing the fault is by external scan tool.

The diagnostic system of modern cars is equipped with diagnostic socket or DLC (data link connector). Fault code in vehicle ECU can be read out by connecting a scan tool to the diagnostic socket. In early time, each vehicle system had its own type of diagnostic socket. Since 1996, SAE has specified a uniform system called OBDII on board diagnostic system. Each vehicle that is made in accordance with the system may have the same diagnostic socket, same definition of pin and same description of fault code. The control units of every system are connected to bus, so only one diagnostic socket is needed for readout of fault code. OBD provides the possibility of reading data stream and displaying working status of switches and actuators. Moreover, external scan tool can send commands to activate the actuators.

X431MASTER is such an external scan tool for vehicle diagnosis. It not only has the diagnostic function like reading fault code, reading data stream, actuation test, displaying sensor waveform, coding control unit, etc., but also has PDA function.

Basic Knowledge of ECU

Composition of Vehicle ECU

Vehicle ECU consists of ALU, CPU, power source and memory.

1. ALU

It converts the electronic signal from each sensor into digital signal needed by CPU.

2. CPU

The digital signal is transferred to CPU for computation and logical operation so that correct air/fuel mixture can be obtained. CPU can also compute ignition timing and idle speed, and control exhaust, fuel and diagnostic systems.

3. Power source

The reference output signal (5V) of ECU and the 12V voltage for control module are from vehicle battery. Memory is also dependent on the power supplied by the battery.

4. Memory

ECU contains three types of memory: ROM, RAM and PROM (or EEPROM).

1) ROM

ROM stores the programming information that can only be read by ECU. The program in ROM is not editable. Power cut will not damage the data in ROM.

2) RAM

It is for temporarily storing the inputted data, fault code and computed result. Power cut will make all information in RAM erased.

3) PROM

Its program is made by manufacturer to suit the application of transmission, engine, exhaust control, driveability, rear axle ratio, etc. PROM is can be detached from ECU and power cut will not damage the data in it.

4) EEPROM

Its function is similar to PROM. The difference between EEPROM and PROM is that EEPROM can be re-programmed by manufacturer with a special device.

Precautions Related to ECU

The circuit inside the ECU is very accurate and may be easily damaged by over voltage, static

electricity and/or magnetic fields. Pay more attention when diagnosing the devices that is connected to ECU because most ECU's are operated under low voltage (about 5V).

Whenever you work in the vicinity of ECU or engine control system, please obey the following precautions:

1. Never damage the lead or connector. Prevent them from being grounded or contacting with an unexpected power source.

2. Never use the electrical test tool that is powered by 6V battery or over. Strong current may cause the element in ECU broken or shorted. For checking the engine control circuit, only the multimeter with large internal impedance (over 10MΩ) can be used.

3. Never try to disassemble or repair ECU if there are not necessary tools and information. Any mistake may damage the component or increase the difficulty for service station.

4. The spark plug wire must be at least 25.4mm from any sensor circuit or control circuit. Some unexpected fault in ECU circuit is caused by magnetic fields that transmit wrong signal to ECU. High-tension wire or transformer may interfere with ECU, but the most common cause for such problem is that the spark plug is too close to ECU harness.

5. Be careful when moving ECU or working around ECU. Remember that static electricity may cause strong electrical shock and damage ECU.

Appendix 1: about VIN

VIN is the abbreviation of Vehicle Identification Numbers.

A car's vehicle identification number (VIN) is the identifying code for your SPECIFIC automobile. It is your car's fingerprint.

It sets your vehicles apart from the millions of vehicles out there. Recently the VIN is reflected by 17 digit characters. It displays a car's uniqueness and manufacturer and provides a method to trace your car from the factory to the junkyard.

Each character or digit has a particular purpose. They are as follows:

- First vehicle identification number digit identifies the country from which the vehicle was manufactured. For example, U.S.A. (1 or 4), Canada (2), Mexico (3), Japan (J), Korea (K), England (S), Germany (W), Italy (Z).

- Second vehicle identification number digit specifies the manufacturer. Audi (A), BMW (B), Buick (4), Cadillac (6), Chevrolet (1), Chrysler (C), Dodge (B), Ford (F), GM Canada (7), General Motors (G), Honda (H), Jaguar (A), Lincoln (L), Mercedes Benz (D), Mercury (M), Nissan (N), Oldsmobile (3), Pontiac (2 or 5), Plymouth (P), Saturn (8), Toyota (T), Volvo (V).

- Third vehicle identification number digit indicates the vehicle type or manufacturing division.

- Fourth through eighth vehicle identification number digit reveals the vehicle features such as body style, engine type, model, series, etc.

- The ninth vehicle identification number digit is a VIN accuracy check digit, verifying the previous VIN numbers. This is how the check digit works:

  - STEP 1
    Assign to each number in the VIN its actual mathematical value and assign to each letter the value specified for it in the following chart:

    ASSIGNED VALUES:
    A=1 G=7 P=7 X=7
    B=2 H=8 R=9 Y=8
    C=3 J=1 S=2 Z=9
    D=4 K=2 T=3
    E=5 M=3 U=4
    F=6 N=4 V=5

  - STEP 2
    Multiply the assigned value for each character in the VIN by the position weight factor specified in the following chart:

    VIN POSITION AND WEIGHT FACTOR:
    1st = 8 10th = 9
    2nd = 7 11th = 8
    3rd = 6 12th = 7
    4th = 5 13th = 6
    5th = 4 14th = 5
    6th = 3 15th = 4
    7th = 2 16th = 3
    8th = 10 17th = 2
    9th = check digit

  - STEP 3
    Add the products from steps 1 and 2 and divide the total by 11.

  - STEP 4
    The numerical remainder is the check digit, which would appear in the 9th position in the VIN. If the remainder is 10, then the letter "X" is used for the check digit.

- Tenth vehicle identification number digit tells the model year. 1988 (J), 1989 (K), 1990 (L), 1991 (M), 1992 (N), 1993 (P), 1994 (R), 1995 (S), 1996 (T), 199 7(V), 1998 (W), 1999 (X), 2000 (Y)------2001(1), 2002 (2), 2003 (3), 2004 (4), 2005 (5), 2006 (6), 2007 (7), 2008 (8), 2009 (9).

- Eleventh vehicle identification number digit reveals the assembly plant for the vehicle.

- The twelfth to seventeenth vehicle identification number digits indicate the sequence of the vehicle for production as it rolled of the manufacturers' assembly line.

Your VIN can be used to track recalls, registrations, warranty claims, thefts and insurance coverage.

Common locations of the vehicle identification number (VIN) vary but the following are places to look:

- Firewall of the vehicle
- Left hand inner wheel arch
- Steering column
- Radiator Support Bracket
- Dash by windshield
- Drivers door or post on passenger side
- Guarantee & Maintenance Book *Vehicle documents
- Machined Pad on front of engine
- Component parts as listed above e.g. engine, frame, etc.

Later model years - most common areas of VIN:
- Left instrumentation/dash panel by window
- Drivers door or post
- Firewall

Warranty

THIS WARRANTY IS EXPRESSLY LIMITED TO PERSONS WHO PURCHASE LAUNCH PRODUCTS FOR PURPOSES OF RESALE OR USE IN THE ORDINARY COURSE OF THE BUYER'S BUSINESS.

LAUNCH electronic product is warranted against defects in materials and workmanship for one year (12 months) from date of delivery to the user.

This warranty does not cover any part that has been abused, altered, used for a purpose other than for which it was intended, or used in a manner inconsistent with instructions regarding use. The exclusive remedy for any automotive meter found to be defective is repair or replacement, and LAUNCH shall not be liable for any consequential or incidental damages.

Final determination of defects shall be made by LAUNCH in accordance with procedures established by LAUNCH. No agent, employee, or representative of LAUNCH has any authority to bind LAUNCH to any affirmation, representation, or warranty concerning LAUNCH automotive meters, except as stated herein.

Disclaimer

THE ABOVE WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Order Information

Replaceable and optional parts can be ordered directly from your LAUNCH authorized tool supplier. Your order should include the following information:

1. Quantity
2. Part number
3. Item description

Customer Service

If you have any questions on the operation of the unit, please contact us:

Tel: 86-755-84528431/84528822

If your unit requires repair service, return it to the manufacturer with a copy of the sales receipt and a note describing the problem. If the unit is determined to be in warranty, it will be repaired or replaced at no charge. If the unit is determined to be out of warranty, it will be repaired for a nominal service charge plus return freight. Send the unit prepaid to:

Attn: Customer Service Department
LAUNCH TECH. CO., LTD.
Launch Industrial Park,
North of Wuhe Avenue,
Banxuegang, Bantian,
Longgang, Shenzhen, Guangdong
P.R.China, 518112

Statement: LAUNCH reserves the rights to make any change to product designs and specifications without notice. The actual object may differ a little from the descriptions in the manual in physical appearance, color and configuration. We have tried our best to make the descriptions and illustrations in the manual as accurate as possible, and defects are inevitable, if you have any question, please contact local dealer or after-sale service center of LAUNCH, LAUNCH does not bear any responsibility arising from misunderstandings.