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Brand:LAUNCH
Product:Professional HD Diagnostic Tool

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Safety Precautions and Warnings

To prevent personal injury or damage to vehicles and/or the CRP 429HD, please read this user's manual first carefully and observe the following safety precautions at a minimum whenever working on a vehicle:

- Always perform automotive testing in a safe environment.
- Do not attempt to operate or observe the tool while driving a vehicle. Operating or observing the tool will cause driver distraction and could cause a fatal accident.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- Operate the vehicle in a well-ventilated work area: Exhaust gases are poisonous.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
- Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Put the transmission in P (for A/T) or N (for M/T) and make sure the parking brake is engaged.
- Keep a fire extinguisher suitable for gasoline/chemical/ electrical fires nearby.
- Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the CRP 429HD dry, clean, free from oil/water or grease. Use a mild detergent on a clean cloth to clean the outside of the CRP 429HD, when necessary.
- Please use the DC 5V power adaptor to charge the CRP 429HD. No

responsibility can be assumed for any damage or loss caused as a result of using power adaptors other than the right one.

FCC Warning:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

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

The device has been evaluated to meet general RF exposure requirement. The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types Professional Diagnostic Tool with model CRP 429HD (FCC ID: XUJCRP429HD) has also been tested against this SAR limit. The highest reported SAR values for body-worn is 0.68 W/kg. This device was tested for typical body-worn operations with the back of the handset kept 0mm from the body. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

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1. Introduction

CRP 429HD is an evolutionary smart solution exclusively for commercial vehicle diagnosis. It inherits from LAUNCH's advanced diagnosing technology and is characterized by covering a wide range of vehicles, featuring powerful functions, and providing precise test result.

CRP 429HD has the following functions and advantages:

- SystemDetect Diagnosis: This option provides the ability to quickly access the vehicle system. Once CRP 429HD and the vehicle are properly connected, the system starts auto-decoding process.

  Once the whole process is successfully finished, you can start a diagnostic session for each system.
- Manual Diagnosis: If SystemDetect failure occurs, manual diagnosis is also available. Diagnosis functions include: Version Information, Read DTCs, Clear DTCs and Read Data Stream (supports 3 display modes: Value, Graph and Merged).
- HD OBD Diagnosis: 10 modes of OBD II test are supported, including EVAP, O2 Sensor, I/M Readiness, MIL Status, VIN Info, and On-board monitors testing etc.
- One-click Update: Let you update your diagnostic software and APK online.
- Diagnostic History: This function provides a quick access to the tested vehicles and users can choose to view the test report or resume from the last operation, without the necessity of starting from scratch.
- Diagnostic Feedback: Use this option to submit the vehicle issue to us for analysis and troubleshooting.
- DTC Library: Allows you to retrieve the definition of the diagnostic trouble code from the abundant DTC database.
- Displays battery real-time voltage once properly connected to the vehicle.
- Features screenshot capture. Screenshots and reports sharing are supported.
- Touch & Keypad input are supported. Quick Dial buttons enables you to easily access the corresponding functions.

2. General Information

2.1 On-Board Diagnostics (OBD) II

The first generation of On-Board Diagnostics (OBD I) was developed by the California Air Resources Board (ARB) and implemented in 1988 to monitor some of the emission control components on vehicles. As technology evolved and the desire to improve the On-Board Diagnostic system increased, a new generation of On-Board Diagnostic system was developed. This second generation of On-Board Diagnostic regulations is called “OBD II”.

The OBD II system is designed to monitor emission control systems and key engine components by performing either continuous or periodic tests of specific components and vehicle conditions. When a problem is detected, the OBD II system turns on a warning lamp (MIL) on the vehicle instrument panel to alert the driver typically by the phrase of “Check Engine” or “Service Engine Soon”. The system will also store important information about the detected malfunction so that a technician can accurately find and fix the problem. Here below follow three pieces of such valuable information:

1) Whether the Malfunction Indicator Light (MIL) is commanded ‘on’ or ‘off’;
2) Which, if any, Diagnostic Trouble Codes (DTCs) are stored;
3) Readiness Monitor status.

2.2 DLC (Data Link Connector) Location

The DLC is the connector where diagnostic code readers interface with the vehicle’s on-board computer and usually located in the driver’s cab.

A plastic DLC cover may be found for some vehicles and you need to remove it before plugging the 6 pin or 9 pin DLC diagnostic adaptor. If it cannot be found, refer to the vehicle’s service manual for the location.

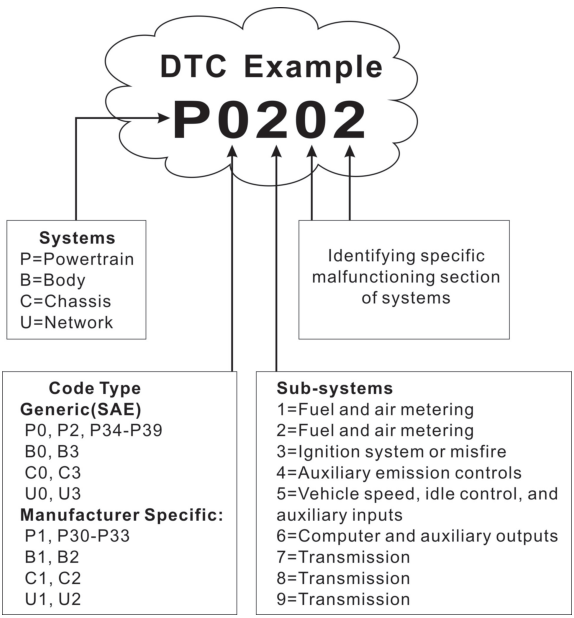
2.3 Diagnostic Trouble Codes (DTCs)

Diagnostic Trouble Codes (DTC) are codes that are stored by the on-board computer diagnostic system in response to a problem found in the vehicle. These codes identify a particular problem area and are intended to provide you with a guide as to where a fault might be occurring within a vehicle.

2.3.1 OBDII DTC

OBD II Diagnostic Trouble Codes consist of a five-digit alphanumeric code. The first character, a letter, identifies which control system sets the code. The second character, a number, 0-3; other three characters, a hex character, 0-9 or A-F

provide additional information on where the DTC originated and the operating conditions that caused it to set. Here below is an example to illustrate the structure of the digits:



2.3.2 DTCs for J1587/J1708 and J1939

This section explains the basic elements of fault codes for J1587/J1708 and J1939 data bus protocols, how to view these codes on CRP 429HD HD, and what they mean. Each fault code on CRP 429HD HD contain three distinct pieces of information, as described below.

J1587/J1708 fault codes consist of the following, in this order:

- Subsystem Identifier (SID) – Indicates what function on the ECU has failed.
- Failure Mode Indicator (FMI) – Indicates in what way the function failed.
- Occurence (OC) – Indicates the occurence times of fault codes.

J1939 fault codes consist of the following, in this order:

- Suspect Parameter Number (SPN) – Indicates what function on the ECU has failed.

- Failure Mode Indicator (FMI) – Indicates in what way the function failed.
- Occurence (OC) – Indicates the occurence times of fault codes.

2.4 J1708/J1587/J1939

SAE J1708, SAE J1587 and SAE J1939 are automotive diagnostic protocol standard developed by the Society of Automotive Engineers (SAE).

SAE J1708

SAE J1708 is a standard used for serial communications between ECUs on a heavy duty vehicle and also between a computer and the vehicle. With respect to Open System Interconnection model (OSI), J1708 defines the physical layer. Common higher layer protocols that operate on top of J1708 are SAE J1587 and SAE J1922.

SAE J1587

SAE J1587 is an automotive diagnostic protocol standard developed by the Society of Automotive Engineers (SAE) for heavy-duty and most medium-duty vehicles built after 1985. The J1587 protocol uses different diagnostic connectors. Up to 1995, individual OEMs used their own connectors. From 1996 to 2001, the 6-pin Deutsch-connector was standard. Beginning in 2001, most OEMs converted to the 9-pin Deutsch. Some OEMs still use the 6-pin Deutsch. It has mostly been used for US made vehicles, and also by Volvo.

SAE J1708 makes up the physical and data link layers while SAE J1587 makes up the transport and application layers with respect to the OSI model. SAE J1587 is used in conjunction with SAE J1708 for automobile communication.

SAE J1939

SAE J1939 is the vehicle bus standard used for communication and diagnostics among vehicle components, originally by the car and heavy duty truck industry in the United States.

SAE J1939 is used in the commercial vehicle area for communication throughout the vehicle. With a different physical layer it is used between the tractor and trailer. This is specified in ISO 11992.

SAE J1939 can be considered the replacement for the older SAE J1708 and SAE J1587 specifications.

SAE J1939 has been adopted widely by diesel engine manufacturers. One driving force behind this is the increasing adoption of the engine Electronic Control Unit (ECU), which provides one method of controlling exhaust gas emissions within US and European standards. Consequently, SAE J1939 can now be found in a range of diesel-powered applications: vehicles (on- and off-

road), marine propulsion, power generation and industrial pumping.

Applications of J1939 now include off-highway, truck, bus, and even some passenger car applications.

2.5 OBD II Definitions

Powertrain Control Module (PCM) -- OBD II terminology for the on-board computer that controls engine and drive train.

Malfunction Indicator Light (MIL) -- Malfunction Indicator Light (Service Engine Soon, Check Engine) is a term used for the light on the instrument panel. It is to alert the driver and/or the repair technician that there is a problem with one or more of vehicle's systems and may cause emissions to exceed federal standards. If the MIL illuminates with a steady light, it indicates that a problem has been detected and the vehicle should be serviced as soon as possible. Under certain conditions, the dashboard light will blink or flash. This indicates a severe problem and flashing is intended to discourage vehicle operation. The vehicle onboard diagnostic system cannot turn the MIL off until the necessary repairs are completed or the condition no longer exists.

DTC -- Diagnostic Trouble Codes (DTC) that identifies which section of the emission control system has malfunctioned.

Enabling Criteria -- Also termed Enabling Conditions. They are the vehicle-specific events or conditions that must occur within the engine before the various monitors will set, or run. Some monitors require the vehicle to follow a prescribed "drive cycle" routine as part of the enabling criteria. Drive cycles vary among vehicles and for each monitor in any particular vehicle. Please refer to the vehicle's factory service manual for specific enabling procedures.

OBD II Drive Cycle -- A specific mode of vehicle operation that provides conditions required to set all the readiness monitors applicable to the vehicle to the "ready" condition. The purpose of completing an OBD II drive cycle is to force the vehicle to run its onboard diagnostics. Some form of a drive cycle needs to be performed after DTCs have been erased from the PCM's memory or after the battery has been disconnected. Running through a vehicle's complete drive cycle will "set" the readiness monitors so that future faults can be detected. Drive cycles vary depending on the vehicle and the monitor that needs to be reset. For vehicle specific drive cycle, consult the service manual.

Freeze Frame Data -- When an emissions related fault occurs, the OBD II system not only sets a code but also records a snapshot of the vehicle operating parameters to help in identifying the problem. This set of values is referred to as Freeze Frame Data and may include important engine parameters such as engine RPM, vehicle speed, air flow, engine load, fuel pressure, fuel trim value,

engine coolant temperature, ignition timing advance, or closed loop status.

Fuel Trim (FT) - Feedback adjustments to the base fuel schedule. Short-term fuel trim refers to dynamic or instantaneous adjustments. Long-term fuel trim refers to much more gradual adjustments to the fuel calibration schedule than short-term trim adjustments. These long-term adjustments compensate for vehicle differences and gradual changes that occur over time.

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3. Product Descriptions

3.1 Outline of CRP 429HD

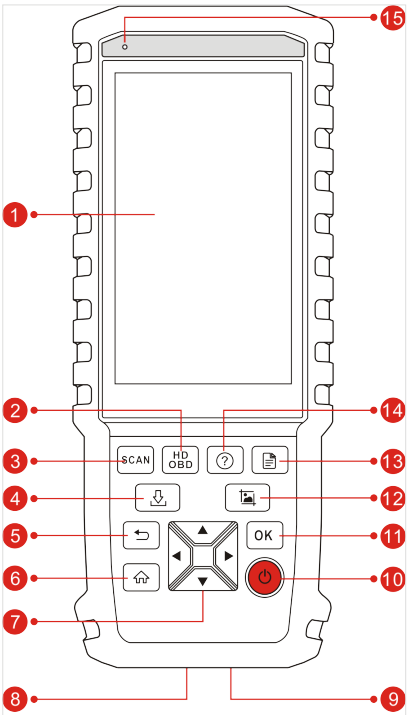

Figure 3-1

No.	Name	Descriptions
1	**LCD**	Indicates test results.
2	**HD OBD**	A quick dial to HD OBD diagnosis.
3	**Scan**	Press it to quickly launch the system scanning module.

4	**Update**	A quick access to the Update module. *Note: This function requires a stable network connection.
5	**Return**	Exit the current program or return to the previous screen.
6	**HOME**	Press to the home(Job menu) screen.
7	▲/▼	Move cursor up and down for selection.
	◀/▶	Move cursor left or right for selection; Or turn page up and down when more than one page is displayed.
8	**OBD-16 connector**	To connect to vehicle's DLC (Data Link Connector) via diagnostic cable.
9	**5V Charging port**	To connect to external DC power for charging CRP 429HD.

10	**Power**	• In Off mode, press it for about 5 seconds to turn the handset on.
		• In On mode:
		  • Press it to activate the LCD if the LCD is off.
		  • Press it to turn off the LCD if the LCD lights up.
		  • Press it for 3 seconds to turn it off.

11	**OK**	Confirms a selection (or action) from a menu list.
12	**Screenshots**	Press it once to capture the current screen. All screenshots are saved in the “Image” folder of “Data”.
13	**Diagnostic Reports**	A quick dial to the “Diagnostic Reports” module. Alternatively, it can also be accessed by “Data” -> “Diagnostic Report”.
14	**Help**	Provides detailed descriptions/tips for diagnostics.
15	**Charging LED**	Red means Charging and Green means Fully Charged.

3.2 Technical Specifications

- Screen: 5” IPS touch screen
- RAM: 1G
- ROM: 8GB
- Battery: 4000mAh rechargeable Li-battery
- OBDII input voltage range: 9~18V
- Touch & Keypad input
- Charging via:
  - DC 5V charging cable or
  - Diagnostic cable through connection to vehicle’s DLC
- Dimension: 248.7mm x 93.5mm x 36mm
- Net weight: 530g
- Working temperature: -10 to 50°C (14 to 122 F°)
- Storage temperature: -20 to 70°C (-4 to 158 F°)

3.3 Accessories Checklist

For detailed accessory items, please consult from the local agency or check the packing list supplied with CRP 429HD together.

1. CRP 429HD handset
2. Diagnostic cable
3. DC 5V charging cable
4. Non-16pin adaptor cable kit
5. Cigarette lighter cable
6. Battery clamps cable
7. User manual

4. Initial Use

4.1 Charging CRP 429HD

There are two charging methods available:

Via Charging Cable: Plug one end of the included charging cable into the DC-IN port of the tool, and the other end to the external DC power.

Via Diagnostic Cable: Insert one end of the diagnostic cable into the DB-15 connector of the tool, and the other end to the vehicle's DLC (*For vehicles equipped with non-16pin DLC, a non-16pin adaptor cable is required).

Once the charging LED illuminates solid green, it indicates that the battery is fully charged.

4.2 Getting Started

If it is the first time you have used this tool, you need to make some system settings.

1. Press the [Power] button to power it on.
2. The screen displays a welcome page. Tap "Start" to go to next step.
3. Choose the desired system language, and tap "Next".
4. Choose the desired time zone, and tap "Next" to enter the WLAN setup page.
5. Slide the switch to ON, the system starts searching for all available wireless LANs. Choose the desired WLAN access point / network,
   - If the network you chose is open, you can connect directly;
   - If the selected network is encrypted, you have to enter the right security key (network password).

*Note: If you choose "Ignore" in WLAN setup, it will go into the date setting page. If the tool has been properly connected to the Internet, the system will automatically obtain the correct network date and time and navigate to step 6.

6. After the network connection is done, tap "Next" to configure email address. Input the email address, and tap "Next" to navigate to the Job menu.

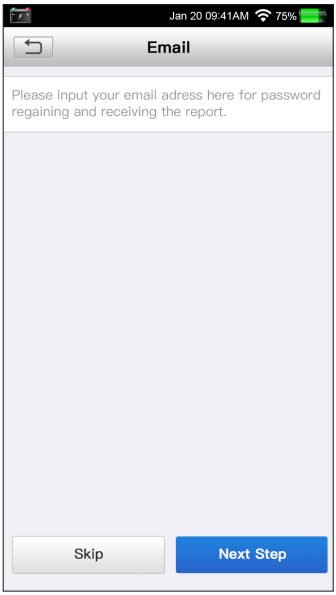

Figure 4-1

*Note: To enjoy more function and better service, you are strongly recommended to fill in the valid email address.

4.3 Job Menu

It mainly includes the following function modules.

Diagnose	To configure CRP 429HD to operate as a diagnostic tool.
HD OBD	This function provides a quick way to check for DTCs, isolate the cause of the illuminated Malfunction Indicator Lamp (MIL), check monitor status, verify repairs and perform a lot of emission-related services.
Update	To update vehicle diagnostic software and APK. *Note: This function requires a stable network connection.
Data	Includes Diagnostic report, Diagnostic record, Feedback and Image etc.
Settings	To make some system settings, including Network setup, Email and Brightness etc.

5. Diagnose

5.1 Connection

1. Turn the ignition off.
2. Locate the vehicle's DLC.
3. Select the desired adaptor cable according to your vehicle's DLC.

- For vehicles equipped with OBD II management system, directly insert one end of the diagnostic cable into the OBD-16 connector, and the other end to the vehicle's DLC.
- For vehicles equipped with non-OBD II management system, a non-16pin adaptor cable is required. In this case, connect one end of the non-16pin adaptor cable to the vehicle's DLC, and the other end to the OBD-16 terminal of the diagnostic cable. Plug the other end of the diagnostic cable into the DB-15 connector of the handset, and tighten the captive screws.

*Note:

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

- From cigarette lighter: insert one end of the cigarette lighter cable into the vehicle's lighter receptacle and connect the other end to the charging port of the CRP 429HD.
- From battery: clamp the two clips of battery clamps cable on the positive and negative poles of battery and insert the other end of the cable into the charging port of the CRP 429HD.

4. Turn the ignition on. Engine can be off or running.

5.2 System Diagnosing

This function is specially designed to diagnose electronic control systems of single vehicle model.

There are two ways available for you to diagnose vehicle systems.

5.2.1 System Scan

This module provides the ability to quickly scan the vehicle systems without having to select the vehicle manufacturer and model step by step. After all connections are properly made, turn the ignition key on and the system enters automatic system scanning mode.

*CAUTION: Don't connect or disconnect any test equipment with ignition on or engine running.

After the scanning is complete, a screen similar to the following displays.

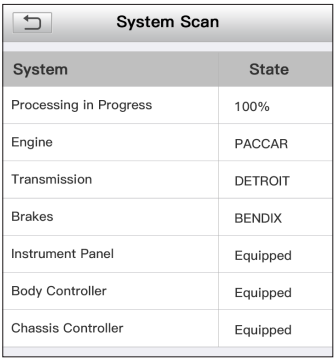

Fig. 5-1

Tap the desired system, and then follow on-screen instructions to start a diagnostic session. Once the vehicle diagnosis is finished, the system will output a diagnostic report. For details on manual diagnosis, see Chapter 5.2.2.

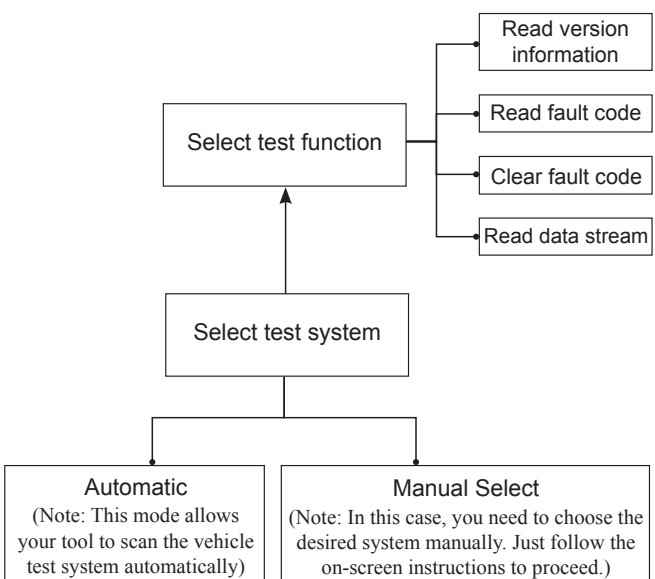

Fig. 5-2

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5.2.2 Manual Diagnosis

If the system scanning failed to run, you can also perform vehicle diagnosis manually. In this mode, you need to execute the menu-driven command and then follow the on-screen instruction to proceed.

*Notes:

- Before diagnosing, please make sure the diagnostic program corresponding to certain vehicle model has been installed on your CRP 429HD.
- For vehicles manufactured by different vendors, it is possible that it has different diagnostic menus. For details, please follow the instructions on the screen to proceed.

Refer to the flowchart illustrated as below to diagnose a vehicle manually:

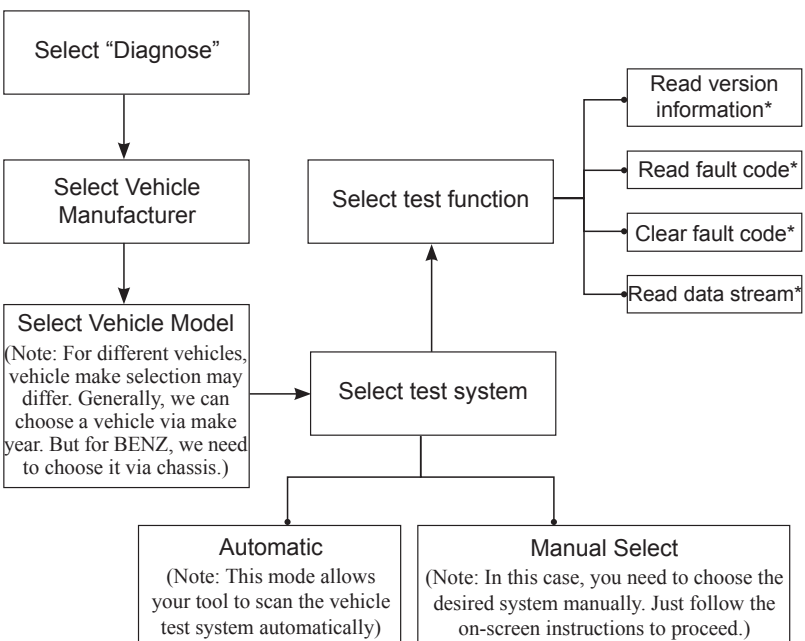

Fig. 5-3

A. Version Information

This function is used to read the version information of system mode, vehicle VIN, software and ECU.

B. Read Fault Code

This function displays the detailed information of DTC records retrieved from the vehicle's control system.

On the Read fault code page, you can do the following:

- Tap **"Code Search"** to search for more information about the current DTC online.
- Tap **"Report"** to save the current data in text format. All diagnostic reports can be accessed from "Data" -> "Diagnostic Report".

*Note: Retrieving and using DTCs for troubleshooting vehicle operation is only one part of an overall diagnostic strategy. Never replace a part based only on the DTC definition. Each DTC has a set of testing procedures, instructions and flow charts that must be followed to confirm the location of the problem. This information can be found in the vehicle's service manual.

C. Clear Fault Code

After reading the retrieved codes from the vehicle and certain repairs have been carried out, you can use this function to erase the codes from the vehicle. Before performing this function, please be sure the vehicle's ignition key is in the ON position with the engine off.

*Note:

1. If you plan to take the vehicle to a Service Center for repair, DO NOT erase the codes from the vehicle's computer. If data is erased, valuable information that might help the technician troubleshoot the problem will also be erased.
2. Clearing DTCs does not fix the problem(s) that caused the code(s) to be set. If proper repairs to correct the problem that caused the code(s) to be set are not made, the code(s) will appear again and the check engine light will illuminate as soon as the problem that cause the DTC to set manifests itself.

D. Read Data Stream

This option retrieves and displays live data and parameters from the vehicle's ECU. This data including current operating status for parameters and/or sensor information can provide insight on overall vehicle performance. It can also be used to guide vehicle repair.

Tap "Read Data Stream", the system will display data stream items.

After selecting the desired items, tap "OK" to enter the data stream reading page.

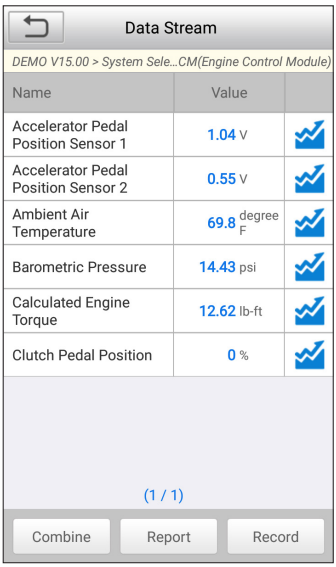

Fig. 5-4 (This screenshot is for illustrative purpose only. All data shown is fictious in nature.)

*Notes:

1. If the value of the data stream item is out of the range of the standard (reference) value, the whole line will display in red. If it complies with the reference value, it displays in blue (normal mode).
2. The indicator 1/X shown on the bottom of the screen stands for the current page/ total page number. Swipe the screen from the right/left to advance/return to the next/previous page.

There are 3 types of display modes available for data viewing, allowing you to view various types of parameters in the most suitable way.

- Value – this is the default mode which displays the parameters in texts and shows in list format.
- Graph – displays the parameters in waveform graphs.
- Combine – this option is mostly used in graph merge status for data comparison. In this case, different items are marked in different colors.

On Fig. 5-4, the following operations are available:

- Tap to view the waveform graph of the current data stream item.

- Tap **"Combine"**, a pull-down list of the data stream items appears on the screen. Select the necessary items and the screen will display the waveforms corresponding to these items immediately.
- Tap **"Report"** to save the current data as a diagnostic report. All diagnostic reports can be accessed from "Data" -> "Diagnostic Report". CRP 429HD logs the Date of Report (the date and time at which the report was created) and assigns a unique Report #.
- Tap **"Record"** to record and save Live Data. Recorded Live Data can serve as valuable information to help you in troubleshooting and diagnosing vehicle problems. The saved file follows the naming rule: It begins with vehicle type, and then the record starting time and ends with .x431 (To differentiate between files, please configure the accurate system time). All diagnostic records can be viewed by tapping "Data" -> "Diagnostic Record".

5.3 HD OBD Diagnosis

This option presents a quick way to check for DTCs, isolate the cause of the illuminated Malfunction Indicator Lamp (MIL), check monitor status prior to emissions certification testing, verify repairs, and perform a number of other services that are emission-related.

If a vehicle equipped with OBD II is tested, the system will enter the function selection screen once scanning has finished successfully. See Chapter 5.3.2.

If a vehicle equipped with non-OBD II management system is diagnosed, the system will continue scanning the protocols the vehicle supports and then enter the system selection screen.

5.3.1 HD OBD Diagnosing

If scanning failure occurs, the system will enter a screen similar to the following:

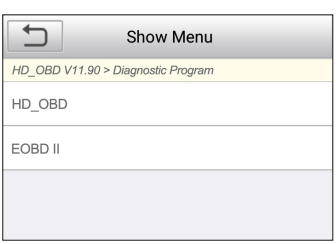

Figure 5-5

In this case, follow the diagnosis flowchart shown as below to proceed:

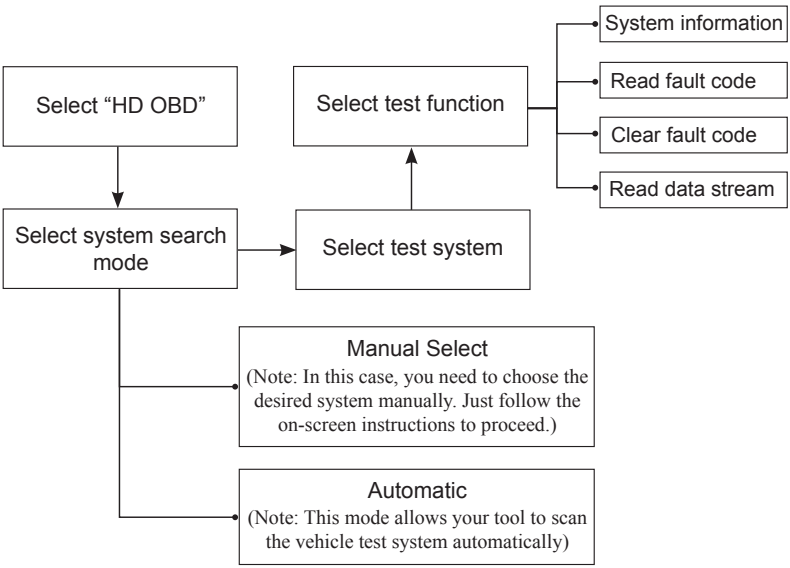

Figure 5-6

1. System Information

This function is used to read the version information of system mode, vehicle VIN, software and ECU.

2. Read diagnostic trouble code

This option is used to read the current activated or historical activated trouble codes.

*Note: Diagnostic Trouble Codes or Fault Codes can be used to identify which engine systems or components that are malfunctioning. The on-board computer records codes of the following two types of engine problems.

- **“Hard” DTCs**: represent problems that are occurring now and cause the instrument panel Malfunction Indicator Lamp (MIL) or Check Engine Light to illuminate and remain on until the failure is repaired.
- **Intermittent/History DTCs**: represent problems that occur intermittently, or happened in the past but are not currently present. Intermittent DTCs may cause the Malfunction Indicator Lamp to flicker or stay on until the intermittent malfunction goes away. However the corresponding fault code will be stored in memory as a history DTC.

Generally, there are three elements for one J1939 DTC (See Figure 5-7):

- Suspect Parameter Number (SPN) – Indicates what function on the ECU has failed.
- Failure Mode Indicator (FMI) – Indicates in what way the function failed.
- Occurence (OC) – Indicates the occurence times of the current DTC.

Whereas, if we choose [J1587/1708], the fault code includes:

- Subsystem Identifier (SID) – Indicates what function on the ECU has failed.
- Failure Mode Indicator (FMI) – Indicates in what way the function failed.
- Occurence (OC) – Indicates the occurence times of the current DTC.

*Note: Retrieving and using DTCs for troubleshooting vehicle operation is only one part of an overall diagnostic strategy. Never replace a part based only on the DTC definition. Each DTC has a set of testing procedures, instructions and flow charts that must be followed to confirm the location of the problem. This information can be found in the vehicle's service manual.

3. Clear diagnostic trouble code

This option allows you to clear the existing or historic trouble codes.

Clearing DTCs does not fix the problem(s) that caused the code(s) to be set. If proper repairs to correct the problem that caused the code(s) to be set are not made, the code(s) will appear again and the check engine light will illuminate as soon as the problem that cause the DTC to set manifests itself.

*Note: After clearing, you should retrieve trouble codes once more or turn ignition on and retrieve codes again. If there are still some trouble codes in the system, please troubleshoot the code using a factory diagnosis guide, then clear the code and recheck.

4. Data stream

This option enables you to read the real-time data stream in character or graphic form.

*Note: If you must drive the vehicle in order to perform a troubleshooting procedure, ALWAYS have a second person help you. Trying to drive and operate the CRP 429HD at the same time is dangerous, and could cause a serious traffic accident.

5.3.2 EOBDII Diagnosing

On Fig. 5-5, tap [EOBD II] to start initializing. Once the initialization is complete, a screen displaying Monitor Status appears. Tap [OK] to enter the function selection page.

It mainly includes the following functions:

1. Read Codes

This option is used to read the current, pending or permanent trouble codes.

2. Erase Codes

It is used to clear all existing trouble codes.

*Notes:

- Before performing this function, make sure to retrieve and record the trouble codes.
- After clearing, you should retrieve trouble codes once more or turn ignition on and retrieve codes again. If there are still some trouble codes in the system, please troubleshoot the code using a factory diagnosis guide, then clear the code and recheck.

3. I/M Readiness

I/M refers to Inspection and Maintenance that is legislated by the Government to meet federal clean-air standards. I/M Readiness indicates whether or not the various emissions-related systems on the vehicle are operating properly and are ready for Inspection and Maintenance testing.

The purpose of the I/M Readiness Monitor Status is to indicate which of the vehicle's Monitors have run and completed their diagnosis and testing, and which ones have not yet run and completed testing and diagnosis of their designated sections of the vehicle's emissions system.

The I/M Readiness Monitor Status function also can be used (after repair of a fault has been performed) to confirm that the repair has been performed correctly, and/or to check for Monitor Run Status.

Note: N/A means not available on this vehicle; INC means incomplete or not ready and OK means Completed or Monitor Ok.

4. Data Stream

This item enables you to view all data stream items and the live waveform of all selected items.

5. View Freeze Frame

When an emission-related fault occurs, certain vehicle conditions are recorded by the on-board computer. This information is referred to as freeze frame data. Freeze Data is a snapshot of the operating conditions at the time of an emission-related fault.

*Note: If DTCs were erased, Freeze Data may not be stored in vehicle memory depending on vehicle.

6. O2 sensor test

The results of O2 sensor test are not live values but instead the results of the ECU's last O2 sensor test. For live O2 sensor readings, refer to any of the live sensor screens such as Graph Screen.

Not all test values are applicable to all vehicles. Therefore, the list generated will vary depending on vehicle. In addition, not all vehicles support the Oxygen Sensors screen.

7. On-board monitor test

This function can be utilized to read the results of on-board diagnostic monitoring tests for specific components/systems.

8. Evap System

The EVAP test function lets you initiate a leak test for the vehicle's EVAP system. CRP 429HD does not perform the leak test, but signals to vehicle's on-board computer to initiate the test. Before using the system test function, refer to the vehicle's service repair manual to determine the procedures necessary to stop the test.

9. Vehicle Infomation

This option allows you to retrieve a list of information (provided by the vehicle manufacturer), unique to the vehicle under test, from the vehicle's on-board computer. This information may include:

- VIN (Vehicle Identification Number)
- CIDs (Calibration ID) -- These CIDs uniquely identify the software version for the vehicle's control module.
- CVNs (Calibration Verification Number) -- CVNs are used to determine if emission-related calibrations for the vehicle under test have been changed. One or more CVNs may be returned by the vehicle's on-board computer.

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5.4 History

Generally once a vehicle diagnosis is performed, CRP 429HD will record the every details of diagnostic session. The History function provides direct access to the previously tested vehicles and users can resume from the last operation, without the necessity of starting from scratch.

Tap “History” on the Manual Diagnosis main menu screen, all diagnostic records will be listed on the screen in date sequence.

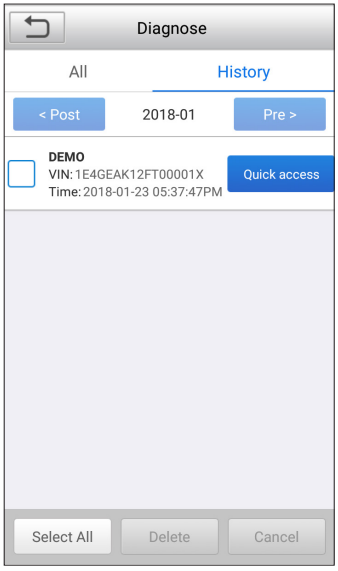

Fig. 5-7

- Tap certain vehicle model to view the details of the last diagnostic report.
- To delete certain diagnostic history, select it and then tap “Delete”. To delete all historical records, tap “Select All” and then tap “Delete”.
- Tap “Quick access” to directly navigate to the function selection page of last diagnostic operation. Choose the desired option to proceed.

6. Update

If some new software or APK can be updated, a numeric indicator will display on the “Upgrade” module on the Job menu. In this case, you may use this option to keep it synchronized with the latest version.

*Notes:

- To enjoy more functions and better service, you are strongly suggested to update it on regular basis.
- This function requires a stable network connection.

Tap “Upgrade” on the Job menu to enter the update center.

By default, all diagnostic software is selected.

To deselect certain software, tap “Unselect”, and then check the box next to vehicle model.

Tap “Update” to start downloading. It may take several minutes to finish it, please be patient to wait. To pause downloading, tap “Stop”. To resume it, tap “Continue”. If network connection failure occurs, tap “Retry” to try again.

Once download is finished, the software packages will be installed automatically.

7. Data

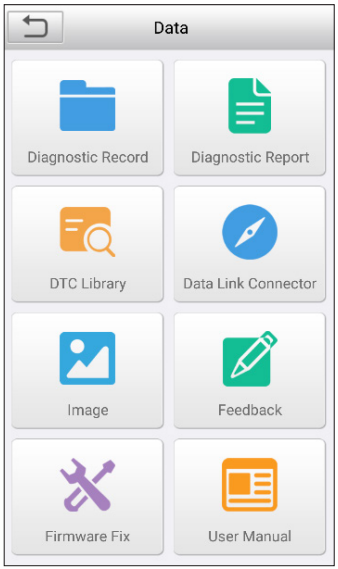

Fig. 7-1

7.1 Diagnostic Record

If user records the running parameters or waveform graphs while reading data stream, it will be saved as diagnostic records and appear under this tab.

Tap “Diagnostic Record” to enter, select and tap the desired data stream items and tap “OK” to jump to the playback page.

On-screen Buttons:

: Tap it to view the waveform graph of the current data stream item.

Graph – displays the parameters in waveform graphs.

Combine – this option is mostly used in graph merge status for data comparison. In this case, different items are marked in different colors.

Value – this is the default mode which displays the parameters in texts and shows in list format.

Auto Playback – plays back the recorded data stream items automatically.

7.2 Diagnostic Report

This module stores all diagnostic reports generated in process of vehicle diagnosis.

All the diagnostic reports are sorted by Date and Make. If there are too many reports stored, tap (Search) to filter and quickly locate it.

- To select certain report, just check the box at the lower right corner of the report. To select all reports, tap “Select All”. To deselect all, tap “Unselect”.
- Tap it to view its details.
- Select the desired report and then tap “Delete” to delete it.

7.3 DTC Library

This option helps you to find the location of the vehicle’s DLC.

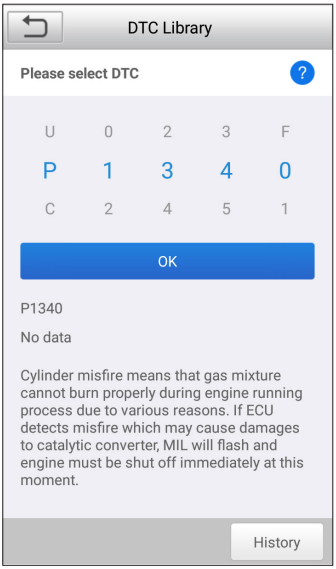

Fig. 7-2

Swipe the screen upwards/downwards to alter the value, then press [OK] button, the screen will display definition of the DTC.

7.4 DLC(Data Link Connector) Location

This option helps you to find the location of the vehicle's DLC.

7.5 Image

This option enables you to manage the screenshots.

7.6 Feedback

This item allows you to feedback your diagnostic problems to us for analysis and troubleshooting.

Tap "Feedback", the following 3 options will be displayed on the left column of the screen.

A. Feedback

Tap a tested vehicle model to enter the feedback screen.

1) Tap "Choose File" to open the target folder and choose the desired diagnostic logs.
2) Choose the failure type and fill in the detailed failure description in the blank text box and telephone or email address. After inputting, tap "Submit Result" to send it to us.

B. History

Tap it to view all diagnostic feedback records. Different process states are marked with different colors.

C. Offline list

Tap it to display all diagnostic feedback logs which have not been submitted successfully due to network failure. Once the handset gets a stable network signal, it will be uploaded to the remote server automatically.

7.7 Firmware Fix

Use this item to upgrade and fix diagnostic firmware. During fixing, please do not cut power or switch to other interfaces.

7.8 User Manual

Provides a detailed description on how to operate the CRP 429HD. Before operating the handset, please carefully read it.

8. Settings

8.1 Units of measurement

It is designed to set the measurement unit. Metric System and English System are available.

8.2 Automatic detection on connect

This option enables you to determine whether to start an automatic VIN detection once CRP 429HD is properly connected to the vehicle's DLC.

8.3 Display & Brightness

This item allows you to set the standby time and screen brightness.

*Tips: Reducing the brightness of the screen is helpful to conserve the power of the handset.

8.4 Sound

This option lets you adjust the volume and other sound settings.

8.5 Network

*Note: Once WLAN is set as ON, CRP 429HD will consume more power. While it keeps unused, please set it off to save power. While WLAN keeps unused, please turn it off to conserve battery power.

CRP 429HD has built-in WLAN module that can be used to get online. Once you're online, you can register your tool, update diagnostic software & APK, send email on your network.

Slide the switch to ON, the system starts searching for all available wireless LANs. Choose the desired WLAN access point / network to connect.

8.6 Date/Time

This option allows you to set the system date & time.

*Note: Since all diagnostic reports are sorted by Make and Date. To differentiate between files, please configure the accurate system time.

8.7 Language

CRP 429HD supports multiple languages. You can use this option to change the target language.

8.8 Email Setup

This option is used to set up the email address for receiving the diagnostic reports.

8.9 Recovery

Use this item to reset this tool to the default factory setting.

*Warning: Resetting may cause data loss. Before doing so, please be careful to perform this operation.

8.10 Version

BOOT, Download, App and System version are included.

8.11 About

This option displays the hardware configuration information of the tool and license agreement.

9. FAQ

Here we list some frequently asked questions and answers related to CRP 429HD.

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

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

2 Screen of main unit flashes at engine ignition start.

Caused by electromagnetic disturbing, and this is normal phenomenon.

3 How to save power?

- Please turn off the screen while the handset keeps idle.
- Set a shorter standby time.
- Decrease the brightness of the screen.
- If WLAN connection is not required, please turn it off.

4 Failed to enter into vehicle ECU system?

Please confirm:

- Whether the vehicle is equipped with the system.
- Whether the identified system is electronic control system.
- Whether the diagnostic cable is correctly connected.
- Whether the vehicle ignition switch is On.

If all checks are normal, send vehicle year, make, model and VIN number to us using Diagnostic Feedback feature.

5 Why are there so many fault codes?

Usually, it's caused by poor connection or fault circuit grounding.

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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.

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 local dealer, or contact LAUNCH TECH. CO., LTD:

Tel: 86-755-84528767

E-mail: X431@cnlaunch.com

Statement: LAUNCH reserves the rights to make any change to this manual without notice. 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 LAUNCH Tech(USA), Inc., LAUNCH does not bear any responsibility arising from misunderstandings.

Emergency call
If any emergency arises, dial 112/911 (or other emergency call number) for emergency help.
Due to the nature of cellular networking, the success of emergency call is not guaranteed.

FCC Warning:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue.
Device types Element PLUS (FCC ID: XUJCRP429HD) has also been tested against this SAR limit. The highest reported SAR values for body-worn accessory. The Max simultaneous SAR is 0.68 W/kg. This device was tested for typical body-worn operations with the back of the handset kept 0mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 0mm separation distance between the user's body and the back of the handset. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.