XTOOL

User Manual

Automotive Diagnostic Tool
VDT700 Automotive Diagnostic Tool

Version 1.0

Revise date 2024/03/12

Please read this user manual carefully before using this Automotive Diagnostic Tool, referred to as the "Scan Tool" throughout this document. When reading the manual, please pay attention to the words "Note" or "Caution", and read them carefully for appropriate operation.

OPERATION INSTRUCTIONS

For safe operation, please follow the instructions below:

- Keep the device away from heat or fumes when in use.
- If the vehicle battery contains acid, please keep your hands and skin or fire sources away from the battery during testing.
- The exhaust gas of the vehicle contains harmful chemicals. Please ensure adequate ventilation.
- Do not touch the vehicle cooling system components or exhaust manifolds when the engine is running due to the high temperatures reached.
- Make sure the car is securely parked, Neutral is selected or the selector is at the P or N position to prevent the vehicle from moving when the engine starts.
- Make sure the (DLC) Diagnostic Link Connector is functioning properly before starting the test to avoid damage to the Diagnostic Computer.
- Do not switch off the power or unplug the connectors during testing. Doing so may damage the ECU (Electronic Control Unit) and/or the Diagnostic Computer.

CAUTIONS!

- Avoid shaking, dropping or dismantling the scan tool as it may damage the internal components.
- Use only your fingertips to touch the LCD screen. Hard or sharp objects may damage the scan tool.
- Do not use excessive force;
- Do not expose the screen to strong sunlight for a long period.
- Please keep the scan tool away from water and moisture.
- Store and use the scan tool only within the temperature ranges identified in the Technical Specifications section.
- Keep the unit away from strong magnetic fields.

CONTENT

1. GENERAL INTRODUCTION

The VDIAGTOOL Automotive Diagnostic Tool(referred to as the "Scan Tool") is an advanced scanning tool based on the Android operating system. It supports multiple languages and is suitable for different countries and regions. The advantage of this OBD-II (On-Board Diagnostics version 2) scanner is its comprehensive functions and its ability to quickly provide the user with more accurate diagnostic information. Some of the diagnostic functions include:

- Full system Diagnostics function
- Full OBD-II functions
- Maintenance /Reset functions: such as ABS (Anti-block system) bleed/ Oil light reset / EPB (Electronic Parking Brake) reset / SAS (Steering Angle Sensors) reset / BMS matching / Injector coding / DPF Regeneration/ TPMS reset, etc.

MAIN UNITS

- **Tablet**
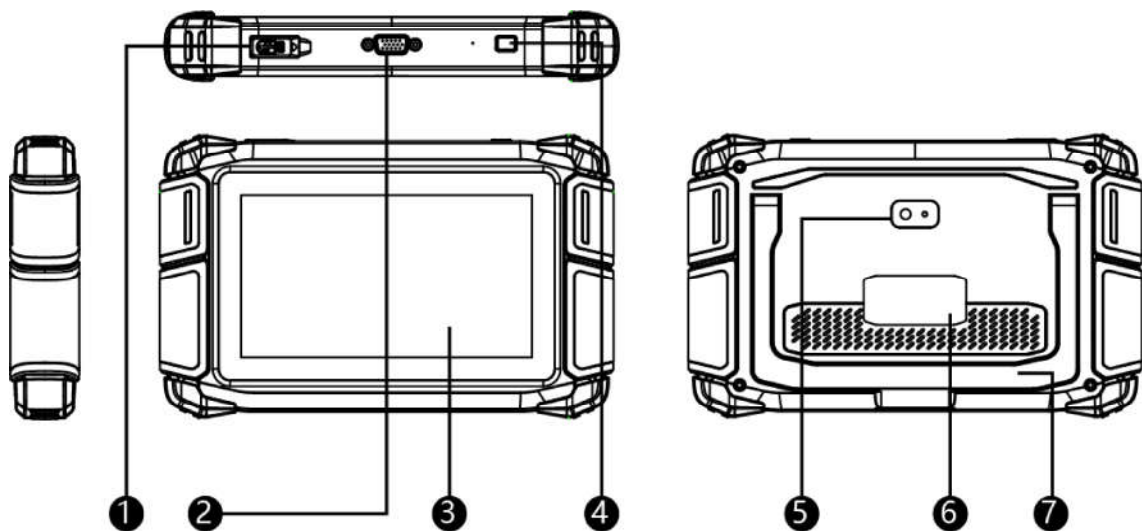
1. USB Port
2. VAG Port
3. 7-inch LCD
4. Power Button
5. Rear Camera
6. Nameplate
7. Holder

VEHICLE CONNECTION

The scan tool must be connected to the vehicle's OBD-II port so that the tablet can establish correct vehicle communication. Please perform the following steps:

1   Turn on the tablet
2   Connect vehicle and tablet via the main test cable
3   Switch on the ignition and tap on the Diagnostic application to start your diagnosis.

The connection method is shown in the figure below:
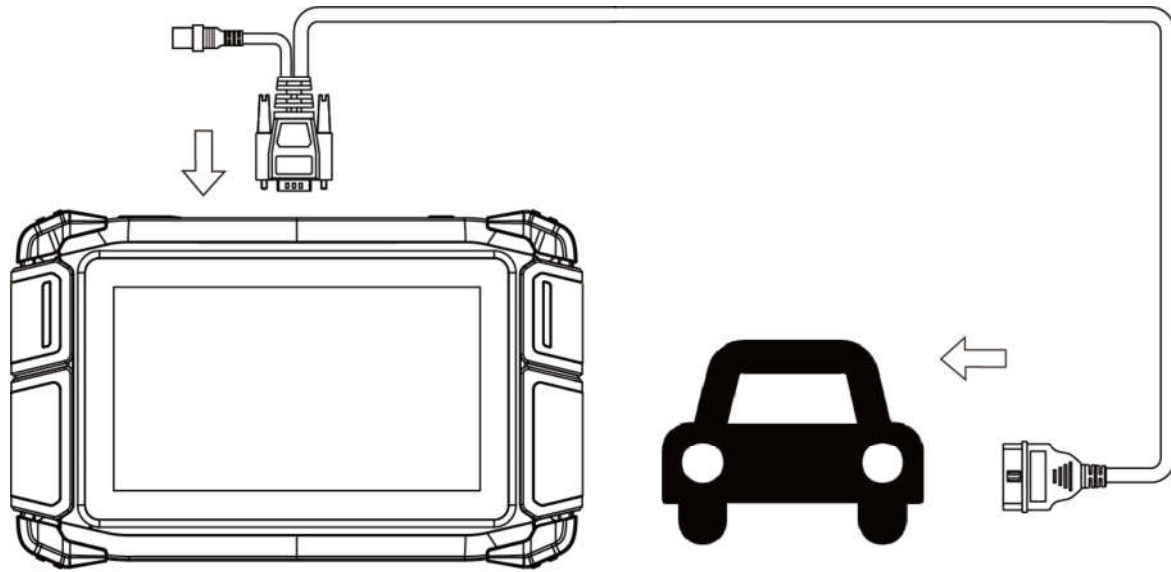
1. Vehicle
2. DB15 to OBD2-16 Main Cable
3. Tablet

⚠ *Note: Please make sure all the cables are connected tightly; The vehicle's DLC is not always located under the dash; for the location of the DLC, please refer to the vehicle's user manual.*

● **Precautions for Diagnosis**

1. The voltage range on the car: +9~+36V DC;

2. When testing some special functions, the operator must operate according to the prompts and meet the test conditions. For some models [special functions], the conditions that need to be met are: engine water temperature 80℃~105℃, turn off headlights and air conditioners, keep the accelerator pedal in the released position, etc.;

3. The electronic control systems of different models are very complicated. If you encounter situations where it is impossible to test or a large amount of test data is abnormal, you can search for the ECU of the vehicle and select the menu for the model on the ECU nameplate;

4. If the vehicle type or electronic control system to be tested is not found in the diagnostic function, please upgrade the vehicle diagnostic software to the latest version using the Updates menu or consult the VDIAGTOOL technical service department;

5. Only wiring harnesses provided by VDIAGTOOL and designed for the scan tool are permitted to be used with this scan tool to avoid damage to the vehicle or the scan tool;

6. When running a Diagnostics function, it is forbidden to shut down the scan tool directly. You should cancel the task before returning to the main interface and then shutting down the scan tool.

2. DIAGNOSTIC

The diagnostic application can read ECU information, read and clear DTC (Diagnostic Trouble Codes) and check live data and freeze frame data. The Diagnostic application can access the ECU of various vehicle control systems, including the Engine, Transmission, Anti-lock Braking System (ABS), Airbag Safety Restraing System (SRS), Electronic Parking Brake system (EPB) and perform many types of actuation tests.
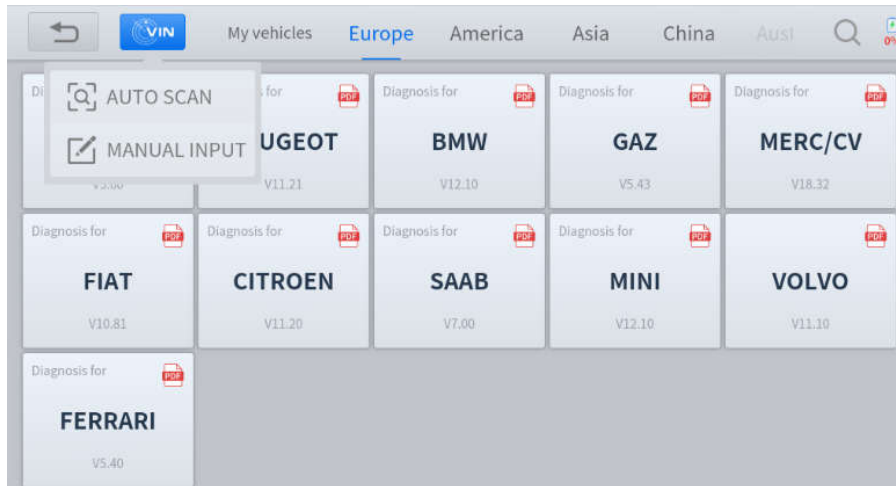
BEGINNING DIAGNOSTIC TESTING

After the tablet device is properly connected to the vehicle, you could start the vehicle diagnosis.

VEHICLE SELECTION

The scan tool supports the following 3 ways to access the smart diagnostics system.

- **AUTO SCAN**
- **MANUAL INPUT**
- **SELECT VEHICLE BY AREA**

Click the VIN button in the upper left corner and then choose to enter the vehicle diagnosis through either **AUTO SCAN or MANUAL INPUT**.

AUTO SCAN: It supports the automatic reading of vehicle VIN code. You also can tap on the button "AUTO SCAN" on the diagnosis system entrance to use this function. Please make sure that the car and the device are well connected before using this function.

⚠️ *If your model is not recognized, please try the following steps:*

① *UPDATE all software, and check whether the APP is updated in [Settings]*
② *Please click Diagnosis on the main menu to enter the selection menu, manually select the engine system to read the ECU information, and confirm whether the VIN can be read.*
③ *Contact the VDIAGTOOL technical team to provide the VIN code to confirm whether the model supports automatic identification of VIN.*

MANUAL ENTER: It supports manual input of car VIN code. When entering the VIN code manually, make sure that the 17 characters entered are correct to ensure accurate test results.
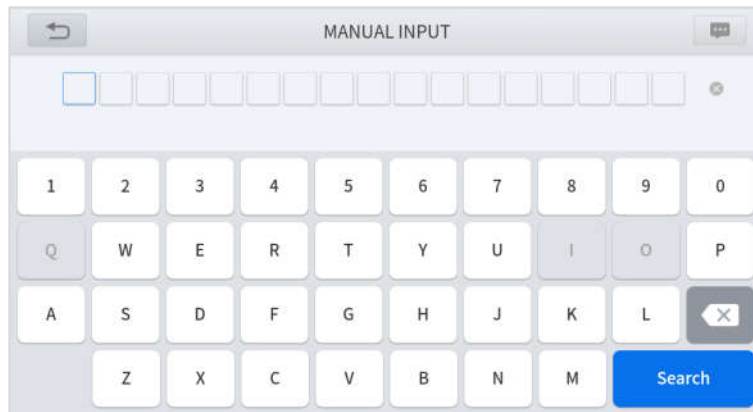
● SELECT VEHICLE BY AREA

In addition to the above 3 methods, you can also choose a car brand by selecting the appropriate region at the top of the screen. You can select the vehicle model that needs to be diagnosed according to the area, as shown below:
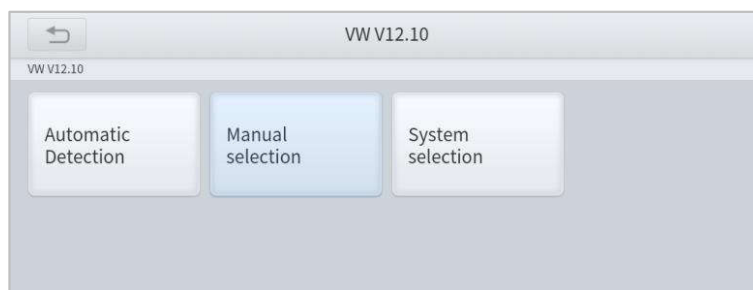

OBD-II supports reading the related fault codes of the Powertrain Control Module (PCM);

DEMO, a demonstration program; Click this button to experience and learn the operation processes of the diagnostic function

Some models provide multiple entry methods in the sub-menu, including:

- Automatic Detection
- Manual Selection
- System Selection

Automatic Detection will automatically identify the vehicle's VIN code, and then read the information of your target diagnostic object. If you choose "**Manual selection**", then you can continue to select the vehicle brand, year, and model of the vehicle in the sub-menu to diagnose the vehicle. Enter "**System Selection**", you can also diagnose the vehicle according to the system according to your needs after selecting the model.
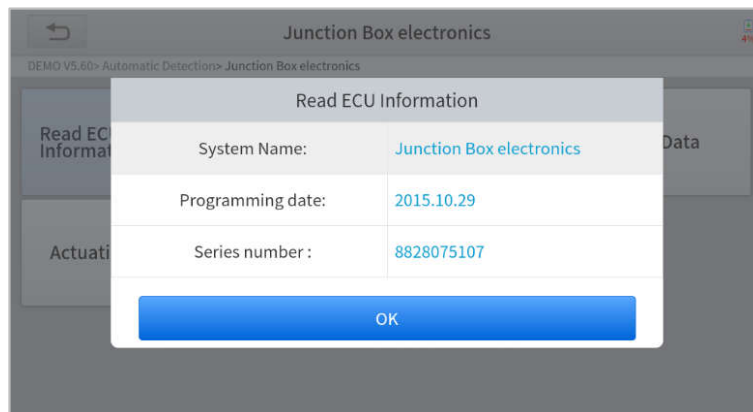
DIAGNOSIS FUNCTIONS

Diagnostics functions supported by the scan tool are listed below:

- **Read ECU Information**
- **Read/Clear Trouble Code**
- **Read Live Data**
- **Freeze Frame**
- **Actuation Test (Bi-Directional Control)**
- **Special functions**

- **READ ECU INFORMATION**

This function is to read ECU version information and is the equivalent of **"System Identification"** or **"System Information"** in some electronic control systems. These equivalent terms all refer to reading ECU-related software and hardware versions, models and production date of diesel engines, part numbers, etc. This information is helpful when recording maintenance records and ordering new parts


- **READ TROUBLE CODE**

In the process of diagnosis, if the device shows "System is OK" or "No Trouble Code", it means there is no related trouble code stored in ECU or some troubles are not under the control of ECU. Most troubles are mechanical system troubles or executive circuit troubles. It is also possible that the signal of a sensor may be inaccurate but within limits, which can be examined using Live Data.

- **CLEAR TROUBLE CODE**

It allows for clearing current and historical trouble codes stored in the ECU memory, under the premise that all the troubles have been resolved.
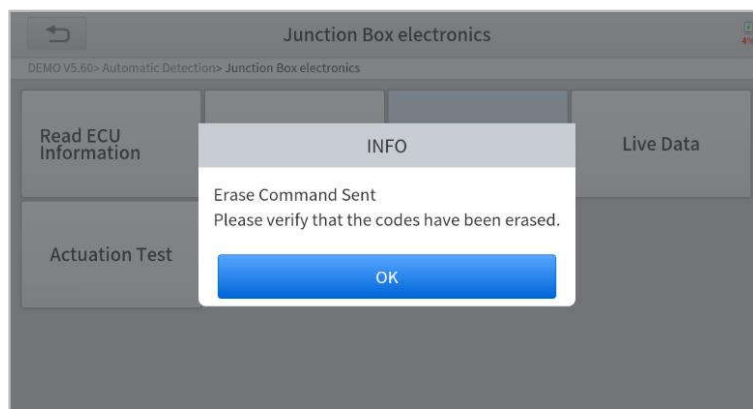
Some troubles are immediately detected by the ECU with the key in the run position and without the engine running. Other troubles are not detected until very specific test conditions are met such as engine coolant temperature within a range, speed within a range for a duration of time, throttle percentage within a range, etc.

If the trouble codes are erased when the trouble remains unresolved, the trouble code will reappear in the ECU the next time the ECU performs the specific diagnostic test for that trouble.

If the trouble is resolved but there is a stored trouble code, sometimes the ECU will detect the resolution and clear the trouble code or more likely, classify it as "historical" trouble.

If the trouble is resolved and the user clears the trouble codes, the trouble history will be cleared.
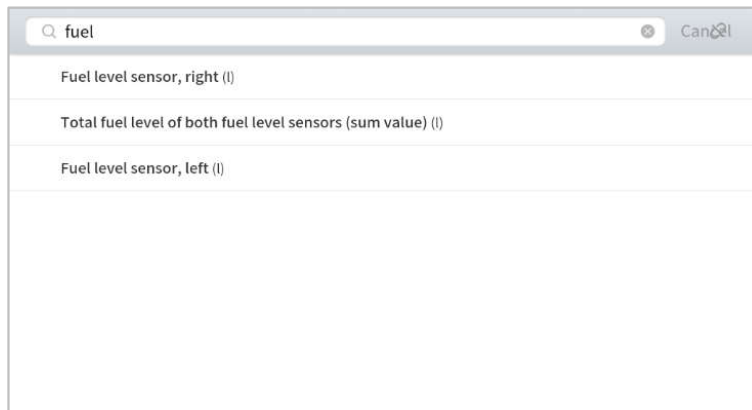
If the user intends to have another colleague or mechanic investigate the problem, it is not recommended for the user to clear the trouble code since doing so may erase information helpful to others who may investigate the issue.

- **READ LIVE DATA**

Real-time information about various sensors is called "Live Data". Live Data includes **parameter identifications (PIDs)** of the running engine such as oil pressure, temperature, engine speed, fuel oil temperature, coolant temperature, intake air temperature, etc. Based on these parameters, we can predict directly where the problem lies, which helps to narrow the scope of maintenance. For some vehicles, during their actual operation, the problems such as performance characteristics or sensitivity reduction, can be evaluated using live data.
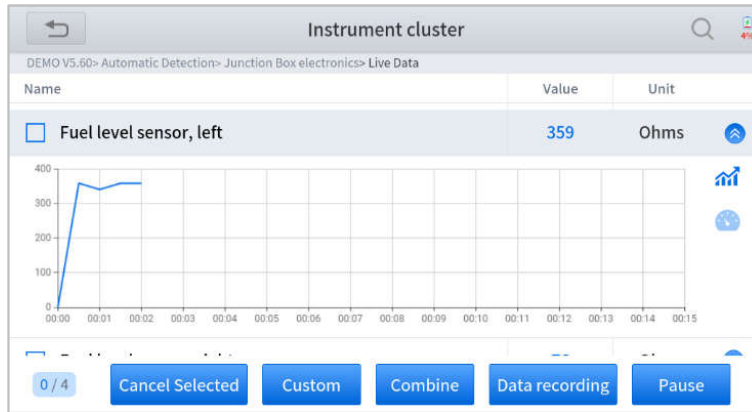
Click the magnifying glass on the top right, you can search for related PIDs based on keywords
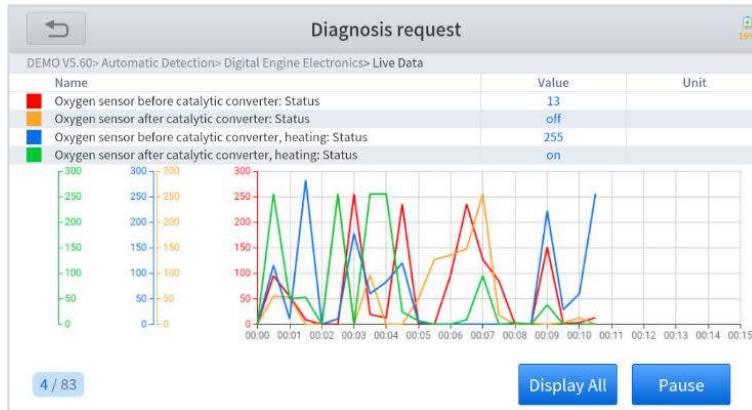

● **Custom**

The scan tool includes support to select and show multiple PIDs. Click **Display All** to display all PIDs

● **Combine**
The scan tool includes support to select multiple PIDs and click **Combine** to combine different graphs into one chart.

- **Data recording**

The scan tool supports recording the current data values in the form of text. You can view the recorded files in *Reports->Data Replay.*

- **Pause**

Click this button to pause the recording timeline

- **FREEZE FRAME**

When the signal of the sensor is abnormal, the ECU will save the data at that moment of failure to form a freeze-frame. It is usually used to analyze the reasons that may lead to component(?) failures.

The live data items supported by vehicles of different brands are not the same, so the freeze frames displayed when diagnosing vehicles of different brands may also be different. Some vehicles may not have the option of a freeze-frame which means that the model does not support this function.

Take **Renault Duster ii ph** as an example. After selecting the system to enter the lower freeze frame menu, the device will list all the fault codes under the system.

Users can click on a fault code, such as **DF1068** to view the freeze frame recorded by the car when the fault code occurs, including context when the fault appeared, and current context and additional data.
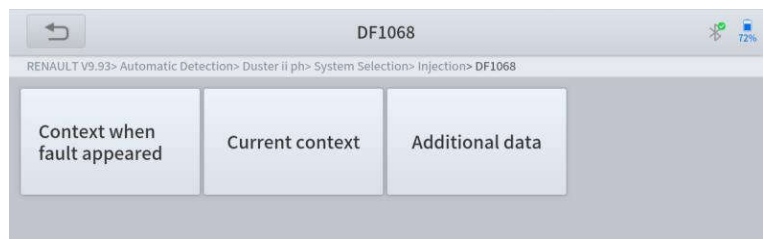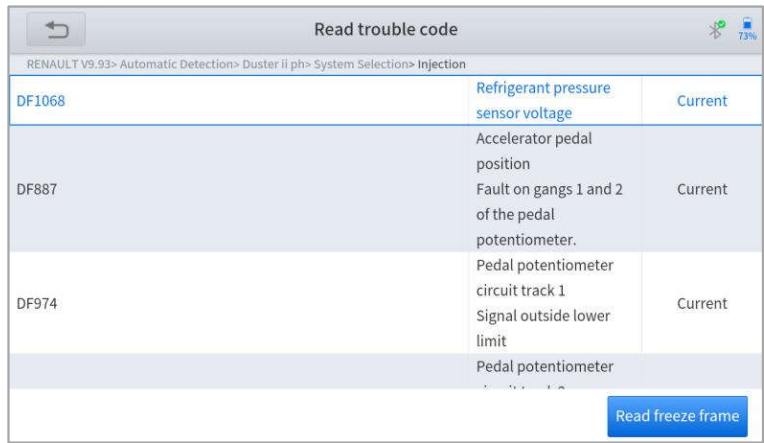
Context when fault appeared: record the live data when fault appeared to help the user to know the vehicle status. *Some vehicles don't support this function; users will get a prompt when they click the menu.*

Current context: Displays the current live data stream associated with the DTC

Additional data: record other data related to the fault
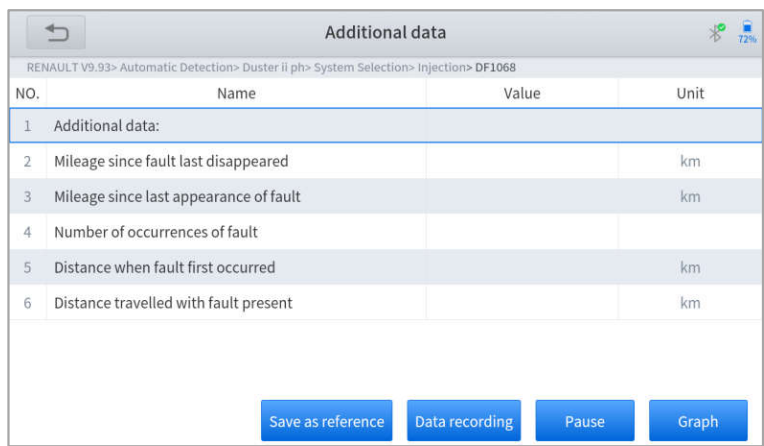
- **ACTUATION TEST (BI-DIRECTIONAL CONTROL)**

Actuation test, also known as bidirectional control, is a generic term used to describe sending and receiving information between one device and another. This function is used mainly to judge whether these actuating components of the engine are working properly.

The vehicle engineers responsible for designing computer control systems programmed them so a scan tool could request information or command a module to perform specific tests and functions. Some manufacturers refer to bidirectional controls as functional tests, actuator tests, inspection tests, system tests or the like. Reinitialization and reprogramming also can be included in the list of bidirectional controls.

This function allows the device to send information to and receive information from, vehicle control modules. For example, in the case of OBD II generic information Mode 1 (which relates to data parameters), the scan tool user initiates a request for information from the powertrain control module (PCM), and the PCM responds by sending the information back to the scan tool for display. Most enhanced scan tools also can actuate relays, injectors and coils, perform system tests, etc. Users could check the individual part to see what is working properly by actuation test.

● **SPECIAL FUNCTIONS**

Usually, special functions provide various reset or re-learning functions menus for most vehicle systems. You can easily and quickly solve some faults through special functions for your car. After some functions are successfully executed, fault codes will be generated, which need to be cleared manually after the car is running for a little while which could include a single start of the engine or multiple warm up cycles.

And under each system, you can view the special features supported by that system. Different models and systems often have different special functions. Even for the same system of the same model, the years and ECU type may lead to different special functions supported.

3. UPDATE & FACTORY RESET

UPDATE

After activating the device, please **update** the software modules identified in the "**Updates**" screen. The device will identify all currently available software packages, and you can download them as needed. ALL software updates directly via the Internet. To access the update application, open the Diagnostic application and click Updates to enter the screen shown below:

⚠ After contacting your VDIAGTOOL Support to change the language configuration, you need to download all the software packages on the device again.

Cautions

When the subscription expires, the software has installed on your device itself still is available, but all updates will be invalid. If you delete specific software due to the personal operation, VDIAGTOOL is not responsible for supporting the restoration of the software when the subscription expires.

To renew your subscription, please contact your local dealer, or contact VDIAGTOOL technical support team directly.

FACTORY RESET

When you choose to restore factory settings in the Android OS system, the device will automatically erase any custom settings and data, restart and then enter the factory reset mode.

A factory reset is triggered by clicking the Settings mode from the main home page, and then clicking on "Backup & reset". Follow onscreen prompts to initiate the factory reset process.

Once the scan tool resets to factory default settings it will start up and then you can select the language in the following interface.

After selecting the system language, click **Next** to enter the Wi-Fi connection page, as shown below:
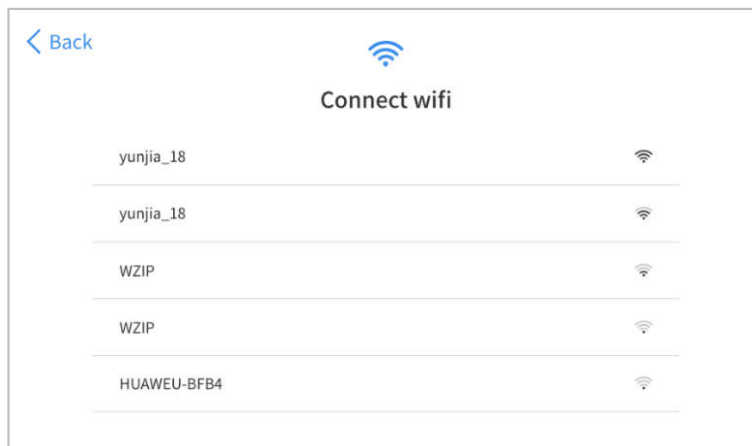
Select a network to connect to on the Wi-Fi connection page.   You will need to enter the Wi-Fi password to establish Wi-Fi connectivity.

After successfully connecting to an Internet network connection, the scan tool will jump to **Factory mode** to download the software：
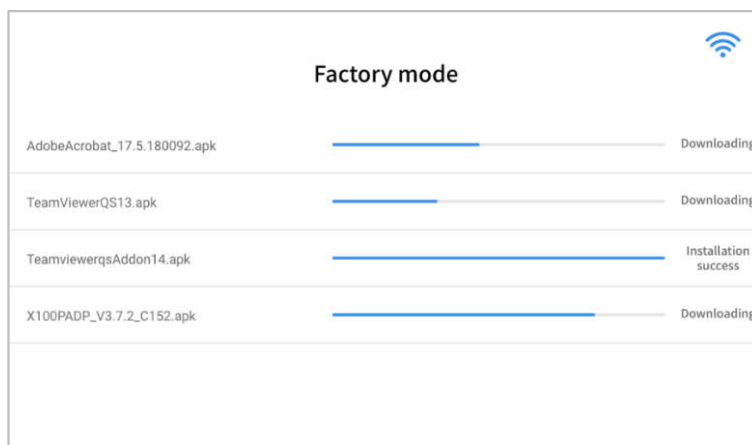
This download process can take several minutes, largely determined by the speed of your Internet connection. Do not power off the scan tool or walk out of range of the Wi-Fi connection during this period.

Once the software has been downloaded, the tablet will automatically reboot and request the system language selection again.

Since restoring the factory settings will erase the user information on your device, you need to enter the email again to activate your device.

4. WARRANTY & SERVICES

Shenzhen VDIAGTOOLtech Intelligent Co., LTD.(the Company) warrants to the original retail purchaser of this VDIAGTOOL device that should this product or any part thereof during normal usage and under normal conditions be proven defective in material or workmanship that results in product failure within **ONE YEAR** from the date of purchase, such defect(s) will be repaired, or replaced (with new or rebuilt parts) with Proof of Purchase, at the Company's option, without charge for parts or labor directly related to the defect(s).

The Company shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the device.

This warranty does not apply to:

1) Products subjected to abnormal use or conditions, accident, mishandling, neglect, unauthorized alteration, misuse, improper installation/repair, or, improper storage;
2) Products whose mechanical serial number or electronic serial number has been removed, altered, or defaced;
3) Damage from exposure to excessive temperature or extreme environmental conditions;

4) Damage resulting from connection to, or use of any accessory or other product not approved or authorized by the Company;
5) Defects in appearance, cosmetic, decorative, or structural items such as framing and non-operating parts;
6) Products damaged from external causes such as fire, dirt, sand, battery leakage, blown fuse, theft, or improper usage of any electrical source.

5. REMOTE ASSISTANCE

Tap on "**Remote**" to start the TeamViewer quick support program, which is a simple, fast, and secure remote-control screen. You can use this application to enable someone else to use their computer running TeamViewer software to control your tablet over the Internet. This feature is frequently used by VDIAGTOOL's technical support centre when remotely helping customers with technical support.

Computers and mobile devices running TeamViewer are identified by a globally unique ID. When the remote application is started for the first time, the ID will be automatically generated according to the hardware characteristics and will not be changed in the future. This TeamViewer ID can individually access all TeamViewer clients.

Before launching the remote desktop application, make sure that the tablet is connected to the Internet so that you can access the tablet to receive remote support from a third party. If you encounter problems and are not able to solve them, you could open this application and ask for remote assistance.

To obtain remote support from your partners or VDIAGTOOL AfterSalesService Center: support1@vdiagtooltech.com | support2@vdiagtooltech.com

1. Turn on the power of the tablet.

2. Click **Remote** in the Diagnostic application. The TeamViewer screen is displayed, and the device ID will be generated.

3. Your partner must install the remote-control software on their computer by downloading the full version of the TeamViewer program (http://www.teamviewer.com) online, and then start the software on their computer at the same time, to provide support and remote control of the tablet.

4. Provide your ID to the partner or VDIAGTOOL technician, and then wait for them to send you a remote-control request.

5. A pop-up window will be displayed, asking you to permit the remote-control program to control your device.

6. Click Allow to accept, or click Reject to reject.
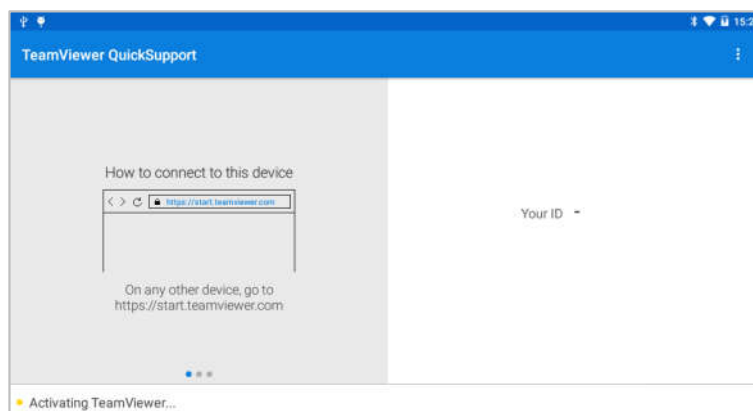
6. COMPLIANCE INFORMATION

FCC Statement

Automotive Diagnostic Tool 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.

Caution: Any changes or modi?cations to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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

Specific Absorption Rate (SAR) information:

Automotive Diagnostic Tool meets the government's requirements for exposure to radio waves. The guidelines are

based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. FCC RF Exposure Information and Statement the SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: Automotive Diagnostic Tool has also been tested against this SAR limit.

This device was tested for typical body-worn operations with the back of the Automotive Diagnostic Tool kept 0mm
from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain an 0mm separation distance between the user's body and the back of the Automotive Diagnostic Tool. 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.

ISED Statement

English:This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).
French: Cet appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada.
L'exploitation est soumise aux deux conditions suivantes :
(1) Cet appareil ne doit pas provoquer d'interférences.
(2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.
l'appareil numérique du ciem conforme canadien peut - 3 (b) / nmb - 3 (b).
This device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.
cet appareil est conforme à l'exemption des limites d'évaluation courante dans la section 2.5 du cnr - 102 et conformité avec rss 102 de l'exposition aux rf, les utilisateurs peuvent obtenir des données canadiennes sur l' exposition aux champs rf et la conformité.
This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment.
Cet équipement est conforme aux limites d'exposition aux rayonnements du Canada établies pour un environnement non contrôlé.

The device for operation in the band 5150 – 5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

L'appareil destiné à fonctionner dans la bande 5150-5250 MHz est uniquement destiné à une utilisation en intérieur afin de réduire le potentiel d'interférences nuisibles aux systèmes mobiles par satellite cocanaux.

This radio transmitter has beenapproved by Industry Canada to operate with the antenna types listedwith themaximum permissible gain indicated. Antenna types not included in this list, having again greater than the maximum gain indicated for that type, are strictly prohibited foruse with this device.

Le présent émetteur radio a étéapprouvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Specific Absorption Rate (SAR) information:

This device meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. ISED RF Exposure Information and Statementthe SAR limit of Canada(ISED) is 1.6 W/kg averaged over one gram of tissue. Devicetypes: Device has also been tested against this SAR limit. This device was tested for typical body-worn operations with the back of the phone kept 0mm from the body. To maintain compliance with ISED RF exposure requirements, useaccessories that maintain an 0mm separation distance between the user's body andthe back of the phone. The use of belt clips, holsters and similar accessories shouldnot contain metallic components in its assembly. The use of accessories that do notsatisfy these requirements may not comply with ISED RF exposure requirements, andshould be avoided.

Informations sur le débit d'absorption spécifique (DAS) :
Cet appareil répond aux exigences du gouvernement en matière d'exposition aux ondes radio. Les lignes directrices sont basées sur des normes qui ont été élaborées par des organisations scientifiques indépendantes au moyen d'une évaluation périodique et approfondie des études scientifiques. Les normes comprennent une marge de sécurité substantielle conçue pour assurer la sécurité de toutes les personnes, indépendamment de leur âge ou de leur état de santé. Renseignements et déclaration sur l'exposition aux RF d'ISDELA limite de DAS du Canada (ISDE) est de 1,6 W/kg en moyenne sur un gramme de tissu. Types d'appareils : L'appareil a également été testé par rapport à cette limite DAS. Cet appareil a été testé pour des opérations typiques portées sur le corps avec l'arrière du téléphone maintenu à 0 mm du corps. Pour maintenir la conformité aux exigences d'exposition RF d'ISDE, utilisez des accessoires qui maintiennent une distance de séparation de 0 mm entre le corps de l'utilisateur et l'arrière du téléphone. L'utilisation de clips de ceinture, d'étuis et d'accessoires similaires ne doit pas contenir de composants métalliques dans son assemblage. L'utilisation d'accessoires qui ne satisfont pas à ces exigences peut ne pas être conforme aux exigences d'exposition aux RF d'ISDE et doit être évitée.