

# **OBD II HAND HELD QUIKCODE USER'S MANUAL**

**Rev 111405**

## **THANK YOU!**

THANK YOU for the purchase of the QuikCode OBD II and welcome to the professional product line of EASE Diagnostics! This QuikCode OBD II is designed to work with all OBD II Compliant vehicles.

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## I. SAFETY PRECAUTIONS

### **BEFORE WORKING ON ANY VEHICLE, PLEASE READ THIS!**

- ◆ To avoid possible personal injury and damage to the vehicle, please refer to the appropriate vehicle manufacturer's service procedures and safety instructions.
- ◆ Objects can be propelled by moving engine parts. These objects and high-pressure fluids and liquids can cause serious injury. ALWAYS wear an ANSI approved eye protection
- ◆ Ensure all sparks, lighted cigarettes, open flames, or any other device capable of producing a high temperature are not utilized near automotive batteries. Automotive batteries contain sulfuric acid and produce explosive gases.
- ◆ Ensure a safe distance from all moving engine components during servicing. Test equipment, clothing, and parts of your body can be seriously damaged or injured
- ◆ An operating engine produces carbon monoxide, which is an odorless, colorless, poisonous gas that can lead to serious injury or death. ALWAYS service an operating engine in a well-ventilated area.
- ◆ Fuel systems are typically under high pressure. Ensure the area is well ventilated and free of all sparks or other ignition sources to avoid the possibility of fire.
- ◆ Ensure the parking brake is engaged, the vehicle's drive wheels are blocked, and the gear selector is in neutral for manual transmissions and in park for automatics.
- ◆ Never set tools on a vehicle's battery. You may short the terminals together causing harm to yourself, the tools or the battery.
- ◆ NEVER attempt to operate this software and drive the vehicle at the same time. ALWAYS have another person to use the software while the vehicle is being driven.
- ◆ Do not leave your vehicle unattended while running tests.

## II. LIMITED WARRANTY

To the original purchaser only, EASE warrants the supplied hardware products to be free from defects in materials and workmanship under normal use for a period of one (1) year from the date of purchase as evidenced by a copy of the sales receipt. EASE makes no other express warranty on the hardware products. The purchaser's sole remedy in the event of a breach of warranty is expressly limited to repair or replacement of the defective hardware or, if replacement is not possible, a refund of the purchase price. Repair parts and replacement hardware products will be provided on an exchange basis and will be either reconditioned or new. All replaced parts become property of EASE. This limited warranty does not cover damage to the products resulting from misuse, accident, disaster, abuse, negligence, improper maintenance, or modification and/or repair of the hardware product other than by EASE.

EASE does not warrant that the operation of the hardware/software will be uninterrupted or error free. Further, EASE does not warrant or guarantee the use of, or the results of the use of, the hardware/software in terms of correctness, accuracy, reliability, currentness, or otherwise; you rely on the hardware/software and results solely at your own risk. The licensee's sole and exclusive remedy for failure of the hardware/software to materially conform to the specifications defined in the pertinent documentation is for the licensee to return the hardware/software to EASE and notify EASE in writing of such non-conformity within thirty (30) days of delivery to the licensee. EASE's sole obligation shall be, at EASE's option, within a reasonable time after EASE receives notice of non-conformity, to either provide the licensee with hardware/software which conforms to the express warranty above or refund to the licensee the licensee fee paid therefore. In the event of a refund, this agreement shall be considered terminated and the licensee, if they have any copies of the hardware/software or related materials, shall promptly deliver to EASE and/or destroy all such copies (including that in memory or data storage apparatus) and warrant in writing to EASE within thirty (30) days of termination that the licensed hardware/software, related materials and all copies thereof have been either returned and/or destroyed.

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Neither EASE nor its authorized dealer(s) shall be liable for any defect, indirect, incidental, special, or consequential damages, whether in an action in contract or tort (including negligence and strict liability), such as, but not limited to, loss of anticipated profits or benefits resulting from the use of this software and/or hardware product or any breach of any warranty, even if EASE or its authorized dealer(s) has been advised of the possibilities of such damages. In no event will EASE or its authorized dealer's liability exceed the price paid for the product.

Note: Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions or limitations may not apply to you.

The information presented in this manual is believed to be accurate. Responsibility for errors, omission of information, or consequences resulting from the use of this information cannot be assumed by EASE. EASE retains all rights to make changes to specifications at any time without notice.

### How to reach EASE

Customer Service is available from 9:00 am to 5:00 PM Eastern Standard Time. Please have your sales order or invoice number available when you call.

By Telephone: **570-465-9060**.

By Fax: **570-465-9061**

By Mail: EASE Diagnostics State Route 492 Box 3011, New Milford, PA 18834 USA

By e-mail [info@obd2.com](mailto:info@obd2.com). Our website is located at [www.obd2.com](http://www.obd2.com)

## III. TECHNICAL SUPPORT

If you have questions about the use of this product, first check the relevant portion of the User's Manual, the EASE Software Help System or refer to the EASE website. If you cannot find the answer in these places, call our Technical support line at 570-465-9062 ext 252. This support line is answered Monday through Friday from 9:00 am to 5:30 PM Eastern Standard Time. At other times, please leave a message and the call will be returned. Also, you can e-mail your questions or comments to [techsupport@obd2.com](mailto:techsupport@obd2.com).

## IV. VEHICLE REQUIREMENTS

EASE offers two versions of the Hand Held QuikCode. The original OBD II Hand Held QuikCode (QC2-HH) is designed to work with OBD II compliant vehicles without CAN. The new OBD II Hand Held CAN Enabled QuikCode (QC2-HH-CAN) works with OBD II compliant vehicles including vehicles with the new CAN communications interface.

	<b>OBD II CAN Enabled QuikCode Part Number – QC2-HH-CAN</b>	<b>Original OBD II Hand Held QuikCode Part Number - QC2-HH</b>
<b>Vehicle Requirements</b>	<ul style="list-style-type: none"> <li>• 1996 and newer OBD II Compliant Vehicle (Includes Domestic, Asian and European Passenger Vehicles)</li> <li>• Some 1994 and 1995 vehicles are OBD II Compliant</li> <li>• Vehicles with the CAN (controller area network) communications interface</li> </ul>	<ul style="list-style-type: none"> <li>• 1996 and newer OBD II Compliant Vehicle without CAN (Includes Domestic, Asian and European Passenger Vehicles)</li> <li>• Some 1994 and 1995 vehicles are OBD II Compliant</li> </ul>
<b>Supported Protocols</b>	<ul style="list-style-type: none"> <li>• 1996 and newer Domestic, Asian and European OBD II compliant vehicles (including the new CAN vehicles)</li> <li>• Supports OBD II interfaces SAE J1850(VPW, PWM), ISO 9141-2(ISO) and ISO 14230(KWP2000), ISO 15765/SAE J2284 (CAN)</li> </ul>	<ul style="list-style-type: none"> <li>• 1996 and newer Domestic, Asian and European OBD II compliant vehicles without CAN</li> <li>• Supports OBD II interfaces SAE J1850(VPW, PWM), ISO 9141-2(ISO) and ISO 14230(KWP2000), Chrysler SCI-A</li> </ul>
<b>Features</b>	<ul style="list-style-type: none"> <li>• Displays Generic Stored DTC numbers</li> <li>• Displays Generic Pending DTC numbers</li> <li>• Displays Manufacturer Specific DTC numbers</li> <li>• Displays MIL Status</li> <li>• Displays Continuous and Non-Continuous Monitor Test Results (I/M Status)</li> <li>• Clears DTCs, Freeze Frame, IM Monitors</li> <li>• Enhanced DTC Requests (SAE J2190)</li> <li>• Performs Continuous DTC Scan</li> <li>• Emissions Test Mode</li> <li>• GM Current and History Enhanced DTCs</li> <li>• Ford 7.3L Diesel DTCs</li> <li>• Ford ABS DTCs</li> <li>• Unit is updateable using PC</li> <li>• Displays VIN Data for 2002 and newer vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>• Displays Generic Stored DTC numbers</li> <li>• Displays Generic Pending DTC numbers</li> <li>• Displays Manufacturer Specific DTC numbers</li> <li>• Displays MIL Status</li> <li>• Displays Continuous and Non-Continuous Monitor Test Results (I/M Status)</li> <li>• Clears DTCs, Freeze Frame, IM Monitors</li> <li>• Enhanced DTC Requests (SAE J2190)</li> <li>• Performs Continuous DTC Scan</li> <li>• Emissions Test Mode</li> <li>• GM Current and History Enhanced DTCs</li> <li>• Ford 7.3L Diesel DTCs</li> <li>• Ford ABS DTCs</li> <li>• Chrysler SCI Hex DTCs</li> </ul>

For your vehicle to be OBD II compliant it must have a 16 pin DLC under the dash and the vehicle Emission Control Information label must state that the vehicle is OBD II compliant. This label is located on the inside of the hood on most vehicles. An example of this label is shown below. Note the last line of the label states that the vehicle is OBD II certified.



**DLC- Data Link Connector - a 16 position connector located under the driver side dash of most vehicles.**



**OBD II Certified**

**Vehicle Emission Control Information Label - located inside the hood of most vehicles. Use it to identify whether or not the vehicle is OBD II certified.**

## **V. AUTOMOBILE ON-BOARD COMPUTERS AND DIAGNOSTIC TROUBLE CODES**

The following section provides information on

1. OBD II
2. Automobile on-board computers
3. The Malfunction Indicator Lamp (MIL)
4. Freeze Frame Data
5. Diagnostic Trouble Codes (DTC)
6. Inspection and Maintenance (I/M) Readiness Monitors

### **OBD II**

Federal law required all vehicle manufacturers to meet On Board Diagnostics, Second Generation or OBD II standards by 1996. In order to meet this standard, the automobile's on-board computer must monitor and perform diagnostic tests on vehicle emissions to ensure that the vehicle is operating at an acceptable (legal) emission level. The maximum allowable emission level is set by the Federal Test Procedure (FTP).

All 1996 and newer passenger vehicles are OBD II compliant. All OBD II vehicles have the same 16 pin diagnostic connector or DLC. This eliminates the need to have a manufacturer specific connector to connect to your vehicle. (Some 1994 and 1995 vehicles have this connector, however, this does not mean that the vehicle is OBD II compliant.)

### **Automobile On-board Computers**

Automobile on-board computers control engines, transmissions, brakes, traction and many other components. These computers have several names and acronyms depending upon the manufacturer and components they control. The most common name is PCM or Powertrain Control Modules. Other examples are Body Control Modules (BCM), Transmission Control Modules (TCM), Electronic Brake Control Module (EBCM) and Air Conditioning Control Module (ACM).

A variety of sensors, such as the oxygen sensor, throttle position sensor and manifold air temperature sensor, provide information to the on-board computer regarding the vehicle's engine operating conditions. Air Conditioning systems, vehicle air bags, and anti-lock brake systems also report to on-board computers.

On-board computers have a built in self testing system called self-diagnosis which means the on-board computer will monitor many or all of the vehicle's sensors and controlled devices for proper operation. A diagnostic trouble code or DTC is detected and set when one of the monitored devices is not functioning properly. This malfunction is stored into the on-board computer's memory as a DTC number that is related to a specific sensor or other problem. The computer can later be accessed using the EASE software or other scan tools and code reading devices to obtain the codes stored in the on-board computer memory.

### **Malfunction Indicator Lamp (MIL)**

The Malfunction Indicator Lamp (MIL) is located in the instrument panel on the dashboard and is either a red or yellow labeled lamp. The MIL is normally off and will illuminate if a system or component either fails or deteriorates to the point where the vehicle emissions could rise 1.5 times above the FTP set emissions level.

### **Freeze Frame Data**

When the first emissions related powertrain DTC becomes stored, the PCM will capture (save) a block of current engine parameters. This list of parameters is called Freeze Frame Data and consists of a fixed list of parameters. For vehicles, which do not support all parameters, only the applicable ones are stored. The first parameter in the list is always the DTC that caused the Freeze Frame. When DTCs are cleared, the Freeze Frame Data is cleared from the vehicle's PCM.

## Diagnostic Trouble Codes or DTCs

In the past malfunction code numbers varied between manufacturers, years, makes and models. OBD II requires that all vehicle manufacturers use a common Diagnostic Trouble Code or DTC numbering System. There is a generic DTC listing that all manufacturers must use. Since the generic listing was not specific enough, most manufacturers came up with their own DTC listing, which are called manufacturer specific codes. Both generic and manufacturer specific codes consist of 5 digits interpreted as follows:

First Digit	Second Digit			
	0	1	2	3
<b>P</b> -Powertrain	ISO/SAE	Manufacturer Specific	ISO/SAE	Manufacturer Specific ISO/SAE Required
<b>B</b> -Body	ISO/SAE	Manufacturer Specific	Manufacturer Specific	Reserved
<b>C</b> -Chassis	ISO/SAE	Manufacturer Specific	Manufacturer Specific	Reserved
<b>U</b> -Network or data link code	ISO/SAE	Manufacturer Specific	Manufacturer Specific	Reserved

The **third digit** represents the specific vehicle system that has the fault. Listed below are the number identifiers for the powertrain system.

1	Fuel and Air Metering
2	Fuel and Air Metering (Injector Circuit Malfunctions Only)
3	Ignition System or Misfire
4	Auxiliary Emission Control
5	Vehicle Speed Control and Idle Control System
6	Computer and Auxiliary Outputs
7	Transmission
8	Transmission
9	Transmission
A	Hybrid/Fuel and Air Metering and Auxiliary Emission Controls

The **last two digits** indicate the specific fault index.

The following is an example of a diagnostic trouble code:

P0301 - Cylinder 1 Misfire Detected

Whereas: P=Powertrain  
0=ISO/SAE  
3=Ignition System or Misfire

On OBD II vehicles there are two different types of DTCs: Stored and Pending. For a DTC to become Stored, certain malfunction conditions must occur. The condition(s) required to Store a code are different for every DTC and vary by vehicle manufacturer. In order for some DTCs to become Stored, a malfunction condition has to happen more than once. If the malfunction conditions are required to occur more than once, the potential malfunction is called a Pending DTC. The DTC remains Pending until the malfunction condition occurs the required number of times to make the code Stored. If the malfunction condition does not occur again after a set time the Pending DTC will be cleared.

## **OBD II Inspection and Maintenance (I/M) Readiness Monitors**

A monitor is a piece of software in one of the vehicle's on-board computers that has the job of monitoring a specific piece of the engine. There are two types of monitors: continuous and non-continuous. A continuous monitor runs continuously during vehicle operation. A non-continuous monitor requires enabling criteria to make it run. Some examples of enabling criteria are vehicle acceleration/deceleration to a certain speed, engine temperature and driving the vehicle at a certain speed for a period of time.

For OBD II vehicles, there is a fixed list of 11 monitors: 3 continuous and 8 non-continuous. The 11 monitors are not applicable for all vehicles. The Inspection & Maintenance screen of the software lists the availability and status of your vehicles monitors. In order to pass an emission inspection all of the supported monitors must be completed.

The Continuous Monitors are:

- Misfire
- Fuel System
- Components

The Non-Continuous Monitors are:

- Catalyst
- Heated Catalyst
- Evaporative System
- Secondary Air System
- A/C System
- EGR System
- Oxygen Sensor
- Oxygen Sensor Heater

## VI. SETUP PROCEDURES

### NOTICE

**THIS PRODUCT IS DESIGNED TO OPERATE AT A VEHICLE'S NORMAL BATTERY VOLTAGE: 11-15 VOLTS DC. ANY OTHER VOLTAGE MAY DAMAGE THE EASE OBD II HAND HELD QUIKCODE BASIC TOOL!**

This section includes the following:

- The EASE OBD II Hand Held QuikCode Unit
- Locating Your Vehicle's Diagnostic Connector
- Connecting the EASE OBD II Hand Held QuikCode To Your Vehicle's Diagnostic Connector
- Flow Charts for the OBD II Hand Held QuikCode Basic Tool's Display Menu
- Updating the Unit's Firmware

### The EASE OBD II Hand Held QuikCode Unit

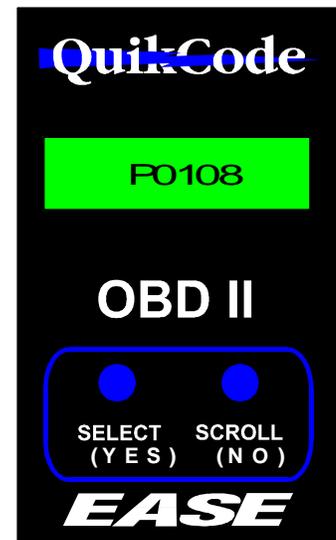
The OBD II Hand Held QuikCode Unit components and functions are listed below.

**DISPLAY:** Data selection menus and vehicle data is displayed here.

**TWO BUTTONS:** The buttons are used to select and scroll through the displayed menu.

**VEHICLE INTERFACE CABLE:** Attach this cable to the DB25 connector located on top of the QuikCode unit. This cable is used to connect the QuikCode unit to your vehicle's diagnostic connector so that it may scan the vehicle.

**NOTE:** The vehicle's diagnostic connector powers the QuikCode Tool therefore no power cords or batteries are required.

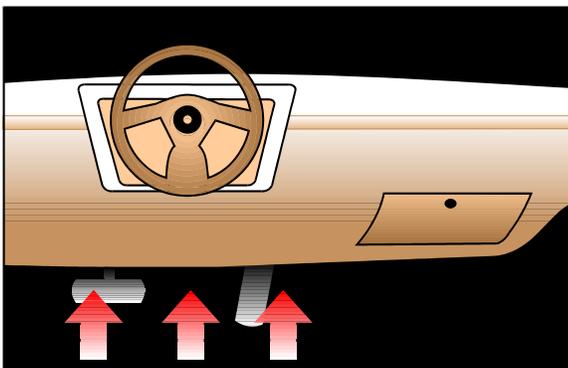


### Locating Your Vehicle's Diagnostic Connector

In order for the QuikCode OBD II Unit to work it must be connected to your vehicle. To do this, you must first locate your vehicle's diagnostic connector (See Figure 1 below). This connector is referred to as the Data Link Connector (DLC).



**Figure 1. DLC- Data Link Connector - a 16 position connector located under the driver side dash of most vehicles.**



On most vehicles the DLC is located under the driver's side dashboard in full view (See Figure 2). In some vehicles it may be recessed behind a panel. Remove this panel for access to the connector. Other vehicles have a cap labeled "Diagnostic Connector" over the connector. Remove this cap to connect the QuikCode OBD II. Replace this cover when you are finished. If you are unable to find the DLC, consult the vehicle's service manual for the exact location.

**Figure 2. Location of the Data Link Connector - DLC.**

## Connecting QuikCode to Your Vehicle's Diagnostic Connector

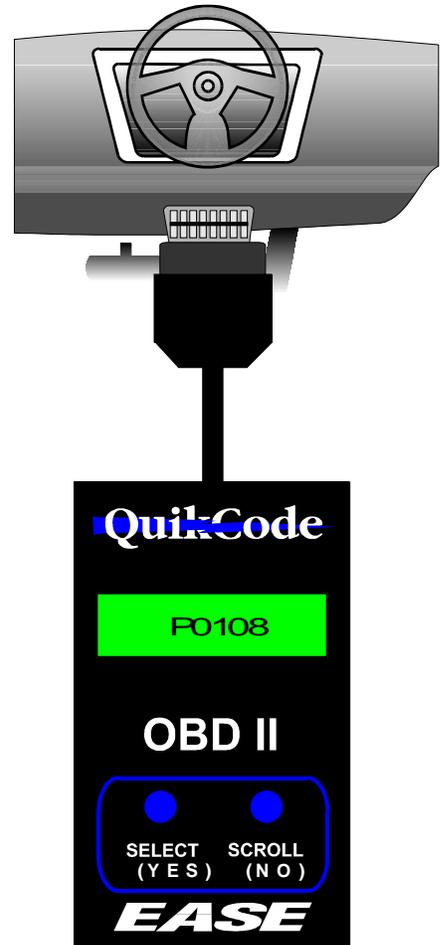
After you have located your diagnostic connector, you are ready to connect the EASE OBD II Hand Held QuikCode Tool to your vehicle by following the steps below.

1. SAFETY FIRST!!! Review Section I. Safety Precautions.
2. Turn the vehicle's Ignition "OFF".
3. Connect the EASE OBD II Hand Held QuikCode's vehicle interface cable to the vehicle's diagnostic connector.
4. Turn your vehicle's ignition switch to the "ON" position.

**IMPORTANT:** Chrysler vehicles may have two key-on positions. For proper operation, make sure the vehicle's ignition is in the second key-on position.

5. Scroll through the menu on the display to scan and view the vehicle's stored and pending DTCs, Inspection and Maintenance Monitors and MIL Status.

**NOTE:** The vehicle's diagnostic connector powers the QuikCode unit, therefore no power cords or batteries are required.



## Updating the QuikCode's Firmware (QC2-HH-CAN only)

The firmware onboard the CAN Enabled QuikCode can be updated by the user with a PC when updates are made available from EASE.

Firmware Update Requirements:

- Desktop or Laptop PC with serial port
- EASE Device Utility Software
- Serial interface cable (EASE Part #:CABLE-DB9-6,15 or 25)
- When updating the firmware, the unit must be powered by a vehicle or an EASE 12 VDC 0.5A power transformer (EASE Part #: TR-12VDC-0.5A).

To update the firmware follow the instructions below.

1. Install the EASE Device Utility Software. Insert the EASE Device Utility CD into the PC's CD drive. The setup program will start automatically. (If it does not, run X:\Setup.exe - where X is the letter that represents your CD drive). Follow the on-screen instructions to install the software on the PC.
2. Start the EASE Device Utility Software.
3. Connect a serial interface cable to the COM port on a PC and the DB9 connector on the end of the QuikCode unit.
4. Power the unit using a vehicle or an EASE 12 VDC 0.5A power transformer. Plug the transformer into the port next to the DB9 connector.

**WARNING:** Using a power transformer that is not 12 VDC 0.5A could damage the unit.

5. If the QuikCode unit is connected and powered properly, the type on the main screen should read "QuikCode Interface". If it does not,
  - Check your cable connections,
  - Check that the COM port the unit is connected to is selected in the software. Select *Device\Select COM Port* in the software menubar,
  - Check the display on the QuikCode, if it is trying to connect to a vehicle, cycle the power to the unit.
6. Click the *Update Device Firmware* button.
7. In Section A of the Select Tab, click the "*Select Local File*" button to load a firmware file that is saved on the PC to the QuikCode unit. The file extension for a QuikCode firmware file is *.qci*. Or click the "*Retrieve Latest File from EASE Website*" button to load the latest file from the EASE website. (The PC must be connected to the internet to retrieve the file). After a firmware file is selected, click the *Update* button to continue.
8. When prompted, cycle the power to the QuikCode unit. After which the software will automatically start uploading the firmware file to the unit.
9. When complete, on the bottom of the Upload Tab, a message will be displayed saying that the firmware has been successfully uploaded. Click the *Exit* button to close the screen.
10. Cycle the power to the QuikCode unit.
11. Verify on the main screen that the Firmware Version displayed is the correct version.

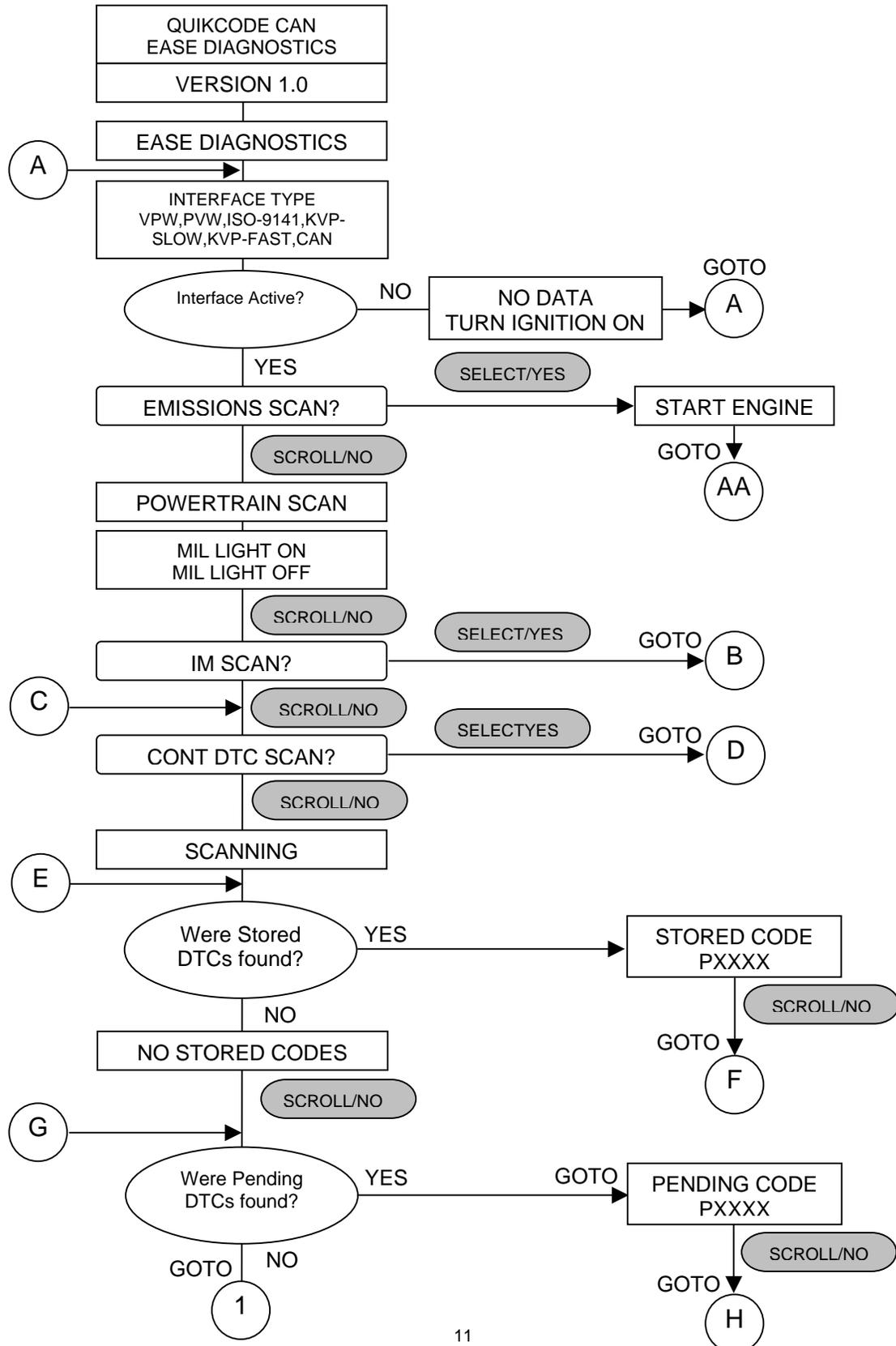


## Flow Charts for the OBD II Hand Held QuikCode's Display Menu

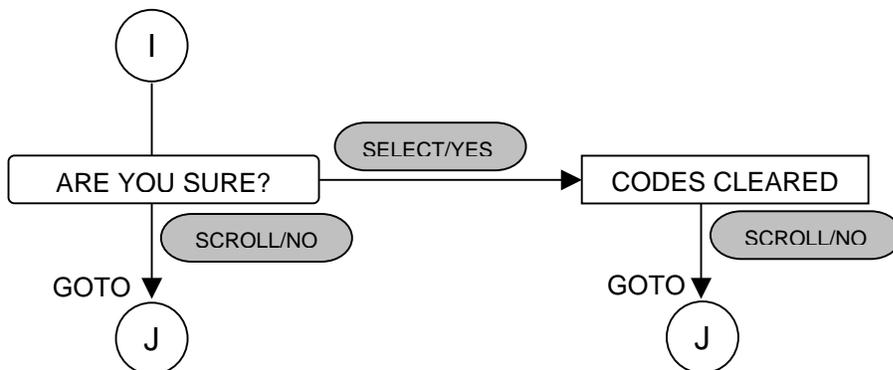
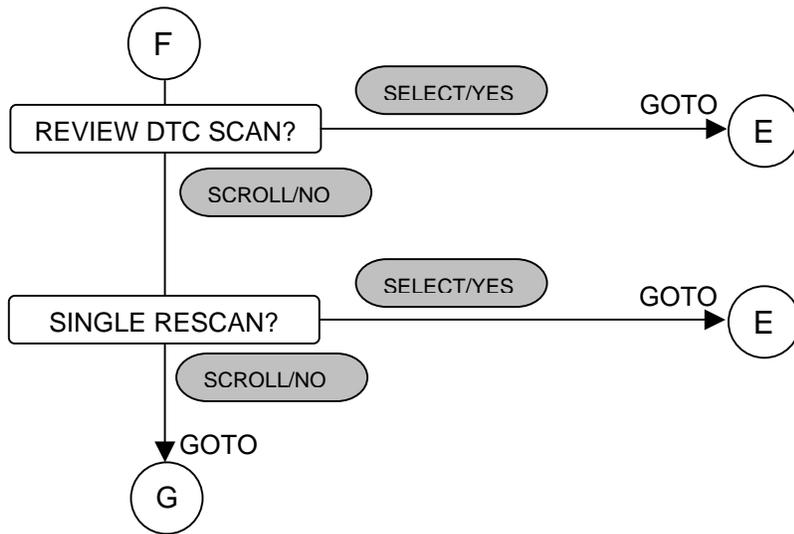
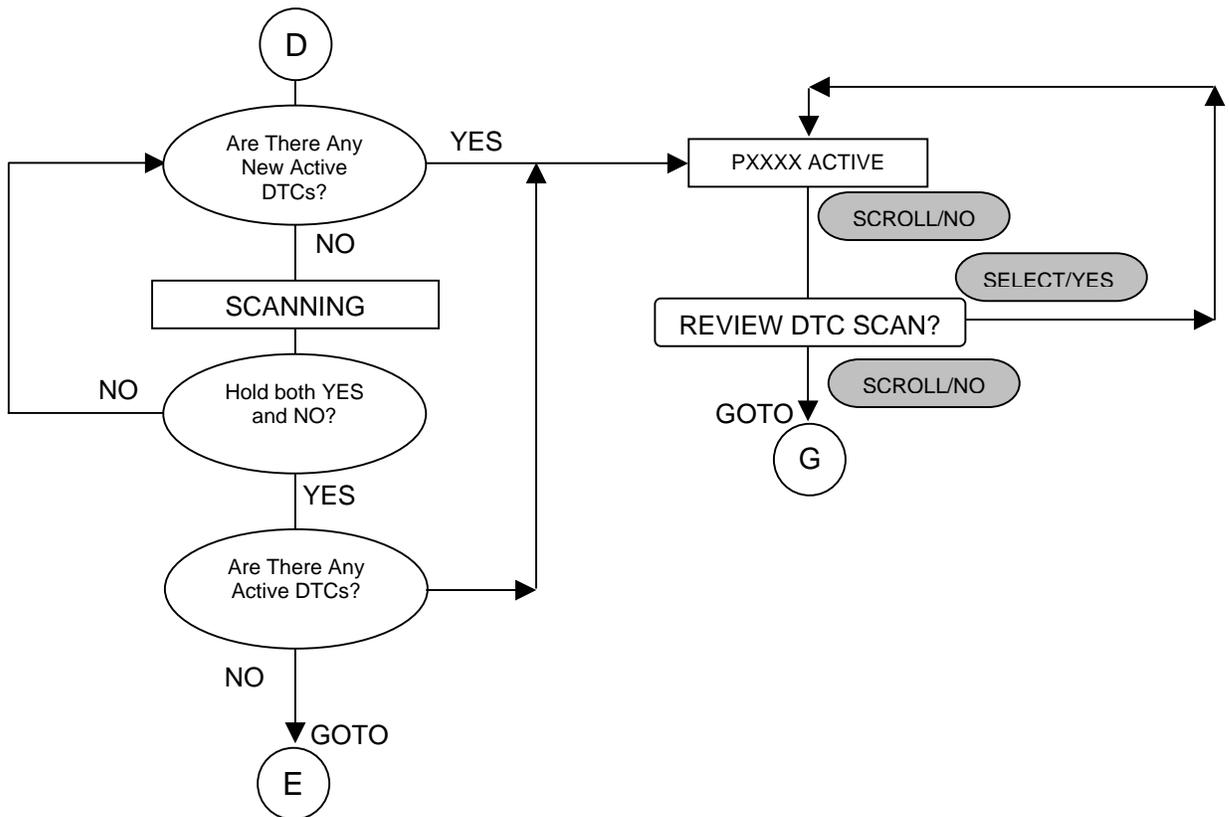
You must use the SELECT/YES and SCROLL/NO buttons on the QuikCode tool to scan the vehicle and view the results. The following flow charts list the steps to follow.

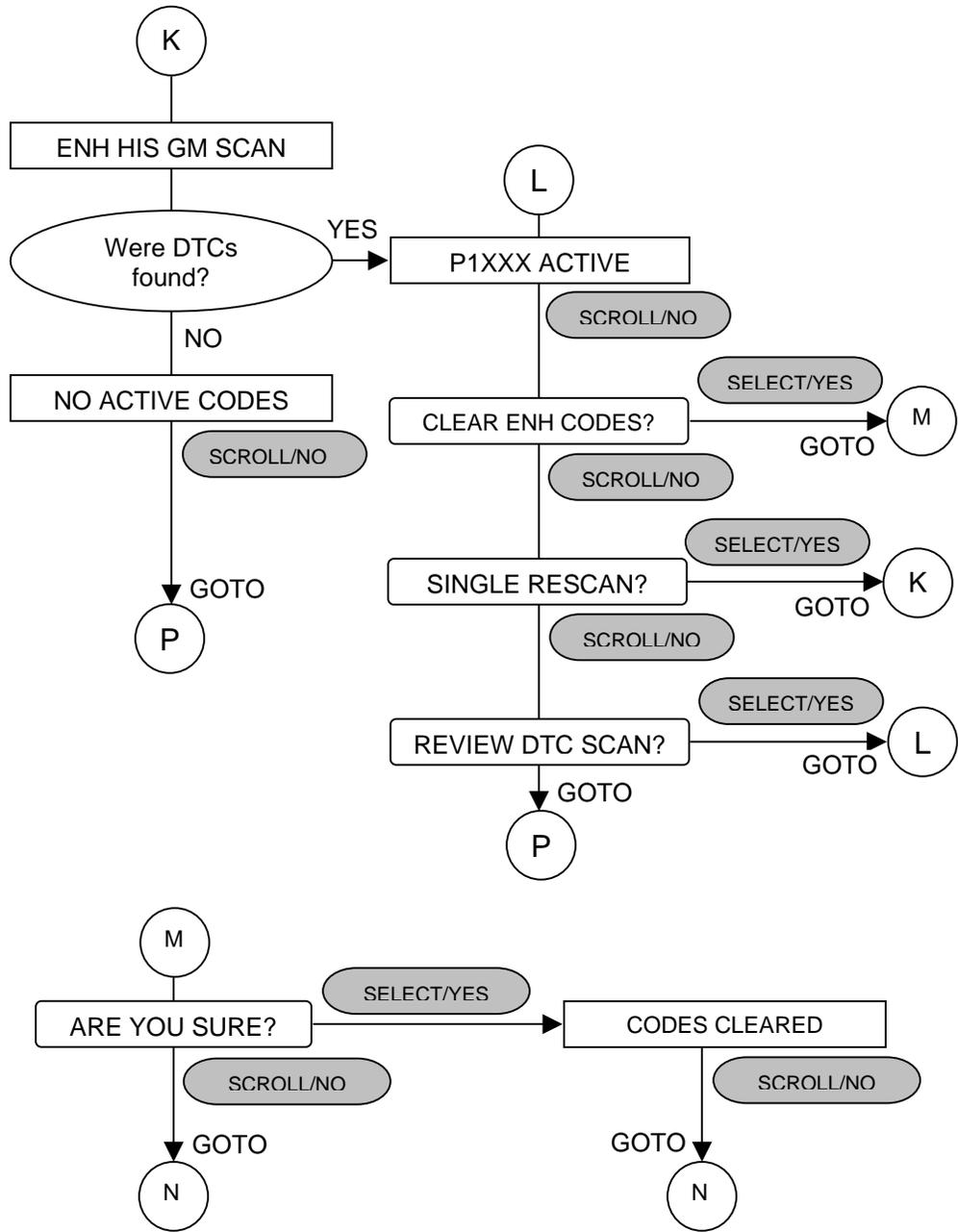
### CAN Enabled QuikCode (QC2-HH-CAN) Flow Charts

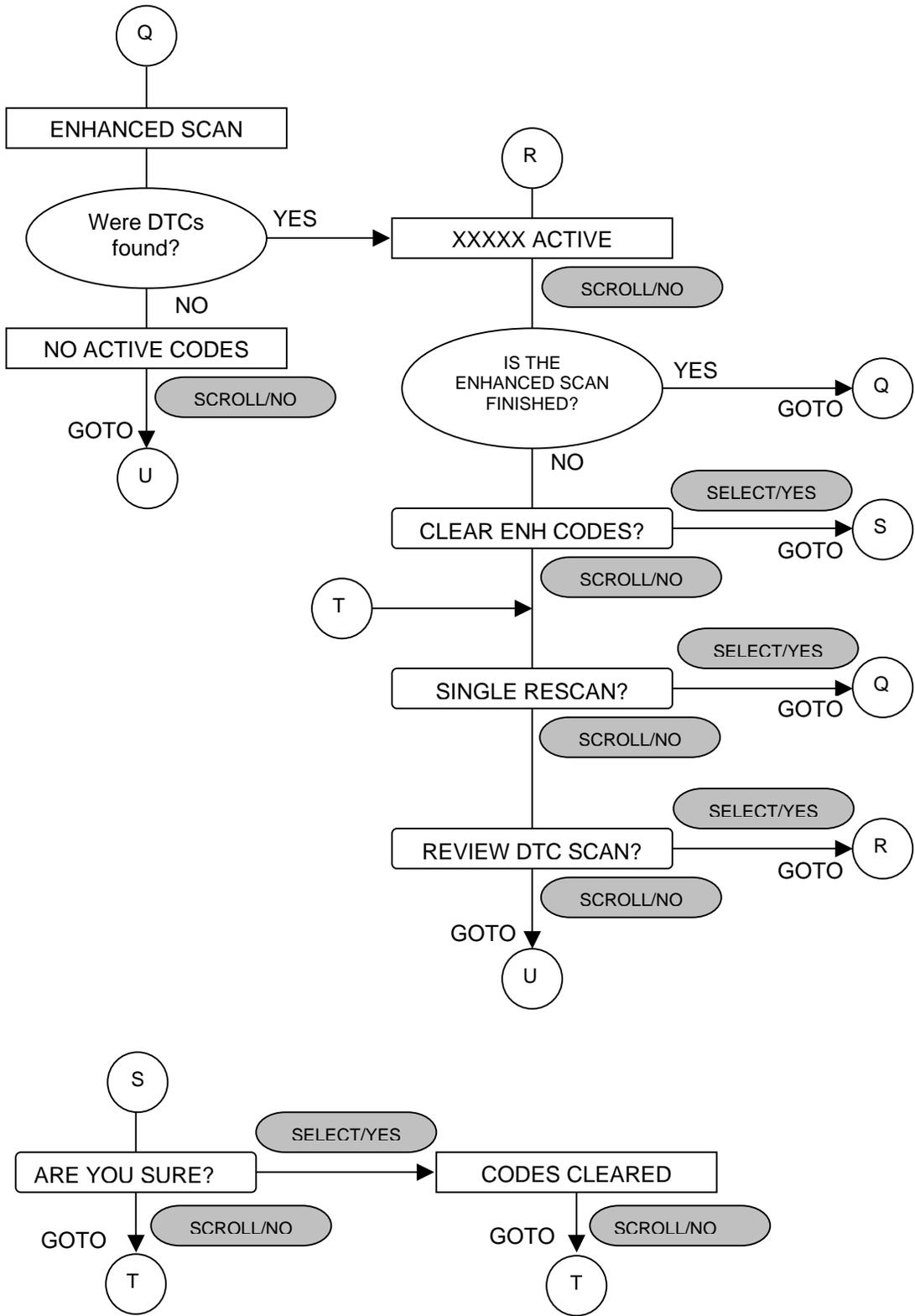
The flow charts in this section are for the CAN ENABLED QuikCode.













# Original QuikCode (QC2-HH) Flow Charts

The following flowcharts are for the original QuikCode.

