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# 1. Symbols Used

## 1.1 Warning notices - Structure and meaning

Warning notices warn of dangers to the user or people in the vicinity. Warning notices also indicate the consequences of the hazard as well as preventive action. Warning notices have the following structure:

Warning symbol **KEY WORD – Nature and source of hazard!**  
 Consequences of hazard in the event of failure to observe action and information given.  
 ➤ Hazard prevention action and information.

The key word indicates the likelihood of occurrence and the severity of the hazard in the event of non-observance:

Key word	Probability of occurrence	Severity of danger if instructions not observed
<b>DANGER</b>	<b>Immediate</b> impending danger	<b>Death</b> or <b>severe</b> injury
<b>WARNING</b>	<b>Possible</b> impending danger	<b>Death</b> or <b>severe</b> injury
<b>CAUTION</b>	Possible <b>dangerous</b> situation	<b>Minor</b> injury

## 1.2 Symbols in this documentation

Symbol	Designation	Explanation
!	Attention	Warns about possible property damage.
i	Information	Practical hints and other useful information.
1. 2.	Multi-step operation	Instruction consisting of several steps.
➤	One-step operation	Instruction consisting of one step.
⇨	Intermediate result	An instruction produces a visible intermediate result.
➔	Final result	There is a visible final result on completion of the instruction.

## 1.3 Symbols on the Product

! Observe all warning notices on products and ensure they remain legible. Important Information

# 2. User Information

To increase effectiveness with the VCI, users should familiarize themselves with the format and information contained in this guide. Every attempt has been made to provide complete and accurate technical information based on factory service information available at the time of publication. However, the right is reserved to make changes at any time without notice.

Before starting up, connecting and operating Bosch products it is absolutely essential that the operating

instructions/user manual and, in particular, the safety instructions are studied carefully. By doing so you can eradicate any uncertainties in handling Bosch products and thus associated safety risks upfront; something which is in the interests of your own safety and will ultimately help avoid damage to the device. When a Bosch product is handed over to another person, not only the operating instructions but also the safety instructions and information on its designated use must be handed over to the person.

# 3. Safety Instructions

Please read and review all instructions, warnings and information included in this manual prior to start-up, connection and operation of the MTS 6513 Vehicle Communication Interface.

! This user manual is written for safe convenient setup and use of the product. We recommend that you carefully read the manual prior to using the MTS 6513 VCI and software.



### DANGER – High Electrical Voltage

Certain risk of personal injury or death

➤ Always consult the vehicle's service manual for safety precautions and procedures when working with high voltage vehicle systems and/or passive restraint devices such as airbags, pretensioners and other deployable devices.



### WARNING – Dangerous Exhaust Gas

Possible risk of personal injury or death

➤ When performing any checks with the engine running in an enclosed space such as a garage, be sure there is proper ventilation. Never inhale exhaust gases; they contain carbon monoxide - a colorless, odorless, extremely dangerous gas which can cause unconsciousness or death



### WARNING – Parking Brake

Possible risk of personal injury

➤ To help avoid personal injury, always set the parking brake securely and block the drive wheels before performing any checks or repairs on the vehicle.


**CAUTION – Battery Clamps - Polarity**

Possible risk of personal injury

➤ Do not clasp battery clamps together when connected simultaneously to the vehicle's 12 volt cigarette lighter or power supply. Reverse polarity in the vehicle's cigarette lighter may be present. Damage could occur to the VCI or to the vehicle. Make sure all cables and adapters are firmly connected before starting to use the VCI. Always read the instructions completely before attempting a new procedure.

**3.1 Electromagnetic Compatibility**

The MTS 6513 satisfies the requirements of the EMC directive 2004/108/EG.

 The MTS 6513 is a class/category A product as defined by EN 55 022. The MTS 6513 may cause high-frequency household interference (radio interference) so that interference suppression may be necessary. In such cases the user may be required to take the appropriate action.

**3.2 Disposal**

This MTS 6513 is subject to European guidelines 2002/96/EG (WEEE). Old electrical and electronic devices, including cables and accessories or batteries must be disposed of separately from normal household waste. Please use the return and collection systems in place for disposal in your area.

Damage to the environment and hazards to personal health are prevented by properly disposing of the MTS 6513.

**3.3 FCC Compliance**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her expense.

All work conducted on electrical device may be performed by a person with sufficient knowledge and experience in the field of electronics.

**3.4 WiFi Compliance**

This equipment complies with the following worldwide wireless standards.

**3.5 Safety/Environmental Compliance**

This equipment complies with the following worldwide safety and environmental standards.

**4. Product Description****4.1 Overview**

The MTS 6513 Vehicle Communication Interface (VCI) is used by professional technicians as an aid in diagnosing and repairing automotive electrical and electronic systems. The MTS 6513 is designed to connect the vehicle to a host PC computer application which then functions through the MTS 6513 for data transfer and Electronic Control Unit (ECU) reprogramming.

Using the VCI Manager PC application software, you configure the MTS 6513 to communicate with a host computer. The MTS 6513 is capable of communicating over a USB cable or wireless (WLAN).

The MTS 6513 has a LCD display which can be used to run applications in stand alone mode without a PC.

## 4.2 User group

The product may be used by skilled personnel only. Personnel scheduled to be trained, familiarized, instructed or to take part in a general training course may only work with the product under the supervision of an experienced person.

## 4.3 PC System Requirements

The MTS 6513 VCI Manager Software runs on a Windows based PC/Laptop.

The following table lists the minimum PC/laptop requirements for installing and running the MTS 6513 VCI Software:

Item	System requirements
Operating System	WIN XP/WIN Vista/WIN 7/WIN 8/WIN 8.1 (32 bit and 64 bit PCs)/WIN 10
Available hard disk space	100 MB or greater
RAM	512 MB or greater
CPU	1 GHZ or higher
Communication Ports	1 USB
Video Resolution	1024 x 768 or higher

## 4.4 MTS 6513 Kit Contents

The MTS 6513 Base Kit includes cables and hardware needed to transfer data and reprogram ECUs on vehicles through the DLC connector.

The image below shows a MTS 6513 VCI kit with wireless infrastructure mode (P/N 1699200116).



The following table lists the three different MTS 6513 kit configurations:

Kit	Part Number	Configuration
Non-Wireless	1699200115	MTS 6513 VCI assembly without a Wi-Fi adapter
Wireless-Infrastructure-Mode	1699200116	MTS 6513 VCI assembly with a Wi-Fi adapter
Wireless-Point-to-Point	1699200117	MTS 6513 VCI assembly with a Wi-Fi adapter and a Wireless 802.11n USB Module

Components common to all three kit configurations are listed in the following table.

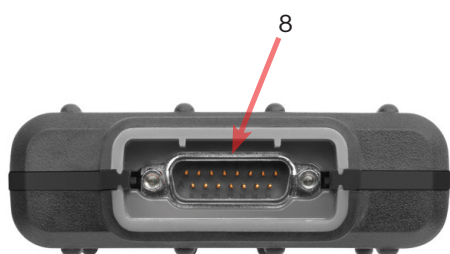
Kit Component	Part Number	Qty
USB mini "A" to USB mini "B" Cable - (3 meters)	F-00K-108-988	1
J1962 Data Link Connector Cable (16/26 Pin) (1 meter)	F-00K-108-761	1
MTS 6513 - VCI Manager Software and Documentation CD	1699200118	1
Velcro Cable Tie Wrap - 3/4" x 5"	1699200050	1

Replacement parts and optional accessories for the MTS 6513 are listed in the following table.

Item	Part Number
Bosch Branded Storage Case	F-00K-108-939
End Cap Assembly	F-00K-108-945
USB, Wireless 802.11n, D-Link DWA-131 E1	1699200155
J1962 Data Link Connector Cable (16/26 Pin), 1 meter	F-00K-108-761
USB mini "B" to USB mini "A", 1.8 meters (right angle)	F-00K-108-988
Velcro Cable Tie Wrap - 3/4" x 5"	1699200050

#### 4.5 MTS 6513 Connectors and Controls

A number of standard connectors and controls are available on the MTS 6513 to facilitate operation and communication with vehicles and workshop networks. These connectors and controls are shown in the following illustrations.



Item	Description
1	LCD Display
2	Keypad
3	Power LED
4	USB Connector for (optional) Wi-Fi Interface
5	Reset Tab
6	Micro SD Card
7	USB mini "B" Connector
8	15P DLC Cable connector

#### 4.6 Universal Serial Bus (USB)

The MTS 6513 has a fixed USB configuration which cannot be changed. This ensures that the MTS 6513 can always be connected to a single PC running the VCI Manager software so you can configure LAN or WLAN settings required by your local network. In addition, it is important to note that a USB connection is required to configure and update the firmware on the MTS 6513 VCI.

#### 4.7 Wireless Local Area Network (WLAN)

The 802.11 b/g/n WLAN connection on the MTS 6513 is set up and configured while the device is connected over USB to a PC running the VCI Manager software.

#### 4.8 VCI Manager Software

The VCI Manager software is a host computer application which runs on the Microsoft Windows operating system to configure and update VCIs. The VCI Manager software allows the configuration of VCI-to-host PC communications and facilitates VCI firmware updates.

#### 4.9 J2534 Pass-Thru Support

The MTS 6513 works with an OEM supplied J2534 PC computer applications (PC program) for ECU Reflashing and diagnostic applications.

The MTS 6513 supports pass-thru programming of the flash calibration files that are stored in a vehicle onboard controller (e.g., PCM, ABS, VTD). Refer to specific operating instructions provided by the OEM supplied J2534 PC application.

The MTS 6513 design is based on the SAE J2534 Pass-Thru and ISO 22900 Modular Vehicle Interface standards, where the MTS 6513 VCI may be compatible with other software applications that use these API standards.

#### 4.10 Additional MTS 6513 VCI Features

##### 4.10.1 Data Link Connector and Cable

Communication between the MTS 6513 and the vehicle's electronic systems is through the 15-pin to 16-pin Data Link Connector (DLC) cable that is connected to the top center of the MTS 6513.

##### 4.10.2 Power Source

The MTS 6513 is intended to be powered from the vehicle battery via the DLC Cable. The VCI may also be powered using the USB cable connected to your PC. Typically you use USB power when you are first configuring the VCI, updating software, and during testing of the VCI. Important Note - The VCI must be powered

via the DLC cable when you are configuring the VCI for wireless communication.

Some important information about powering your MTS 6513:





- 12 volts is required for vehicle diagnostics.
- 12 volts is required for wireless configuration and use.
- 5V (USB) or 12V (Vehicle DLC) is required for MTS 6513 firmware update or recovery.

#### 4.10.3 SuperCap

The MTS 6513 includes a SuperCap function which retains power for a few seconds after power has been removed from the unit. To avoid unexpected Power OFF events, do not change the configuration of the SuperCap to 'Disabled'.

#### 4.10.4 LCD Display

The MCI has a high-resolution monochromatic LCD display. The LCD display provides the following status information.

LCD Symbol	Function
	Vehicle Communication
	Error Indicator
	PC Host Communication
	Power On

#### 4.10.5 Keypad

The MTS 6513 provides an 8-key keypad including a Home key, an Enter key, two Function keys (F1/F2), and four Arrow keys. You can use the keypad to adjust LCD screen settings and configure the SuperCap function.

##### Adjust LCD Screen Settings:

- Depress the Home-Enter-F2 keys simultaneously to reach the Main Menu screen.
- Select the Screen sub-menu using the up-arrow/down-arrow keys.
- Use the right-arrow key to navigate to the Screen sub-menu.
- In the Screen sub-menu, use the up-arrow/down-arrow keys to select either Contrast or Backlight, use the right-arrow key to navigate to the selected setting.
- Use the up-arrow and down-arrow keys to adjust Contrast and Backlight.
- Press the left-arrow key to save your settings and go back to the previous screen.

##### Configure the SuperCap Function:

- Depress the Home-Enter-F2 keys simultaneously to reach the Main Menu screen.

- Select the SuperCap sub-menu using the up-arrow/down-arrow keys.
- Use the right-arrow key to navigate to the SuperCap sub-menu.
- In the SuperCap sub-menu, use the up-arrow/down-arrow keys to select either Enabled or Disabled.
- Press the left-arrow key to save your settings and go back to the previous screen.

## 4.11 Supported Vehicle Interfaces

The following sections list the vehicle communication interfaces supported by the MTS 6513.

### 4.11.1 Serial Data Interfaces

The MTS 6513 supports the following Serial Data Interfaces.

#### VCI Physical Layer Interfaces:

- One HS Can Channel at 125/250/500/1000 kbps
- Two UART channels (K & L Lines)

#### Protocol Interfaces:

- ISO 15765
- ISO 14229 UDS on CAN
- ISO 14230 KWP 2K
- ISO 9141-2
- ISO 11898-2
- GMW 3110 (GM LAN)
- SAE J1939
- SAE J2740 (GM UART)
- SAE J2818 - KWP 1281
- SAE J2190
- Honda 92HM
- Honda 99B

### 4.11.2 Non-Serial Data Interfaces

The MTS 6513 supports the following Non-Serial Data Interfaces.

- Variable Threshold Discrete Inputs (using UART Receiver) Capable of performing timing measurements
- Output: Open Drain using UART Driver
- Analog Voltage measurement on Vbat and one other pin

## 5. Getting Started

The following sections provide the information needed to begin using the MTS 6513 including installing the VCI Manager software, updating the firmware on the device, configuring connection methods, and communicating with the vehicle.

## 5.1 Installing the VCI Manager Software

The VCI Manager software is installed on the PC and provides access to the VCIs located on your network. The VCI Manager must be installed on the PC in order to configure, update and run diagnostic applications targeted for the PC. Initially you use the VCI Manager software to set up the configuration of each VCI. The VCI Manager is also used to update the firmware on the VCI. Use the following procedure to install the VCI Manager software on your PC.

1. Visit the Bosch Diagnostics OES website at the following address to determine if a newer version of VCI Manager software is available for your device. If the software on the website is newer than that included on the Installation CD, download the software to your computer.

[http://www.diagnostics-oes.de/diagnostics\\_oes/en/service/downloads.htm](http://www.diagnostics-oes.de/diagnostics_oes/en/service/downloads.htm)

2. If you downloaded the software from the website, double-click the downloaded file and follow the instructions on the screen. Otherwise, Place the VCI Software Installation CD into your CD drive and launch the VCI Manager installation program. The InstallShield Wizard starts and guides you through the software installation.
3. The InstallShield wizard displays a panel indicating that the program is ready to be installed. Click Install to proceed with the installation. A progress bar shows the status of the installation. [You can click Cancel if you want to halt the installation process. You are prompted to respond if you are sure you wish to cancel the installation.]
4. Click Finish to complete the installation. The InstallShield Wizard places the VCI Manager icon on your desktop.

## 5.2 Setting Up the VCI Hardware

Your first connection is to the PC where you have installed VCI Manager software. You will need the USB cable to configure your VCI using VCI Manager.

### 5.2.1 Identifying Your VCI

The VCI label is located on the back of the VCI. The VCI identification number has two parts: a manufacturing code for traceability and a unique serial number. The serial number is used to identify the VCI in the VCI Manager software. You will need to refer to this serial number when you are using VCI Manager to configure the VCI and perform software updates.

### 5.2.2 Updating the VCI Software

The MTS 6513 VCI is shipped from the factory with a base version of firmware. Before operating your VCI we recommend visiting the following Bosch Diagnostics OES website to see if a newer version of the VCI firmware is available for your VCI.

[http://www.diagnostics-oes.de/diagnostics\\_oes/en/service/downloads.htm](http://www.diagnostics-oes.de/diagnostics_oes/en/service/downloads.htm)

Use the following procedure to update the firmware on your VCI.







1. Select the VCI Manager icon from the PC Desktop. Before proceeding to the next step, make sure your VCI is powered on and the VCI is connected to the PC using the USB cable.
2. Select the Update VCI button to start the update process. [Note, at this time, you are only able to update your VCI using the USB connection. Wi-Fi firmware updates are not enabled.]
3. Verify VCI Serial Number and the firmware version information is correct.
4. Select the Start Update button.
5. Do not unplug the VCI from the PC or remove power from the VCI during the update process. Select OK to continue.
6. The update process will take about 12 minutes to complete. Once the update process is complete the VCI will automatically reboot. Wait until you hear the beep from on the VCI before proceeding to use your VCI.

### 5.2.3 Configuring the VCI Using VCI Manager

In order to configure a VCI to communicate on your network you must connect the VCI, via USB, to a PC running VCI Manager software. Use the following steps to configure your VCI.

The VCI Manager icon displayed on the MTS 6513 will inform you of the communication method to be used if <connect> button is selected.

Refer to the VCI Manager ICON Chart on the next page.

Icon	Description
	VCI Manager will connect to VCI via USB
	VCI Manager will connect to VCI via Ethernet
	VCI Manager will connect to VCI via Wireless
	Wireless Point-to-Point is not setup. connect VCI to the PC using USB cable to complete Setup
	Wireless adapters in the PC and in the Tester are incompatible with each other
	VCI Manager is connected to the VCI

1. Double-click the VCI Manager icon on your desktop to launch the VCI Manager software.
2. In the VCI Manager software VCI Explorer tab, select the VCI in the Detected VCIs window. Click the Show Details button to see details about the selected VCI.
3. Click the Connect button to connect to the selected VCI over USB. The VCI is displayed with a green check mark on your display indicating that your VCI Manager software is in control of that VCI. Note: If your VCI is connected to another networked PC, it will still be detected by the VCI Manager but will be displayed with a red symbol indicating that it is not available. [If your VCI is connected via USB to your computer, the VCI Manager functions on all tabs are available; if your VCI is not connected via USB, the functions on the Network Setup and VCI Update tabs are not available.]

### 5.2.4 Check PC and VCI Software Versions

Typically, the VCI Manager software installed on your PC and the software installed on the VCI must have matching versions in order for the VCI to operate properly. Use the following steps to check your software versions.

1. Connect the VCI to your computer via USB cable.
2. Double-click the VCI Manager icon on your desktop to launch the VCI Manager software.
3. On the VCI Explorer tab, select your VCI in the Detected VCIs window.
4. Click the Show Details button to see the detail view of the selected VCI.
5. The VCI Detailed View window shows the PC S/W Version information for the VCI Manager software and the VCI firmware Version for the VCI as well as available interfaces and IP addresses. If both the

VCI Manager software version and the VCI software version match, you can use your VCI with this PC.

## 5.3 Setting Up Wireless Communications

The MTS 6513 VCI is capable of communicating on your workshop network over USB and Wireless. The Network Setup tab in the VCI Manager software provides a number of functions used to select and configure the VCI network connection interfaces including wireless access and security settings.

If you have purchased a WiFi kit, you must insert the WiFi Adapter dongle into the VCI.

This requires removing the end cap (two screws) and inserting the WiFi Dongle (provided in the kit) into the USB connection slot. See section 4.5 for WiFi Slot location. Replace end cap and two screws.

You must be connected to the VCI via USB to access the settings on the Network Setup tab. If you are not connected via USB, the controls on the Network Setup tab are disabled.

The MTS 6513 VCI supports two methods for wireless communication. With the Access Point Wireless Communication method the VCI connects to your PC through an access point in your workshop. With the Point-to-Point Wireless Communication method the VCI connects to your PC directly using a USB wireless adapter. Each of these methods are described in the following sections.

### 5.3.1 Enabling Access Point Wireless Communication

Your VCI can be configured for Access Point Wireless Communication. Before starting, please verify the following:

- Your VCI kit is the Wireless-Point-to-Point kit (p/n 1699200116) which includes the MTS 6513 VCI assembly with the D-Link Wireless 802.11n USB Adapter.

You will also need to know the following:

- An IP Address and Subnet Mask to assign to your VCI (if your LAN does not automatically assign IP addresses)
- Wireless communication access point SSID (network name)
- Required network authentication is WPA–Personal, Open, or Shared
- Required data encryption is TKIP or WEP (64-bit or 128-bit)
- Wireless security password (encryption key)



The illustration below shows several VCIs connected to a single laptop PC using a wireless access point.



Use the following procedure to configure your VCI for wireless communication in your environment. Before modifying the VCI communications interface, contact your IT Administrator.

1. Start the VCI Manager software by clicking on the VCI Manager icon.
2. Wait for the USB driver to be automatically configured during the first time the USB dongle is inserted in the PC USB Port.

Power Up the VCI by connecting the VCI to the vehicle DLC.

Note, powering the VCI using the USB cable only does not supply enough voltage to run the WiFi Dongle.

Allow the VCI to boot completely.

3. Start the VCI Manager software by double-clicking the icon on the PC desktop.
4. The VCI icon in the VCI Explorer tab should now have a USB connection symbol displayed on top of the VCI icon. (See chart in section 8.4 for an example of what the the USB symbol should look like as well as other icons that could be displayed).

The USB icon indicates the PC is connected to the VCI via the USB cable. You can also move your mouse over the VCI icon in the VCI Explorer tab and bubble help will display how the VCI is connected to the PC.

5. Select the VCI with Green bars in the VCI Manager Explorer tab and click the <connect> button. -> Once connected, a green check mark will replace the green bars. The green check mark confirms the VCI is communicating P-to-P with the PC. Once

connected, select the Disconnect button and close the VCI Manager application.

6. Select the Network Setup tab.
7. Select the Wireless tab.
8. Select the Enable Wireless Interface check box in the Interface Control section. Once you enable the interface, the IP Address Configuration box and the Apply and Cancel buttons become active.
9. Select Obtain an IP address automatically if your LAN automatically assigns IP addresses. Otherwise enter the assigned IP Address and Subnet mask given to you by your IT Administrator.
10. Select Access Point to begin wireless access point configuration.
11. Specify the network name:
  - ⓘ If you are not within range of the access point you will use, select the Enter Network Name [SSID]: radio button and type the network name.
  - ⓘ If you are within range of your wireless access point, choose the Select from available network list radio button and then select Refresh to cause the VCI to search for wireless network signals. The detected networks are displayed in the Network Name box.
12. After you have entered the network name, select Configure.
13. Enter the security settings that are required by your network, then select Next.
14. Select Yes to reconfigure your VCI, or if you want to start over select No.
15. Choose the Properties tab to verify that the VCI is configured correctly. You can also disconnect the USB cable to verify that the wireless connection is working.
16. Record or print your settings as they are displayed on the Properties tab for future reference.

### 5.3.2 Enabling Point-to-Point Wireless Communication

Your VCI can be configured for Point-to-Point Wireless Communication. Before starting, please verify the following:

- Your VCI kit is the Wireless-Point-to-Point kit (p/n 1699200117) which includes the MTS 6513 VCI assembly with two D-Link Wireless 802.11 b/g/n USB Adapters.

The following illustration shows a single VCI connected to a laptop PC using Point-to-Point Wireless communication.



Use the following procedure to configure your VCI for Point-to-Point Wireless communication. Note that the steps presented below assume you are running the Windows 7, 8 or 10 operating system on your PC. The steps for other versions of the Windows operating system may be slightly different.

1. Insert the Wireless USB adapter in an available USB port on your PC. Power-on your PC.
2. Wait for the USB driver to be automatically configured during the first time the USB dongle is inserted in the PC USB Port.

Power up the VCI by connecting the VCI to the vehicle DLC.

Note, powering the VCI using the USB cable only does not supply enough voltage to run the WiFi Dongle.

Allow the VCI to boot completely

3. Start the VCI Manager software by double-clicking the icon on the PC desktop.
4. The VCI Icon in the VCI Explorer tab should now have green bars displayed on top of the VCI Icon (see chart in section 8.4 for an example of what the green bars look like as well as other icons that could be displayed).

The green bars indicate that PC sees the VCI in wireless mode. You can also move your mouse over the VCI Icon in the VCI Explorer tab and bubble help will display how the VCI is connected to the PC.

5. Select the VCI with Green bars in the VCI Manager Explorer tab and click the <connect> button. -> Once connected, a green check mark will replace the green bars. The green check mark confirms the VCI is communicating P-to-P with the PC. Once connected, select the Disconnect button and close the VCI Manager application.

### 5.3.3 Set Factory Default Settings

Selecting the Set Factory Default button on Network Setup tab reconfigures your VCI to the Point-to-Point communications settings it had when it left the factory. Any software upgrades that have been installed to the VCI are still installed.

### 5.4 Power On Self-Test (POST)

When you first apply power to the VCI, the Power On Self-Test (POST) runs. You should observe activity on the LCD display and hear the audible “BEEP” indicating that the VCI is working properly.

When the start-up phase is finished the green Power LED is permanently on and the four status indicator symbols are shown along the bottom edge of the LCD display.

### 5.5 Connecting the VCI to a Vehicle

The MTS 6513 Vehicle Communication Interface kit contains the J1962 16/26 pin Data Link Connector (DLC) cable to connect the VCI to the vehicle. Refer to the electrical wiring diagram for the vehicle you are testing to determine the location and type of Data Link Connector (DLC) installed on the vehicle.

1. Connect the 15-pin end of the DLC cable to the top of the VCI, then tighten the screws.
2. Connect the 16-pin end of the DLC cable to the vehicle DLC connector.

#### Powering the VCI

The VCI can be powered by the vehicle’s 12-volt battery or by the USB cable connected to your PC.

To use the Vehicle Battery, connect the VCI directly to the vehicle using the DLC cable.

To use USB power, connect the VCI to your PC using the USB cable.

## 6. Finishing Up

After using the MTS 6513 VCI, a few simple steps help you leave the vehicle electronic system(s) in the proper state and ensure that you get the most use out of your diagnostic tools:

1. Before removing power from the VCI, exit any running PC computer applications.
2. Turn the VCI off by disconnecting the power from the vehicle DLC or USB cable. The green Power LED turns off.
3. Disconnect the VCI's J1962 16/26 Pin DLC cable from the vehicle.
4. Disconnect the USB cable from the PC and the VCI.
5. Store the VCI, cables, and other parts in a secure, dry location.

## 7. J2534 Configuration

The MTS 6513 VCI is a J2534 device that connects between your computer and the vehicle's J1962 DLC connector for pass-thru programming of the vehicle's ECUs. The J2534 Configuration Application is installed on your PC at the same time as the VCI Manager software, allowing you to keep your OEM PC application connected to a VCI. In addition, this application provides API Monitoring controls to aid in investigating problems encountered while using any J2534 or PDU VCI devices or PC applications devices.

### J2534 Device Configuration

The Device Configuration controls in the J2534 Configuration Application allow you to define a default VCI and a connection sequence that your OEM PC application will follow to connect to your VCIs. There are two controls in this area: the Default Device control and the Auto-Connection Order control.

The Default Device text box allows you to type the serial number of the VCI that you want to define as your default device.

The Auto-Connection Order control allows you to select multiple connection methods.

- Device on USB
- Default Device
- Device Explorer

If the box to the left of the method is checked, then the connection method is attempted when connecting. If the box is not checked, then the connection method

is skipped. The connection methods are attempted sequentially from top to bottom.

To change the order, select a connection method and click the up or down arrow to the right of the Auto-Connection Order window.

The Device on USB connection method attempts to connect to a VCI via USB, even if that VCI is not the Default Device.

The Default Device connection method attempts to connect to the Default Device (VCI) using the first available connection in the following order: USB, wireless.

The Device Explorer connection method opens a dialog box which shows if VCIs are detected.

VCIs that are not available have a red X across them and cannot be selected. VCIs that are available can be selected in several ways.

- Right-click a VCI and select from available connections (USB or wireless).
- Select a VCI and press the Connect button.
- The Auto-Connection strategy connects using the first available connection in the following order: USB, wireless.
- Right-click a VCI and select from available connections.
- Right-click a VCI and set it as the Default Device.

The Cancel button closes the dialog box without making a connection.

## 8. Troubleshooting

This section is intended to help you get back on track if the VCI appears to be operating abnormally. In addition, the most likely cause for the condition is given as well as other possible causes and recommendations on how to isolate or eliminate the problem.

### 8.1 VCI Does Not Pass Power On Self-Test (POST)

Most Likely Cause:

- Internal problem in the VCI.

Recommendations:

- Connect the VCI to a PC using USB and perform the recovery procedure.

## 8.2 VCI Error Icon Flashes After Power On

Most Likely Cause:

- A problem has been detected during power on.

Recommendations:

- Power down the VCI and verify that it has the same problem when you power up again.
- Connect the VCI to a PC using USB and perform the recovery procedure.

## 8.3 VCI Fails to Power Up

The VCI should power up as soon as external power is applied. If the VCI does not turn on, first check the cable connections. Try supplying power to the VCI from two different power sources— the vehicle DLC connector and the USB connector.

Recommendations:

- Check that the cables are securely attached to the VCI and the connector pins are clean.
- If connecting to the vehicle DLC connector, try powering from the USB connector.
- If powering from USB, try powering from the vehicle DLC connector.

## 8.4 VCI Turns Off Immediately When Disconnected from the Vehicle

The VCI should stay on for a factory set time if power is lost during engine cranking or after it is disconnected from power unless you press the power button.

Recommendations:

- Power up the VCI and verify that it has the same problem when power is removed.

## 8.5 VCI Manager Software on the PC Unable to Communicate with the VCI

VCI Manager software must be installed on the PC, and the VCI must be powered up before it will communicate using USB. The VCI must also be configured for wireless communication before it will communicate with your wireless network. The VCI connects first using USB, if available; if USB is not available, the VCI connects using wireless.

Recommendations:







- Check that the cables are securely attached to the VCI, the VCI has completed its power up sequence, the connector pins are clean, and the VCI Manager software is running.
- If connecting using USB, check that the VCI USB connection is detected by Windows:
  - Connect the VCI to the PC USB port, then power up the VCI.

- From the Windows Control Panel, open the Network and Dial-up Connections window.
- Check for device name "ETAS USB Remote NDIS Network Device". If not running, then either the USB driver has not been loaded on the PC or the VCI is not powered and connected to the USB. Check all USB ports on the PC and verify that the VCI is powered on.

- If connecting using wireless, make sure that wireless communication is enabled and the IP configuration is properly set using the VCI Manager software:
  - Check that the USB cable is not plugged in. USB connection takes precedence over wireless.
  - Check that the wireless card is properly seated in the VCI.
  - Contact your IT department and check that your PC is detecting the wireless access point, and the correct security settings have been configured for the VCI.
- Contact your IT department for the correct VCI settings.
- If the VCI Manager is still not able to communicate with the VCI, perform the Recovery Procedure.

## 8.6 VCI Manager ICON CHART


1. VCI Manager will connect to VCI Via USB.
2. VCI Manager will connect to VCI via Ethernet.
3. VCI Manager will connect to VCI via wireless.
4. Wireless P-to-P is not setup. Connect VCI to PC using USB cable to complete setup.
5. Wireless Adapter in the PC and in the VCI are incompatible with each other.
6. VCI Manager is connected to the VCI.

Icon	Description
	VCI Manager will connect to VCI via USB
	VCI Manager will connect to VCI via Ethernet
	VCI Manager will connect to VCI via Wireless
	Wireless Point-to-Point is not setup. connect VCI to the PC using USB cable to complete Setup
	Wireless adapters in the PC and in the Tester are incompatible with each other
	VCI Manager is connected to the VCI

## 9. Cleaning and Maintenance

### 9.1 Cleaning and Storing Your VCI

The housing of the MTS 6513 module may only be cleaned using a soft cloth and a neutral cleaning agent. Do not use any abrasive cleaning agent or rough cleaning cloths.


 There are no user serviceable components inside the MTS 6513 Vehicle Communication Interface. Do not open the device. Opening the device will void the warranty.


- If the VCI, connectors, or cables become dirty, they may be cleaned by wiping them with a rag lightly coated with a mild detergent or non-abrasive hand soap.
- Do not immerse the VCI or any of its parts or accessories in water.
- Although the VCI and accessories are water resistant, they are not waterproof; thoroughly dry them prior to storage.
- Avoid using harsh solvents such as petroleum based cleaning agents, Acetone, Benzene, Trichloroethylene, etc.

### 9.2 Recovering the VCI Software

As a result of a power failure or a communications error during a software update, the VCI software may become corrupted. You may see several symptoms such as error messages directing you to go to RECOVERY mode or an inability to connect to a detected VCI.

The following two error messages generally occur during VCI Tester Software download. If you see either of these messages, perform the Recovery Procedure.

 "Error reprogramming the VCI. Go to Recovery Mode."

 "There was a problem reprogramming the VCI."


#### Recovery Procedure

Use the following procedure to recover the software on the VCI.

1. Remove power from the VCI. Ensure that all the LEDs are off.
2. Remove end cap. Press and hold the Recovery Button down while you apply power to the VCI using the USB cable. You will see the word "Fail Safe" appear on the LCD screen. Release the Recovery

button. The VCI will continue to power up, the green power LED will turn on and the VCI will beep when it is ready for recovery. Note, the "Fail Safe" words should remain on the LCD screen.

3. Start the VCI Manager software by clicking the VCI Manager icon on your desktop. Your VCI must be connected via USB or it will not be recognized.
4. When the VCI is detected by the VCI Manager software, the icon will be labeled with "Recover".
5. Select the VCI displaying the serial number matching your VCI and click the Recover button. The VCI Manager software switches automatically to the VCI Update tab.

 The Recovery Procedure clears all VCI network settings and removes any application software loaded on the VCI.

6. Select the latest version of the VCI Recovery Image and click Start Update. Do not unplug the VCI from the PC or remove power from the VCI during the recovery process.
7. When you see the message indicating that the VCI will automatically restart, click OK. The VCI Manager software switches automatically to the VCI Explorer tab, and your VCI appears when it has finished the restart and Power On Self Test (POST).

## 10. Glossary

Here is a glossary of terms commonly used in the Automotive Diagnostics industry.

TERM	DESCRIPTION
AC	ALTERNATING CURRENT
BAUD RATE	THE SPEED AT WHICH DATA IS TRANSFERRED OVER A SERIAL DATA LINK
BPS	BITS PER SECOND
CURSER	HIGHLIGHTED TEXT OR DATA ON A DISPLAY SCREEN
DC	DIRECT CURRENT
DCE	DATA COMMUNICATION EQUIPMENT
DLC	DATA LINK CONNECTOR
DTE	DATA TERMINAL EQUIPMENT. A TERM USED TO DESCRIBE A DEVICE CONNECTED TO AN RS232 LINK.
ECM	ENGINE CONTROL MODULE
ECU	ENGINE CONTROL UNIT
EEPROM	ELECTRONICALLY ERASABLE PROM
ETHERNET	STANDARDIZED IEEE 802.3 TWISTED-PAIR WIRE FOR CONNECTING SYSTEMS TO A NETWORK.
HZ	HERTZ - A UNIT OF MEASURE FOR FREQUENCY
I/F	INTERFACE
I/O	INPUT/OUTPUT
I/P	INSTRUMENTATION PORT
LAN	LOCAL AREA NETWORK
LED	LIGHT-EMITTING DIODE
OBD	ON BOARD DIAGNOSTICS
OEM	ORIGINAL EQUIPMENT MANUFACTURER
PC	PERSONAL COMPUTER
RCV	RECEIVE
RS232	Same as RS232C
RS232C	THE MOST STANDARD SERIAL COMMUNICATION INTERFACE USED IN THE COMPUTER INDUSTRY
SCI	SERIAL COMMUNICATION INTERFACE
USB	UNIVERSAL SERIAL BUS - A COMMON STANDARD FOR INTERFACING WITH A PC
VCI	VEHICLE COMMUNICATION INTERFACE
VCI MANAGER	PC SOFTWARE THAT CONFIGURES, TESTS, AND UPDATES THE VCI
VDC	VOLTS DC
WLAN	WIRELESS LOCAL AREA NETWORK

## 11. Hardware Specifications

The following table lists the various hardware characteristics of the MTS 6513.

MTS 6513 HARDWARE SPECIFICATIONS	
HOST INTERFACE	
Wired	High-Speed (480 Mbps) USB Client Interface (via OTG Port)
Wireless	Optional Wireless via Host USB Interface
PROCESSOR SYSTEM	
Microprocessor Type	PXA270 Processor
Clock Speed	312 MHz
RAM	64 MB SDRAM
ROM	32 MB Flash EEPROM
Mass Storage	<ul style="list-style-type: none"> <li>Micro-SD Card Slot (externally accessible)</li> <li>Optional 4 GB (GigaByte) Micro-SD Card</li> </ul>
USER INTERFACE	
LED	One green LED for power indication
LCD	160x100 with greyscale and LED backlight
Audio	Beeper (software frequency controlled)
Keypad	8-Key keypad
Switch	Recovery switch
Trigger Switch	Remote Interface possible via OTG USB Interface
POWER	
Vehicle	From vehicle battery via DLC
External	USB power (4.75 to 5.5V) (500 mA max)
Backup	15 seconds typical (Ultra-capacitor)
MECHANICAL CHARACTERISTICS	
Size	140x96x30 mm
Weight	240 grams
Input Voltage	6V – 16V
Power Sources	<ul style="list-style-type: none"> <li>12-24 Volt vehicle power</li> <li>USB power</li> </ul>
Operating temperature	0°C to 50°C
CERTIFICATIONS	
VCI	FCC, CE, CSA, RoHS