

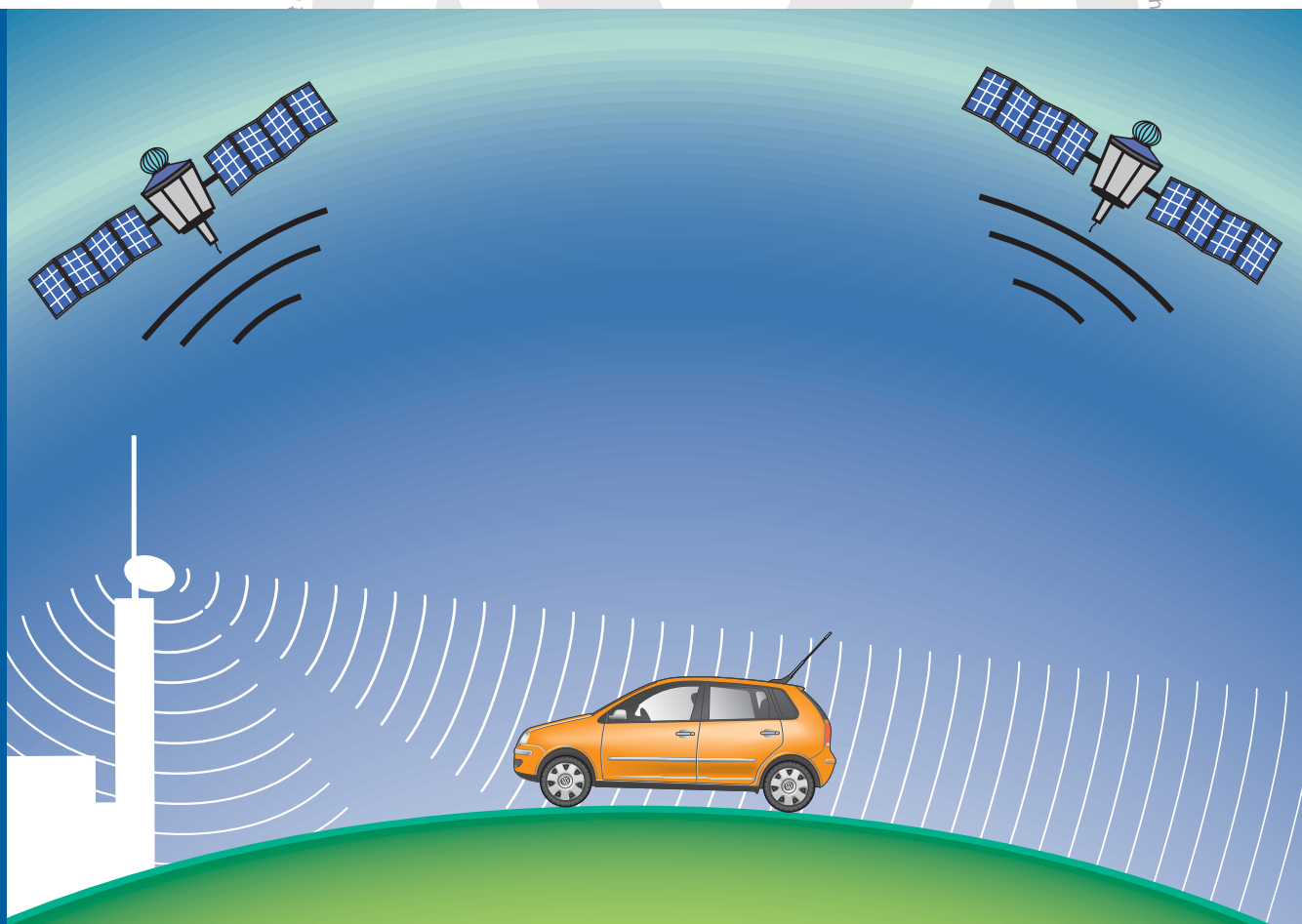


Self Study Program 890133

Volkswagen Car-Net™

Design and Function

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This Self-Study Program provides information regarding the design and function of new models.
This Self-Study Program is not a Repair Manual.

This information will not be updated.
For maintenance and repair procedures, always refer to the latest electronic service information.

Note



Important!





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Introduction

Customers are demanding that their vehicles are increasingly connected to the outside world. Cellular phones may not have started this trend, but they have certainly accelerated it. Bluetooth telephone communications are now integrated into every Volkswagen vehicle.

VW Car-Net makes Volkswagen vehicles even more connected to the outside world. It offers:

- Emergency assistance
- Vehicle health reporting
- Speed and location limitation settings
- Vehicle control settings from mobile device (remote unlock, light flashing, etc.)



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Introduction

What is VW Car-Net?

VW Car-Net is a comprehensive system that allows the customer and vehicle to communicate with the outside world. This happens by components inside of the vehicle, a cellular network and call centers.

Vehicle Components

VW Car-Net is a new control module in the vehicle. This control module is connected to the cellular network using the vehicle antenna. VW Car-Net can transmit and receive signals and be used for external communication. It transmits/displays information to the customer using the radio speakers and the radio display head (if equipped).

The customer initiates communication using a three-button assembly located in the overhead console. In certain situations, such as an accident with pyrotechnic deployment, the control module can initiate communication on its own.

Cellular Network

When the vehicle initiates communication, signals are transmitted to the cellular network. The VW Car-Net Response Center, Volkswagen Roadside Assistance and Emergency Services centers can be accessed depending on the information sent. The customer can communicate, and Point-of-Interest (POI) data or addresses can be "pushed" through the cellular network to the vehicle navigation system (if equipped).

Call Centers

The main call centers are:

1. VW Car-Net Response Center
2. Allstate Roadside Assistance Center
3. Emergency Services Call Center

These call centers are separate and provide different services, even though they are accessed through the same button assembly.

The VW Car-Net Response Center is primarily associated with navigation services and emergency services. A customer may also be routed to other call Centers, depending on the concern.

For a roadside concern, the customer is directed to the Allstate Roadside Assistance Center.

When the SOS button is pushed, or if the vehicle has pyrotechnic deployment, the Emergency Services Call Center will be contacted to assist the customer.

Internet Capabilities

The customer can log into a website portal on the internet to set preferences for their VW Car-Net system or to monitor the vehicle status.

Mobile Capabilities

Some vehicle functions can be performed using a smartphone app on either an iPhone or Android device. These are outlined later in this SSP.

Features and Benefits

Safe and Secure

Automatic Crash Notification

In the event of an accident, the Automatic Crash Notification feature can save lives. After a pyrotechnic deployment, the VW Emergency Services Call Center is notified of the vehicle's location. An agent contacts the vehicle immediately to determine the risk of injury and dispatches help if necessary, or if there is no response from the vehicle's occupants.

Manual Emergency Calling

In other emergency situations, whether it's a medical issue or a different unsafe situation, assistance is only a push of the "SOS" button away. The vehicle's location is automatically transmitted when the call is placed.

Roadside Assistance

There's no quicker way to get assistance for a disabled vehicle than by pushing the VW Car-Net's "Wrench" button. The vehicle location is transmitted automatically to the Volkswagen Roadside Assistance Center to help ensure a prompt response.

Route Assistance (Live Operator)

Using navigation is as simple as entering an address or POI (Point of Interest) and following the directions. But if a customer prefers to have a live operator send a POI directly to their Volkswagen navigation system, or if a customer sets up the POI from the online Owner's Portal, the information can be "pushed" directly to the vehicle navigation system. The vehicle must have the factory navigation system to use the destination download feature.

Stolen Vehicle

If a Volkswagen with VW Car-Net is stolen, the VW Car-Net Response Center can help the authorities find and recover the vehicle using built-in GPS tracking once a police report has been filed.

Features and Benefits

Family Guardian

Boundary Alert

For a new driver in the family or even a parking valet, a customer can set a limited geographical area in which the vehicle should be driven. The customer sets virtual boundaries in an interactive map and receives alerts when those boundaries are crossed.

Speed Alert

High speeds and inexperienced drivers are never a good combination. The customer can define maximum speeds parameters for the vehicle and receive alerts when vehicle drivers exceed the limits.

Diagnostics and Maintenance

Service Appointment Scheduling

When regular maintenance or service is required, the call center can transfer the customer to a dealer during the dealer's service hours, and provide the dealer contact number if outside of the dealer's business hours.

Vehicle Health Report

VW CarNet helps owners proactively manage maintenance by sending a Vehicle Health Report with detailed vehicle diagnostics by e-mail. The report is sent periodically or upon request.

Send Dealer Location

A customer can search for a dealer and have this address to the vehicle's navigation system to arrive on time for their maintenance appointment.

Features and Benefits

Remote Vehicle Access

Remote Vehicle Status

After parking a vehicle, a customer can check to see if the doors are locked or the trunk is closed using the VW Car-Net smartphone app, the online Owner Portal, or by calling the VW Car-Net Response Center.

Last Parked Location (only available via mobile app)

If a customer wants help remembering where the vehicle is parked, a smartphone can be used to determine the vehicle location on a map.

Remote Honk and Flash

We've all temporarily "lost" a vehicle in a huge parking lot. The smartphone app can sound the car horn and flash the headlights. This feature can also be used to call attention to an unsafe situation.

Remote Door Unlock

If the keys are ever locked in the car, remote access can be used to unlock the vehicle.

Destination Assist

Remote access even helps with navigation. A destination that is found online can be sent to the in-vehicle navigation. Or, if a customer is on the road and needs help searching a POI, an agent can assist and send a destination download directly to the vehicle (must have factory navigation).

For the vehicle to communicate, many things must be in place.

VW Car-Net Installed and Activated on the Vehicle

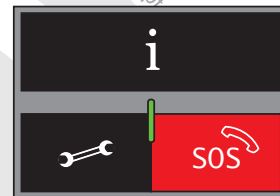
VW Car-Net will be installed in most 2014 vehicles. You can identify if a vehicle has VW Car-Net by the specific button assembly in the header trim panel. Because VW Car-Net is integrated into the Immobilizer system, it cannot be retrofit to previous vehicles.

VW Car-Net is a subscription-based service that the customer must activate. It will not operate if it is not activated, or if the subscription has run out.

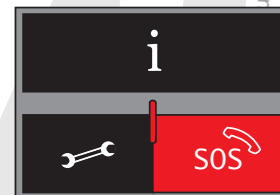
Customers get a six-month free trial that starts from the date of vehicle purchase.

The VW Car-Net system displays its status using a light in the button assembly.

- A green light means that the system is active and the subscriptions status is good.
- A red light means that there is a problem in the system. It does not necessarily mean the system will not function.
- No light means that the system is not active or that the trial or paid subscription has run out.



Green Light



Red Light



No Light

Communication

A Cellular Network within Range

The VW Car-Net system does not provide an indicator to determine if a cellular network is within range. The light may be green, indicating an active subscription, but that does not mean that the vehicle can connect to the cellular network.

If a customer has connection concerns, ask where they had the concern. The system may be operating perfectly, but the vehicle may not be able to reach the cellular network.

Even though Verizon Telematics (VzT) is the primary provider of VW Car-Net services, an AT&T GSM signal is used for the actual cellular communication. This is important to remember when checking for signal strength if a customer is having connectivity issues.



The Components in the System Must be Operational

The system obviously cannot operate when something is wrong. If there is a problem in the system, it most likely appears as a red light to the customer.

Not all concerns cause the red light to illuminate. Make sure to check the fault memory using a Scan Tool.

Remember that the VW Car-Net Control Module is part of the Immobilizer system and requires online adaptation when it is replaced.

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Customer Interface

VW Car-Net Customer Interface

One VW Car-Net feature allows the customer to interact with it on the Internet and on mobile devices. The information and capabilities available to the customer are important to know, in case the customer is having trouble understanding this information or these features.

This section covers the internet features and mobile features.

Internet

After the customer has gone through the enrollment procedure in their vehicle, a VW Car-Net can be created at www.vw.com/carnet. They will need to provide their account number and PIN from the registration process in order to create a username and password for this account.

This account will give them a certain amount of control over the system and can provide them with information about their vehicle. This section will show some, but not all, functions of the customer internet interface. Plans are in place to expand these capabilities in the future.

Customer Interface

Main Customer Internet Page

Displays vehicle model and Vehicle Identification Number (VIN)

Commercial purposes, in part or in whole, is not to be used.

Welcome [Sign out](#)

Logout

Español | Live Chat | Certified Used Cars | Owners |

Das Auto. Models | TDI Clean Diesel & Hybrid | Shopping Tools | Why VW | Financial Services

Build & Price | Get a Quote | Find a Dealer

Owners | My Vehicles | Help and Advice | Service, Parts, and Accessories | Driver Gear | Car-Net

Help

My 2014 Tiguan
VIN: WVGBV3AX4EW

My Car-Net Account

Welcome to Volkswagen car-net™

To get started, select one of the services below.

My Dashboard

- Vehicle Health Report
- Remote Vehicle Access
- Boundary Alert
- Speed Alert
- Connected Vehicle History
- Destinations

Download the Mobile App

Stay connected to your VW from the palm of your hand¹.

[Get the App](#)

¹Requires VW Car-Net Mobile Application, iPhone® only. Android® app not available at time of publication. Standard text and data rates apply.

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Trigger vehicle health report
Last triggered report: 21. Nov. 2012

Vehicle Health Report
Monitor your vehicle's diagnostics.

[Get Started](#)

Remote Vehicle Access
Monitor the status of your vehicle locks, lights, and more - all from the comfort of your home or office.

[Get Started](#)

Boundary Alert
Set boundaries to learn whether your VW has gone beyond your defined geographic limits.

[Get Started](#)

Speed Alert
Learn if your Volkswagen has exceeded your defined speed threshold².

[Get Started](#)

Connected Vehicle History
View your vehicle's Car-Net history and notifications.

[Get Started](#)

Destinations
Search from hundreds of points of interest and send them to your vehicle's factory-installed navigation system.

[Get Started](#)

²Always obey speed and traffic laws. Alerts should only be viewed when it is safe and appropriate. Always pay careful attention to the road, and do not drive while distracted. Standard text and data rates apply.

This link provides more information about the mobile app for the iPhone

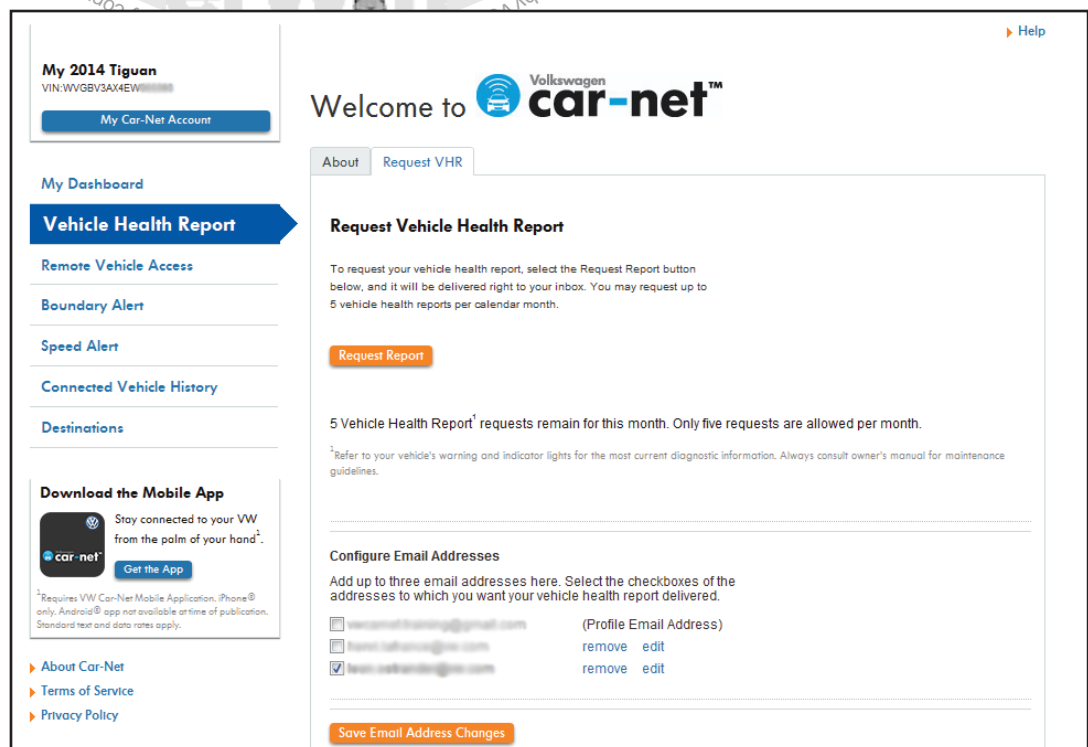
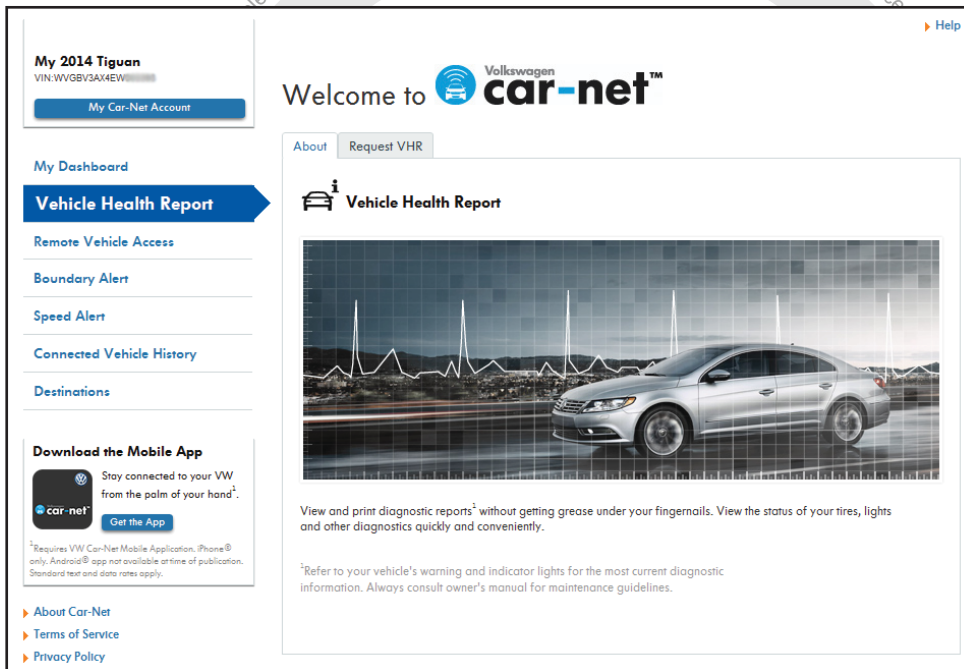
These links provide details about VW Car-Net usage

These two menus allow the customer to select different functions. The left menu stays the same on all pages. The right menu changes, depending on the customer selection.

Customer Interface

Vehicle Health Report Internet Page

The customer can receive Vehicle Health Reports. These reports give a high-level overview of the vehicle status. Up to five Vehicle Health Reports can be sent to the customer each month.



Vehicle Health Report Examples

If a customer receives a Vehicle Health Report, it will look similar to the samples below. The customer can print these sheets and bring them to you. These sheets do not have specific fault information, only an indication that a system has a fault. Most of the faults in the report appear to the customer as illuminated instrument cluster lights and only the information provided in the Owner's Manual for that type of light is provided.



VIN
WVGB3AX4EW000000
2014 Tiguan

Odometer Reading
22 miles

Next Maintenance Service Due
9,878 miles

Vehicle Health Report

The following information details your vehicle diagnostics during the most recent Vehicle Health Report check. Please review each item and attend to any necessary maintenance or repairs as soon as possible.

**Red**
Stop! Do not drive vehicle, get professional assistance



**Blue**
Please see your authorized Volkswagen dealer or an authorized Volkswagen Service Facility for regular service and maintenance

**Yellow**
Please see your authorized Volkswagen dealer or an authorized Volkswagen Service Facility for needed repair or adjustment

**Green**
No Faults Detected

Refer to your vehicle's warning and indicator lights for the most current diagnostic information. Always consult your printed owner's manual for maintenance guidelines.

Summary based on the diagnostic check on 07/17/2013	Status
Climate System	
Driver Assistance Systems	
Engine & Transmission & Powertrain	
Safety Equipment	
Tires & Brakes	





VIN
WVGB3AX4EW000000
2014 Tiguan


Odometer Reading
22 miles


Next Maintenance Service Due
9,878 miles

Vehicle Health Report







**Red**
Stop! Do not drive vehicle, get professional assistance

**Blue**
Please see your authorized Volkswagen dealer or an authorized Volkswagen Service Facility for regular service and maintenance

**Yellow**
Please see your authorized Volkswagen dealer or an authorized Volkswagen Service Facility for needed repair or adjustment

**Green**
No Faults Detected

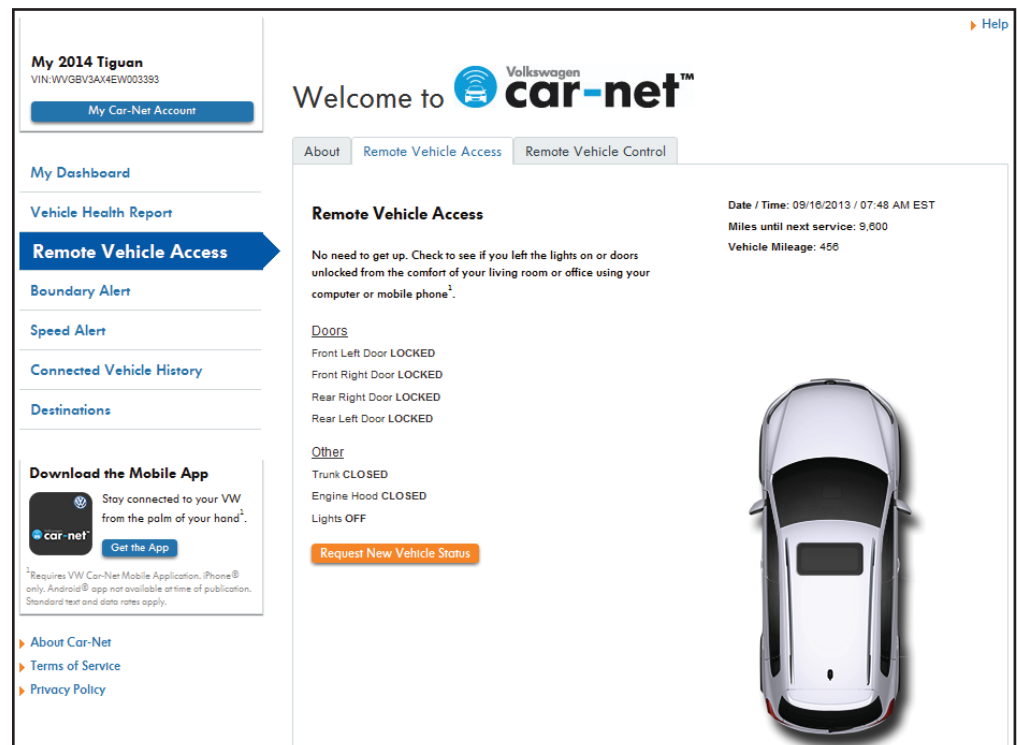
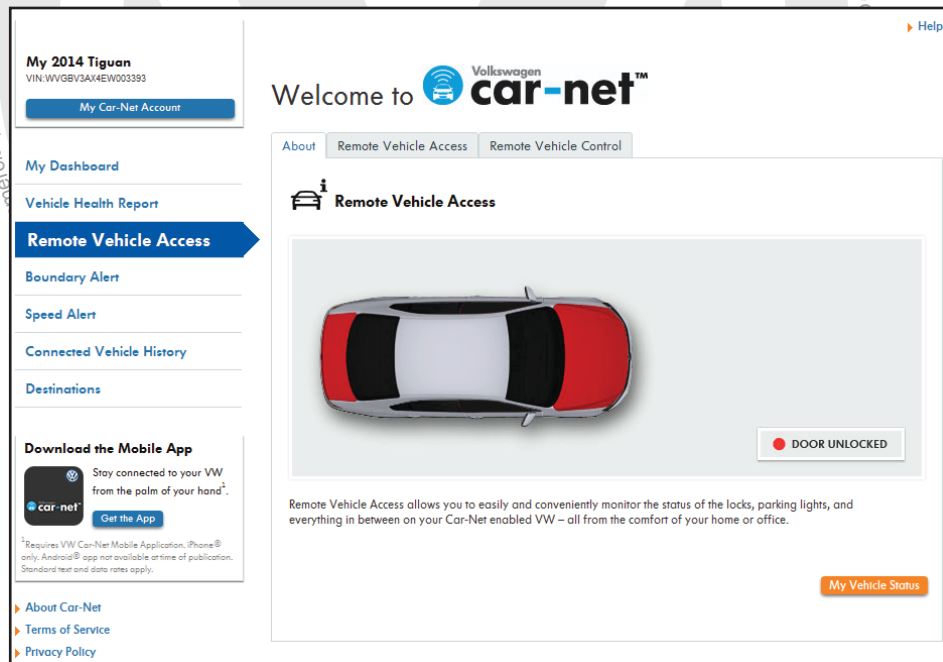
Refer to your vehicle's warning and indicator lights for the most current diagnostic information. Always consult your printed owner's manual for maintenance guidelines.

Detailed Report based on the diagnostic check on 07/17/2013	Status
Driver Assistance Systems	
Lighting System	 One or more driving lights not working. Replace the burned out bulb. If all light bulbs are OK, see an authorized Volkswagen dealer or authorized Volkswagen Service Facility.
Engine & Transmission & Powertrain	
Engine Coolant	 Stop! Pull off the road and stop as soon as you can do so safely. Stop the engine and let it cool down until the temperature needle is in the normal range again. Check the engine coolant level and add coolant if needed.
Tires & Brakes	
Brakes	 If you believe that it is safe to do so, immediately take the vehicle to an authorized Volkswagen dealer or an authorized Volkswagen Service Facility.

Customer Interface

Remote Vehicle Access Internet Page

A customer can view the status of the locks on their vehicles using the website. This same information is also passed along to the mobile device, if the customer has downloaded the VW Car-Net app in their iPhone and Android device.




Remote Vehicle Access Internet Page (continued)

In addition to the monitoring the lock status, the customer can also operate the horn and flashers of their vehicle remotely. This is very useful when using a mobile device and trying to locate a vehicle in a large parking lot.

My 2014 Tiguan
VIN: WVGBV3AX4EW003393
[My Car-Net Account](#)

[My Dashboard](#)
[Vehicle Health Report](#)
[Remote Vehicle Access](#)
[Boundary Alert](#)
[Speed Alert](#)
[Connected Vehicle History](#)
[Destinations](#)


Download the Mobile App


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Help

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[About](#) [Remote Vehicle Access](#) [Remote Vehicle Control](#)

Remote Door Unlock

Date / Time: 09/16/2013 / 07:48 AM EST


[Unlock](#)

Door locked/unlocked status as of the above date/time:

Front Left Door LOCKED
Front Right Door LOCKED
Rear Right Door LOCKED
Rear Left Door LOCKED

Remote Honk and Flash

[Activate Honk and Flash](#) [Activate Flashers only](#)



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Customer Interface

Boundary Alert Internet Page

Boundary Alerts are helpful when it is important that the vehicle does not leave a certain area. This can be used for many situations such as new drivers, older drivers and concern about vehicle theft.

My 2014 Tiguan
VIN: WVGBV3AX4EW

My Car-Net Account

My Dashboard

Vehicle Health Report

Remote Vehicle Access


Boundary Alert

Speed Alert

Connected Vehicle History

Destinations


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[Help](#)

Welcome to  **car-net™**

[About](#) [Boundary Alerts](#) [Notifications](#) [Create a Boundary Alert](#)

 **Boundary Alert**



A Boundary Alert² allows you to learn when your connected VW has crossed over a fixed border by setting boundaries for whoever's driving your car. With Boundary Alerts, you'll get updates if your car is driven outside the parameters you set, helping you keep track of your most important valuables.

²Alerts should only be viewed when it is safe and appropriate. Always pay careful attention to the road, and do not drive while distracted. Standard text and data rates apply.

[Create a Boundary Alert](#)

Customer Interface

Boundary Alert Internet Page (continued)

The customer can set 10 different boundary alerts. However, only one boundary alert can be active at a time. The customer is informed when a vehicle exits an active boundary area. If a vehicle with VW Car-Net should be road-tested, you may want to inform the customer ahead of time to prepare them if they receive a boundary alert.

My 2014 Tiguan
VIN:WVGVB3AX4EW

My Car-Net Account

My Dashboard

Vehicle Health Report

Remote Vehicle Access


Boundary Alert

Speed Alert

Connected Vehicle History

Destinations

Help

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About Boundary Alerts Notifications

Delete All Create a Boundary Alert

Activation	Title		
<input type="checkbox"/> OFF	Test alert	Edit	Delete
<input type="checkbox"/> OFF	Pre-launch Testing	Edit	Delete
<input checked="" type="checkbox"/> ON	home test 2	Edit	Delete

Delete All Create a Boundary Alert

My 2014 Tiguan
VIN:WVGVB3AX4EW

My Car-Net Account

My Dashboard

Vehicle Health Report

Remote Vehicle Access


Boundary Alert

Speed Alert

Connected Vehicle History

Destinations

Help

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About Boundary Alerts Notifications

Create a Boundary Alert

Date / Time	Title	Notifications
▼ 07/22/2013 - 1 Item		
07/22/2013 / 07:28 AM EST	home test 2	Entered Allowed Area
▼ 07/21/2013 - 3 Items		
07/21/2013 / 07:33 PM EST	home test 2	Exited Allowed Area
07/21/2013 / 08:51 AM EST	home test 2	Entered Allowed Area
07/21/2013 / 08:30 AM EST	home test 2	Exited Allowed Area
▼ 07/20/2013 - 3 Items		
07/20/2013 / 10:32 PM EST	Pre-launch Testing	Entered Prohibited Area
07/20/2013 / 09:12 PM EST	Pre-launch Testing	Exited Prohibited Area
07/20/2013 / 09:01 PM EST	Pre-launch Testing	Entered Prohibited Area

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Get the App

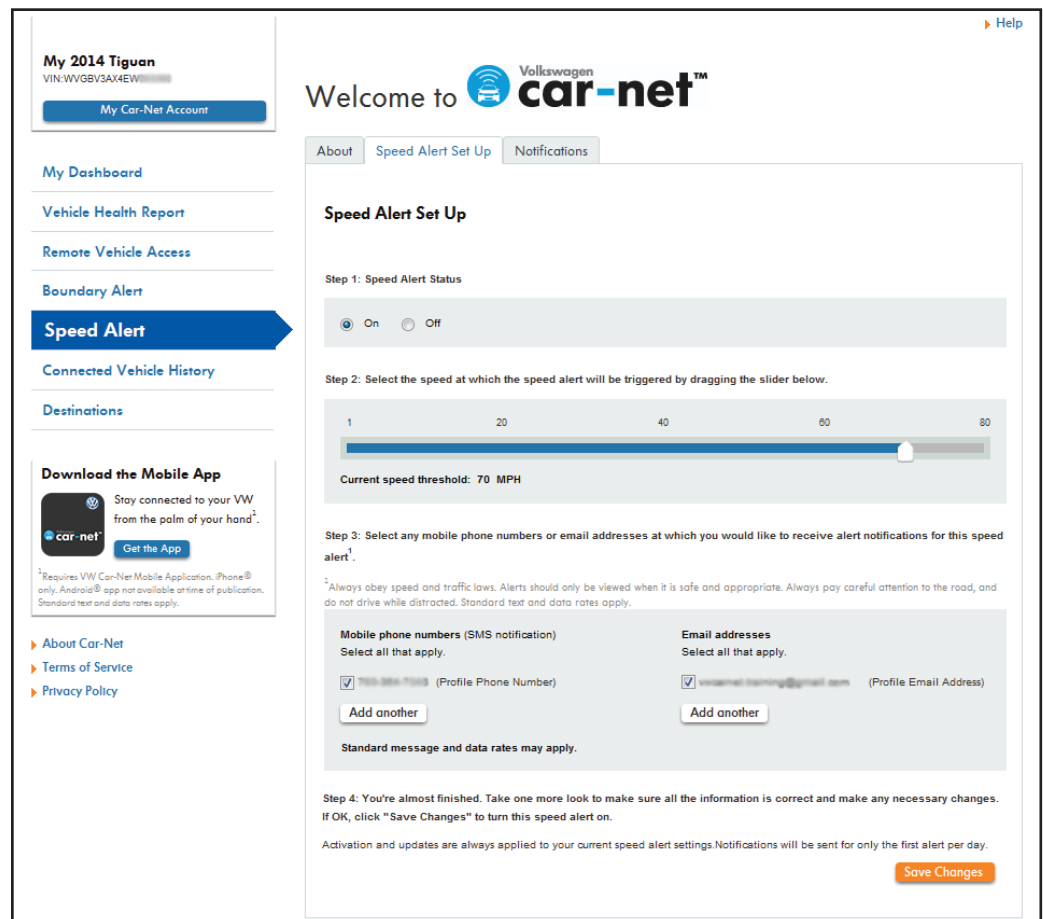
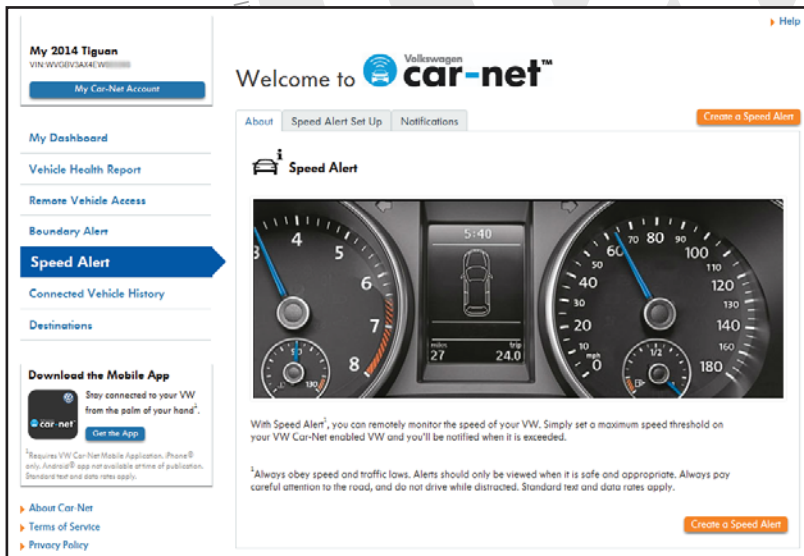
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Customer Interface

Speed Alert Internet Page

Speed Alerts are helpful when it is important to the customer that the vehicle does not exceed certain speeds. This may be used in many situations, from customer self-monitoring to new driver oversight.



Speed Alert Internet Page (continued)

The customer can set different speed alerts and is informed when a vehicle exceeds these speeds. If you determine that a vehicle with VW Car-Net should be road-tested, you may want to inform the customer ahead of time to prepare them in case they receive a speed alert.

My 2014 Tiguan
VIN: WVGBV3AX4EW
[My Car-Net Account](#)

[My Dashboard](#)

[Vehicle Health Report](#)

[Remote Vehicle Access](#)


[Boundary Alert](#)

Speed Alert

[Connected Vehicle History](#)

[Destinations](#)

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[About](#) [Speed Alert Set Up](#) [Notifications](#)

Date / Time	Speed Limit	Duration	Max Speed
▼ 07/30/2013 - 1 Item			
07/30/2013 / 10:55 AM EST	70 mph	09 min 43 sec	86 mph
▼ 07/22/2013 - 7 Items			
07/22/2013 / 07:26 AM EST	40 mph	57 seconds	52 mph
07/22/2013 / 07:24 AM EST	40 mph	06 min 36 sec	77 mph
07/22/2013 / 07:15 AM EST	40 mph	02 min 27 sec	55 mph
07/22/2013 / 07:12 AM EST	40 mph	01 min 54 sec	57 mph
07/22/2013 / 07:10 AM EST	40 mph	01 min 30 sec	53 mph
07/22/2013 / 07:07 AM EST	40 mph	17 seconds	43 mph
07/22/2013 / 07:06 AM EST	40 mph	01 min 52 sec	49 mph
▼ 07/21/2013 - 2 Items			
07/21/2013 / 09:36 PM EST	40 mph	32 seconds	49 mph
07/21/2013 / 09:34 PM EST	40 mph	03 min 54 sec	48 mph

<<

Page 1

of 3

>>

Customer Interface

Connected Vehicle History Internet Page

The History page gives the customer an overview of what activity has taken place on the account.

My 2014 Tiguan
VIN: WVGBV3AX4EW123456
[My Car-Net Account](#)

[My Dashboard](#)

[Vehicle Health Report](#)

[Remote Vehicle Access](#)


[Boundary Alert](#)

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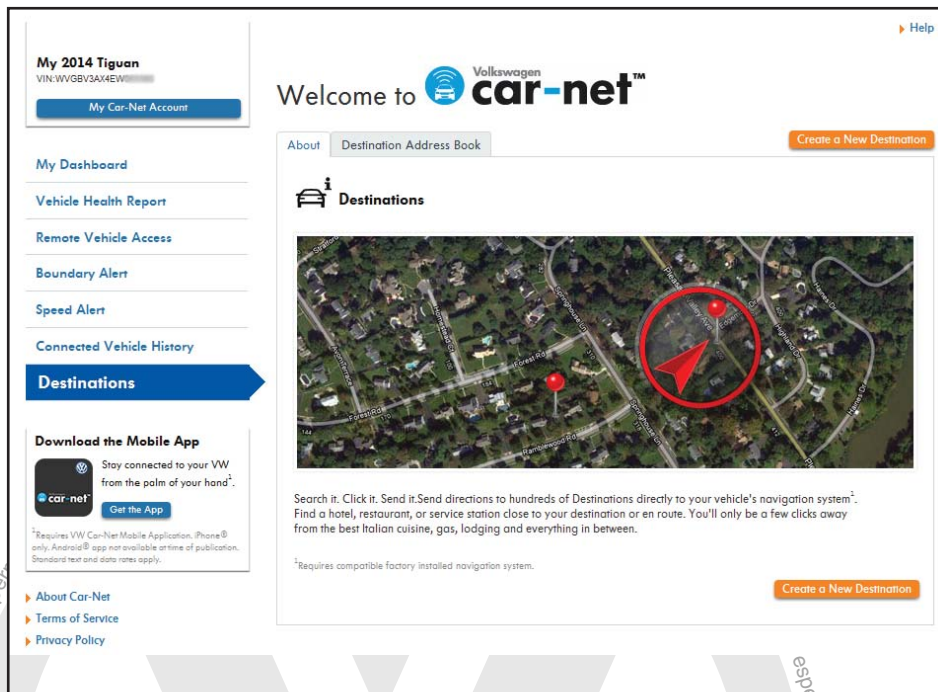
Connected Vehicle History Here's a breakdown of the connected services performed on this vehicle.

Activity Type	Date / Time	Details
Vehicle Status Request	07/30/2013 11:42:04 AM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/30/2013 11:15:28 AM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/30/2013 10:55:45 AM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/29/2013 03:52:51 PM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/29/2013 03:13:20 PM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/29/2013 03:10:32 PM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/29/2013 12:39:53 PM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/29/2013 12:33:33 PM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/29/2013 10:45:17 AM EDT	Updated vehicle status information sent from the vehicle
Vehicle Status Request	07/29/2013 10:03:43 AM EDT	Updated vehicle status information sent from the vehicle

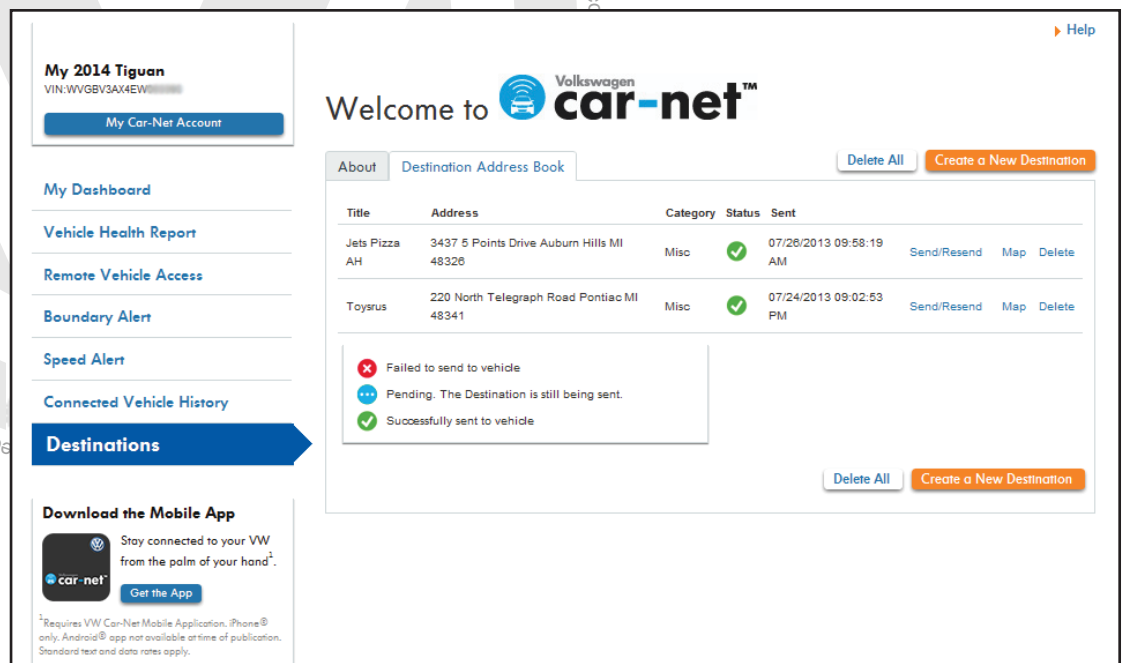
[1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [11](#) [12](#) [13](#) [14](#) [15](#) [16](#) [17](#) [18](#) [19](#) [20](#) [21](#) [22](#) [23](#) [24](#) [25](#) [26](#) [27](#) [28](#) [29](#) [30](#) [31](#) [32](#) [33](#) [34](#) [35](#) [36](#) [37](#) [38](#) [39](#) [40](#)

Destination Internet Page

By selecting Destinations, owners of VW Car-Net equipped vehicles that also have a navigation system can set up and send directions directly to the navigation system in their vehicle. This is an excellent system for customers who like to plan their trips from the comfort of their own home.



Customers can also access their Destination Address Book and re-send a previously entered set of directions.



Customer Interface

Mobile Application

The mobile app can be downloaded directly through the VW Car-Net internet page. This will give an iPhone or Android (planned 11/2013) device the smartphone capabilities discussed on previous pages.

The screenshot shows the Volkswagen Car-Net website interface. A red box highlights the 'Download the Mobile App' link in the left sidebar. A red arrow points from this link to a larger, detailed view of the app download page.

Download the Mobile App

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Get the App

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Download the Mobile App

Stay Connected

View and update your VW Car-Net settings from your smartphone with the VW Car-Net app¹.

Volkswagen car-net™

Download on the App Store

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Components

The VW Car-Net system is made up of the following components:

Control Module for Emergency Call Module and Control Unit J949

The Control Module for Emergency Call Module and Control Unit J949 is located under the passenger seat under a foam cover, where the Bluetooth module was located. The VW Car-Net Control Module:

- Has an internal telecommunication card (SIM card)
- Communicates directly with the Radio Display Head and the Unified Multimedia Interface
- Sends and receives inputs/signals from the microphone, button assembly and the antenna
- Sends information over the Infotainment CAN-Bus
- Stores fault information from many vehicle systems for the Vehicle Health Report
- Stores various settings such as geofencing speed warning parameters

The Control Module for Emergency Call Module and Control Unit J949 is part of the Immobilizer system. It must be adapted online when replacing. This is important because:

- During adapting, the new control module is assigned to the VIN in the FAZIT server
- The new control module information is passed through the VWAG servers to Verizon Telematics (VzT), the VW Car-Net provider
- VzT recognizes the new control module and assigns it to the customer's account
- It can take up to two hours before this data circuit has completed and the VW Car-Net system operates
- The vehicle must have a clear line of sight to the sky to complete the adaptation and activation process



Control Module for Emergency Call Module and Control Unit J949

Failure Modes

Some customers may be concerned about a module in the vehicle continuously reporting their vehicle location. They may ask for this control module to be removed. If this control module is removed:

- The VW Car-Net function does not operate
- Bluetooth features do not operate because the overhead microphone passes its signal through J949 to the Unified Media Interface (UMI) R215

If the Control Module for Emergency Call Module and Control Unit J949 has failed, the VW Car-Net system does not operate:

- The light in the button assembly may not illuminate
- Bluetooth operation with a personal cellular phone may not operate because the microphone passes its signal through J949 to R215



Even though Verizon Telematics (VzT) provides the VW Car-Net communication services, the actual signals are transferred between the vehicle and Verizon using AT&T's cellular network. This is important to remember when checking signal strength.



When adapting a new control module, always reference the latest Service Information and Technical Bulletins for the correct procedures

Components

Unified Multimedia Interface (UMI) R215

The UMI replaces the Bluetooth Module and the Multimedia Device Interface (MDI) on vehicles with Car-Net. The UMI is basically a MDI with the Bluetooth function. There is no separate Bluetooth module on VW Car-Net vehicles.

The UMI module is located in the same place as the MDI module. It can be identified as a UMI module because of the larger connector and additional wires.

In the future, the UMI may appear in more vehicles, even those that may not have VW Car-Net.



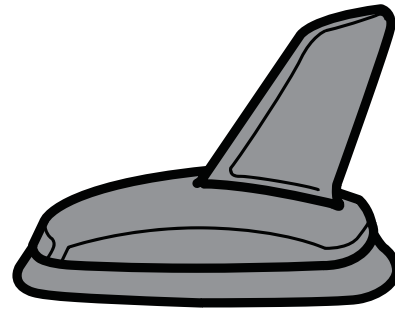
Unified Media Interface in Tiguan

Roof Antenna RX5

All vehicles with VW Car-Net have a roof antenna with GPS and GSM communication capability . This antenna houses the GPS Antenna R50 and the Telephone Antenna R65.

The antenna assembly passes signals to the Control Module for Emergency Call Module and Control Unit J949 and/or the Radio, depending on the audio system in the vehicle:

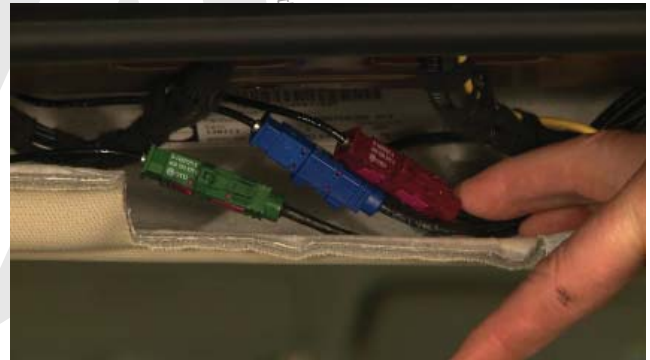
- If the vehicle has a navigation system, GPS signals are sent to the radio head, then sent back through the CAN-Bus to the Control Module for Emergency Call Module and Control Unit J949
- If the vehicle has a non-navigation radio, GPS signals are sent directly to the Control Module for Emergency Call Module and Control Unit J949



Antenna Assembly RX5

Failure Modes

If there is an open circuit anywhere in the antenna assembly, the scan tool identifies this as an "Open circuit in Antenna" DTC. The DTC indicates if the open circuit is in the GPS, GSM, AM/FM or Satellite Radio circuit.



Antenna Connections, Rear of Vehicle

Components

Emergency Call Button E276

The customer uses the Emergency Call Button to interface with the VW Car-Net system. There are three buttons on this assembly:

1. Information
2. Service
3. SOS

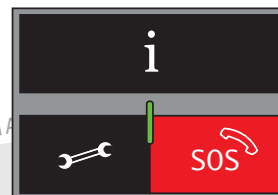
The information “i-button” is used by the customer to contact the VW Car-Net Call Center. The call center can help to look up and send addresses and Points-of-Interest (POI)s to the navigation system (if equipped). The call center can transfer the customer to a dealer during the dealer’s service hours, and provide the dealer contact number if outside of the dealer’s business hours.

The “wrench” button is used to contact Volkswagen Roadside Assistance if there is a problem with the vehicle.

The “SOS” button is used for emergencies such as a medical emergency or other unsafe situation.

A light in the button assembly also tells the customer about the status of the system.

- A green light means that the system is active and the subscriptions status is good.
- A red light means that there is a problem in the system
- No light means that the system is not active or that the subscription has run out.



Green Light



Red Light



No Light

Networking and Communication

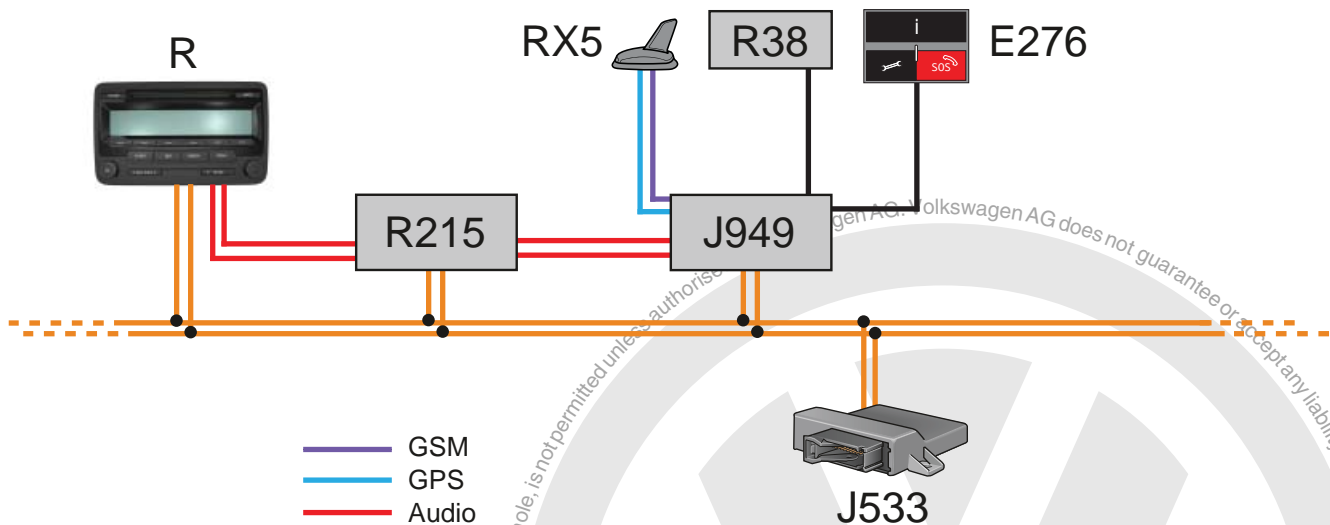
RCD 310 Networking

The VW Car-Net system network in the RCD 310 only communicates with the radio for audio commands, because the RCD 310 radio does not have navigation display capabilities.

When contacting VW Car-Net, a pressed button in the overhead assembly sends a signal to the Control Module for Emergency Call Module and Control Unit J949.

J949 uses the GSM antenna to reach out to Verizon Telematics (using the AT&T GSM network). When it receives information back, J949 sends audio to the radio for output.

Both the GPS and GSM antenna signals are routed directly to J949. All VW Car-Net functions are handled through J949.



E276 Emergency Call Button

J533 Data Bus Onboard Diagnostic Interface (Gateway)

J949 The Control Module for Emergency Call Module and Control Unit

R Radio

RX5 Roof Antenna

R38 Telephone Microphone

R215 External Multimedia Device Interface

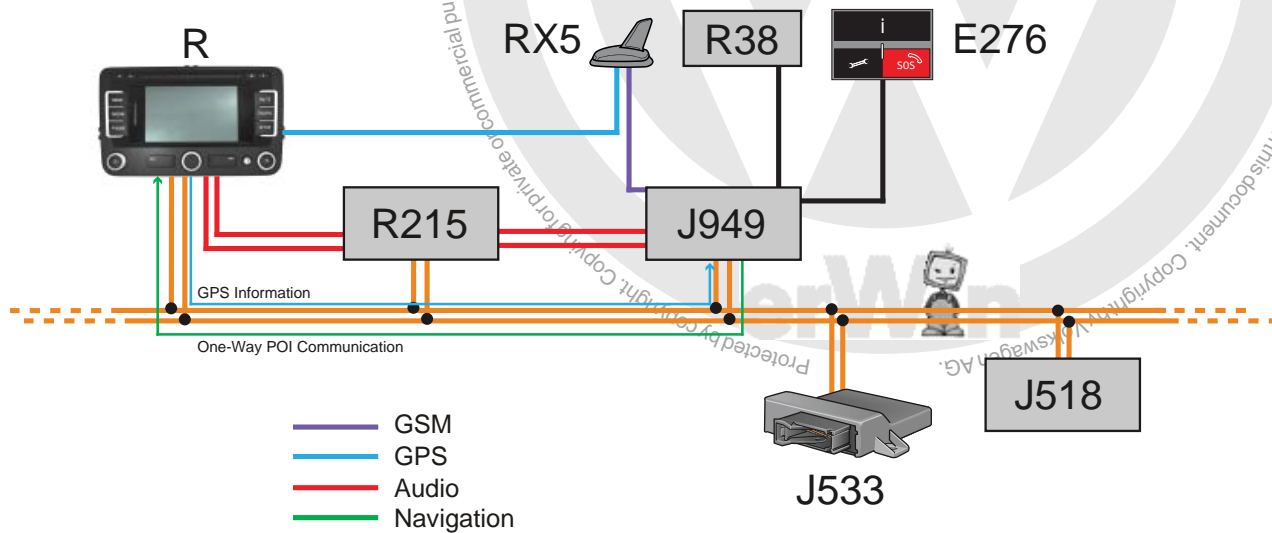
Networking and Communication

RNS 315 and RNS 510 Networking

The RNS 315 and RNS 510 radios communicate the same way. The radio is an integral part of the VW Car-Net system. This radio:

- Receives audio signals
- Receives GPS signals
- Receives POI information
- Sends GPS information

When contacting VW Car-Net, a pressed button in the overhead assembly sends a signal to J949. J949 uses the GSM antenna to reach out to Verizon Telematics (using the AT&T GSM network) When it receives information back, J949 sends audio to the radio for output.



RNS 315 Network Diagram

E276 Emergency Call Button

J518 Access/Start Authorization Control Module

J533 Data Bus Onboard Diagnostic Interface (Gateway)

J949 The Control Module for Emergency Call Module and Control Unit

R Radio

RX5 Roof Antenna

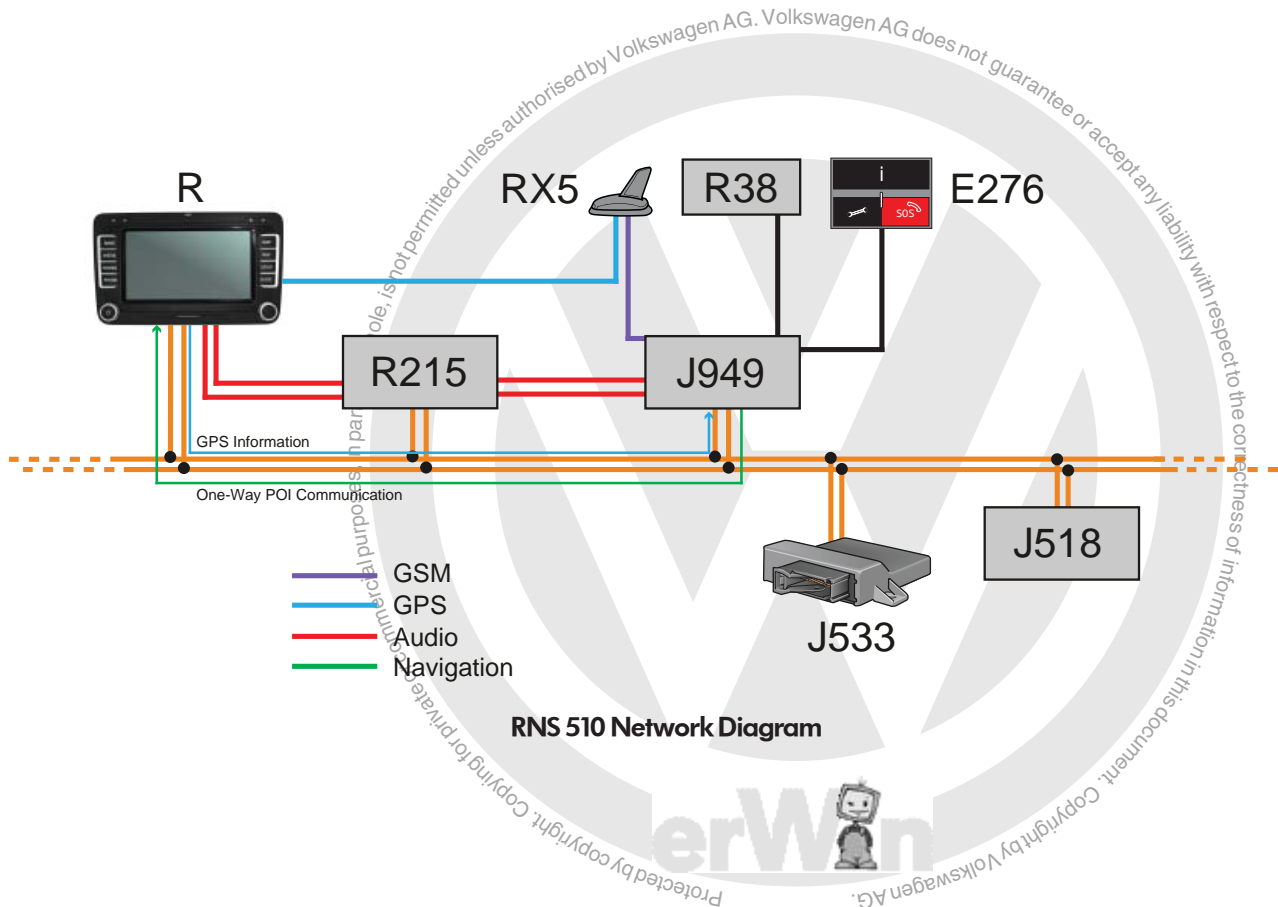
R38 Telephone Microphone

R215 External Multimedia Device Interface

Networking and Communication

If Verizon sends Point of Interest (POI) data to the vehicle, it is received through the GSM antenna and routed to J949. J949 sends this data to the Radio through the CAN-Bus. The Radio combines this POI data with the GPS signal to display the data for the customer.

Any GPS data needed by J949 for geofencing or other operations is sent through the CAN-Bus from the Radio to J949.



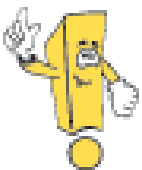
Service

Pre-Delivery Inspection (PDI)

The VW Car-Net system must be checked for activation before the vehicle is delivered to the customer. The Sales personnel will be introducing the Car-Net feature at delivery with the intent of setting up the customer with a VW Car-Net account before they leave the dealer.

Always check the current PDI checklist for the vehicle. However, these are the general steps for activating VW Car-Net.

- The vehicle must be in an AT&T cellular coverage area
- The vehicle must have a clear line of sight to the sky
- The vehicle must have 5 miles on the odometer
- When the vehicle is taken out of Transport Mode, move the vehicle outside and leave the ignition ON. The light in the three-button assembly should turn green in approximately 5 minutes. If the vehicle is taken out of Transport Mode and is without a signal for a long period of time (such as in a shop environment), this initial activation time may exponentially increase to up to a 24-hour time period
- A green light confirms that over-the-air registration has taken place and the VW Car-Net system is ready for the customer



Even though Verizon Telematics (VzT) provides the VW Car-Net communication services, the actual signals are transferred between the vehicle and Verizon using AT&T's cellular network. This is important to remember when checking signal strength.

Replacement/Diagnosis

- Never install a lower software number control module into a vehicle that had a higher software number (ex. do not install a 076 module into a vehicle that had a 086 module)
- Each OCU is specifically tied to a VIN, vehicle build information and a customer. Swapping control modules from vehicle-to-vehicle may corrupt this stored data and subscription information.

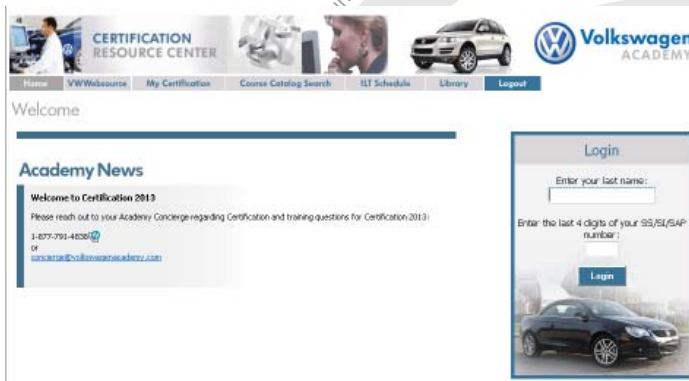


When adapting a new control module or performing service on the VW Car-Net system, always reference the latest Service Information and Technical Bulletins for the correct procedures

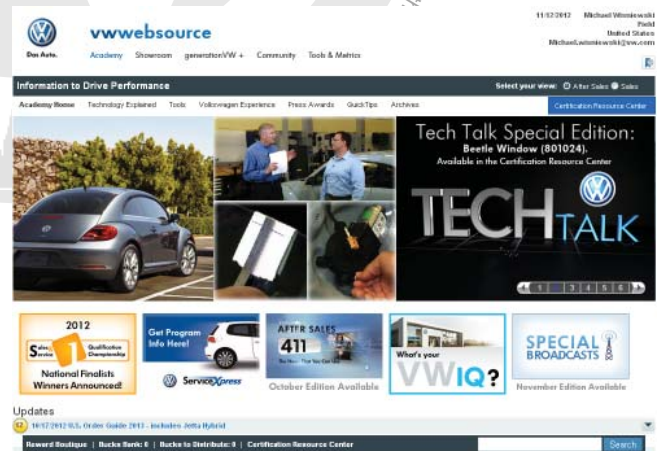


If you determine that a vehicle with VW Car-Net should be road-tested, you may want to prepare the customer in case a speed or boundary alert is received. Also, remember that a VW Car-Net customer can check on their vehicle location at any time.

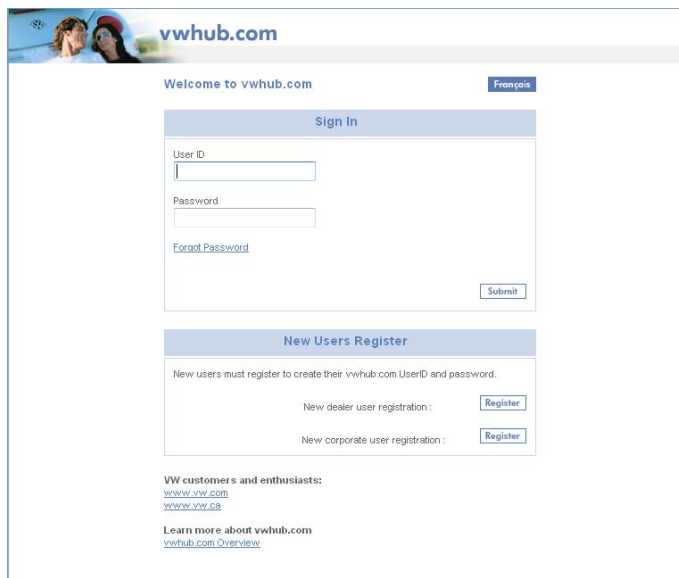
Important Links



https://www.datarunners.net/vw_crc/default.asp?pageid=home



www.vwwebsource.com



www.vwhub.com

Knowledge Assessment

An on-line Knowledge Assessment (exam) is available for this Self-Study Program.

The Knowledge Assessment may or may not be required for Certification.

You can find this Knowledge Assessment at:

www.vwwebservice.com

For Assistance, please call:

Volkswagen Academy

Certification Program Headquarters

1-877-791-4838

(8:00 a.m. to 8:00 p.m. EST)

Or, E-mail:

concierge@volkswagenacademy.com





Volkswagen Group of America
2200 Ferdinand Porsche Drive
Herndon, VA 20171
September 2013



Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the Volkswagen Factory Approved Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the Volkswagen Factory Approved Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

