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VOLUME 5 | NUMBER 1 | **Summer 2013**

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Volume 5 Number 1 Summer 2013

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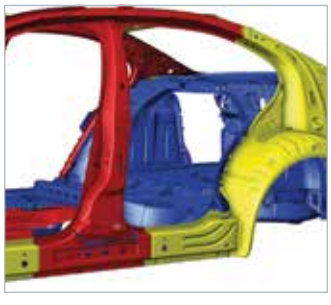

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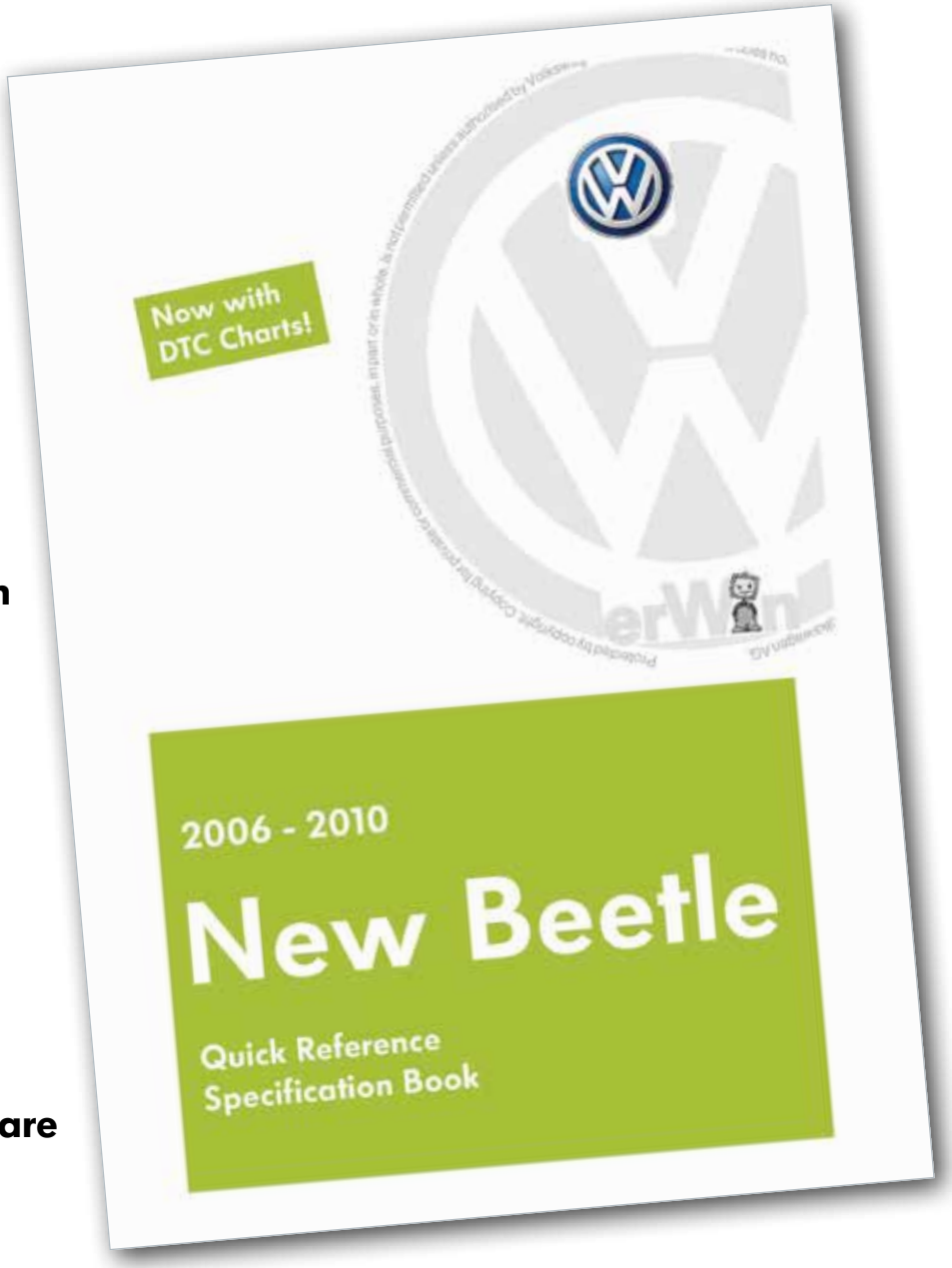
Your Friend erWin: Volkswagen's Tech Site

Not only is www.erwin.vw.com easy to navigate, but you will be surprised at the vast amount of invaluable information that you can access, including TSBs, wiring diagrams, system operating principles and diagnostic training, hardware and performance specifications, J2534-compliant system reprogramming software and instructions, and much more.



The New Beetle Quick Reference Specifications Book includes detailed technical data for every system from A/C to suspension and wheel alignment.

You're smart, or you wouldn't be reading **VW TechConnect**. But with the complexity of today's automotive technology, you can't possibly know everything about every vehicle that may pull – or be pulled – in to your service bay. With an online subscription to Volkswagen's erWin technical repair information website, you have access to everything VW has published about diagnosing and repairing its vehicles.

Yes, everything. If VW has published it, it's in erWin. Punch in a Vehicle Identification Number (VIN) and you'll find technical bulletins, wiring diagrams, repair manuals, troubleshooting procedures, component locations, performance specifications, recall campaigns, training materials, system operating theory, J2534-based software reprogramming information for various systems, and much more.

What You Don't Know Can Hurt

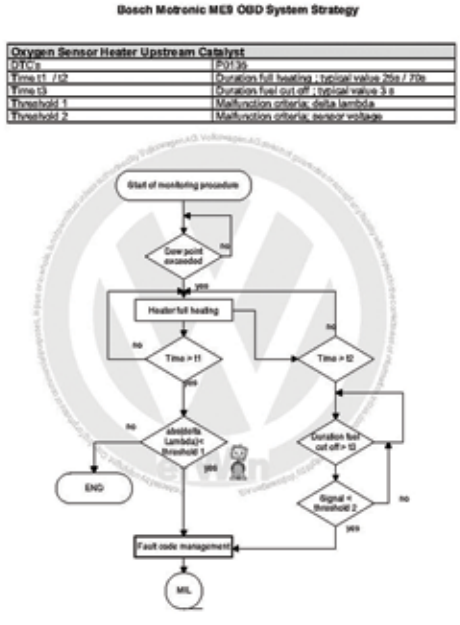
Suppose your diagnostic efforts have identified a non-functioning component and the aftermarket labor guides show a six hour remove-and-replace (R&R) time. Now suppose that VW has recently updated its service information with a new procedure that eliminates steps so that you can complete the repair in 45 minutes. Think how much easier it will be to sell that new repair, or how much you can undercut competitive service providers who are not yet aware of the new procedure. You'll find the new repair procedure in erWin's Service Information section just as soon as Volkswagen approves it.

Rust in the fuel system causes rough running and a possible no-start, according to VW TSB #2023624/2. Debris and sludge can plug the fuel filter and cause the system to set a DTC P0087 – Rail Fuel Pressure Too Low.

Have you been seeing more of a particular type of system failure in recent months, but have yet to see effective diagnostic or repair tips presented in the online forums? These "unique" problems that elude the power of logic to solve cry out for OE answers, and Volkswagen Technical Bulletins step up to the plate. The erWin site adds Technical Bulletin and Campaign (recall) information as soon as it is published by Volkswagen. And Volkswagen updates its Technical Bulletin list each month, so if you want the freshest TSB information available, you'll find it the next time you check erWin's TSB pages.

Let's say you've found an actuator that's not moving when or where it should. Replacing the actuator doesn't solve the problem, but unknown to you, there's a new re-flash that will. You'll save yourself a lot of time digging through troubletree steps if you first look in erWin to see if a new Technical Bulletin or service alert has been published about the re-flash procedure.

Pin reference voltage for a sensor you're testing not available in your aftermarket information service? Find it in the VW Quick Reference Specification Book.



The Bosch Motronic OBD System Strategy Manual shows the step-by-step monitoring process and decision criteria built into various emissions performance assessments. The Motronic flow chart above shows the oxygen sensor heater upstream catalyst malfunction criteria that lead to setting a MIL.

Keep What You Catch

Want to save all of this great information for future use? As a subscriber, you can download, save to your computer or other device, and print a hard copy of any document, most at no extra charge. Mind you, it may be more efficient to wait until you're at your computer rather than downloading that 500+ page New Beetle Service Manual to your smart phone.

Date, or Go Steady?

You can subscribe for a day, a month, or a year. Of course, the more you buy, the lower your effective cost per day of access. If you do a lot of VW work, you may want to spring for the yearly rate.

You'll see OE vehicle-specific information as soon as it comes out from VW, rather than having to wait for updates from other information providers. You'll have the confidence that recommended repairs are field-tested and OE-proven, unlike with bulletin boards where you can't know the skill and experience level of the commenter. And you will have access to any data, unlimited, 24/7, for as long as you're subscribed.

Information is a Vehicle-Specific Repair Cost

Two decades ago, vehicle systems were mostly mechanical, and basic operating principles were similar for most cars regardless of who made them. Computer controls have made it possible for today's vehicles to be much more specialized. This differentiation helps both performance and marketing, but it also makes diagnosis and repair much more complex and unique to the individual vehicle make and model.

Service Information | Technical Bulletins | Vehicle Data | Campaigne

Model: all Engine: all Trans: all

17 Items found, displaying all items. Number of Items per page: 25

Contents			Document Type	Sales Type	Engine Code	Transmission Code	Model Year (a)
1998-2012 DTC List	free		PDF				1998-2015
2.DL TDI Common Rall CBEA-CJAA			PDF	1K2 1K5 5K1 .			
2005-2010 VW Gas ECM Calibration IDs and CVNS	free		PDF				2005-2010
2005-2010 VW diesel ECM Calibration IDs and CVNs	free		PDF				2005-2010
Bosch Motronic ME 7, ME 7.1, ME 7.1.1, ME 7.5 System Strategy			PDF				1997-2009
Bosch Motronic ME 9.1			PDF				2005-2009
DTC List			PDF				1999-2009
Simos 6			PDF				2005-2009
Volkswagen Engine & transmission Fault Codes	free		PDF				

A search on the term "misfire" produces a list of documents about engine control operating theory, diagnosis and repair strategy, trouble shooting, and other repair information for various Volkswagen models and year ranges. All documents found can be downloaded, saved, and printed.

So, you need highly detailed, vehicle-specific information in order to complete a given repair. That makes today's repair information more like a part. As with parts, you need to cover your cost. Each time you use erWin, you can pro-rate your subscription and add a portion to the repair order.

Get Started with erWin

In the Internet Explorer browser (erWin may work with other browsers, but Internet Explorer is the only "officially supported" browser so far), type https://www.erwin.vw.com.

Click on the "My erWin" tab at the top of the erWin home page. You'll see Subscriptions, Registration, and Login drop-down menu choices. After choosing your subscription level, you'll register and then you can log in and begin using erWin immediately.

Some of the information in erWin is protected intellectual property and requires special access. For this proprietary information (don't you feel special?), you'll need to download to your computer, tablet, or other device a software plug-in called "Oracle IRM Desktop." It's available from Oracle, but it may be easier to access from the erWin Audi website. Go to https://www.erwin.audi.com/erwin/showSystemRequirements.do

Click on the "Oracle IRM Desktop" link in the "Further Links" column in the center of the page. Download the Oracle IRM Desktop DE 5.515.22.exe.

If you need help, there are step-by-step Instructions, Frequently Asked Questions, and System Requirements pages in the "About erWin" tab at the top of the erWin home page.

A Volkswagen TSB referencing a P1545 DTC -- Throttle Valve Control Malfunction -- shows the slot where you insert a flathead screwdriver in order to release the lock on a replacement wiring harness end connector housing to allow secure insertion of wire terminals. The repair corrects a corrosion-related contact resistance fault in the ECM wiring for the throttle valve.

Door #1, #2, or #3?

Now that you're in, let's explore.

The first step is to identify the vehicle year, make, and model for which you seek information. You can do this in one of three different ways: Guided, Manual, or Vehicle Identification Search.

If you have the VIN, using erWin's Vehicle Identification Search is the easiest way to start. It automatically pulls up every document, regardless of subject, related to vehicles with the equipment indicated by the VIN that you enter. The found documents list is often too long to fit on one screen.

Manual search is great if you don't have the VIN, but do know the engine type of the vehicle for which you want information. By the way, Volkswagen made it easy to find the appropriate engine code for any vehicle. Search for the "erWin Build Guide" (or "engine codes") and you will get a document that lists engine displacement, engine code, transmission type and code, all by year, make and model from 1999 to 2013.

If you don't need to be more specific than a vehicle year and model, you can use Guided Search. We searched for Volkswagen Jetta repair training materials and found self-study guides for Vehicle Immobilizer Procedures, EVAP Systems Diagnosis, the CAN Data Bus, and other information.

Using Vehicle Identification Search

You enter a VIN, then select from a menu of information categories that is so rich that Volkswagen sometimes has to subdivide it into two layers of choices.

The first layer –Category 1– includes seven data types:

1. Diagnostic Information
2. Maintenance
3. Repair Manual
4. Special Tools Information
5. Technician References
6. Training
7. Wiring Diagrams (includes Component Locations)

After you select a data type in Category 1, erWin will present a window for a possible second data level. If

there are data types available at this second level, erWin will show the choices. Select the data category you'd like to see.

If no choices are presented, it means simply that everything Volkswagen has published about your topic fits into the Category 1 data group you selected. Leave the Category 2 window blank.

Click "Search", pause for a few seconds, then scroll down to see what documents erWin found. Click on the name of a file you want and erWin will download it to your computer, tablet, or smartphone.

Once you've narrowed your choice to a specific vehicle year and model, and received the first search results, erWin presents shortcuts to additional popular data categories. In the "Search Results" window, you'll see four tabs. Without changing the vehicle description, click on the tab from which you'd like to see documents.

1. Service Information
2. Technical Bulletins
3. Vehicle Data
4. Campaigns.

Clicking on the Service Information tab pulls up wiring diagrams, component locations, and troubleshooting information for the vehicle.

Selecting the Technical Bulletins tab will give you every bulletin published that covers the vehicle on which you are searching. Each month, Volkswagen updates the list of Technical Bulletins it has published. You will find the "Technical Bulletin Recent Releases" document at the top of the search results list.

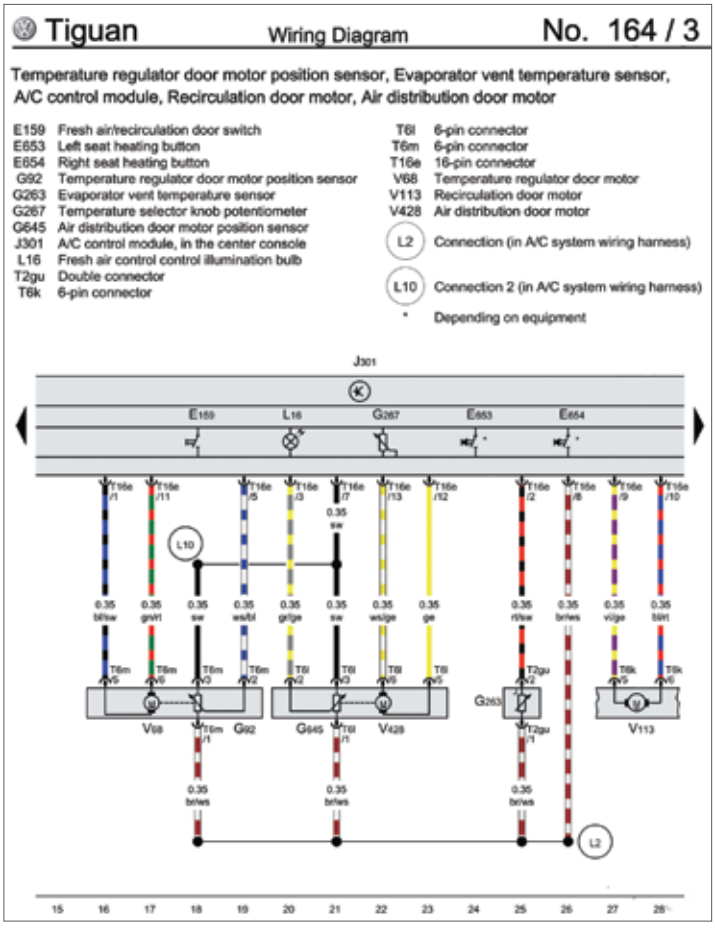
Choosing the Vehicle Data tab pulls up a description, with Volkswagen codes, of every component, option, or piece of equipment on the vehicle. The Campaigns tab creates a list of any recall campaign documents that have been published for the vehicle.

Wiring Diagrams and Component Locations

Volkswagen publishes wiring diagrams in large books that cover a vehicle model for a given year range. Using the VIN of a 2009 Tiguan S 2.0L Turbo, we found an 1,100-page heavyweight entitled "Wiring Diagrams and Component Locations – Tiguan". It covers model years from 2007 through 2012. We were able to download it in pdf format which, thanks to the Oracle IRM Desktop software that we installed, we can save, open, and print at our leisure.

Another version of the same book is available covering years going back to 1995.

You can learn anything you want to know about Volkswagen repair issues by searching in erWin. We think we hear the Genie from the Disney movie Aladdin saying, "You ain't never had a friend like erWin!" ●



Volkswagen shows the A/C Control Module, Evaporator Vent Temperature Sensor, Temperature Regulator Door and Air Distribution Door Motor Position Sensors, and other system circuitry all in one wiring diagram to help make it easy to see relationships among key components.

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The Dakar Rally is the extreme endurance test for man and machine and the ultimate testing ground for lubricants. The knowledge gained by pushing our products to the limit on the Dakar Rally enables Castrol to create the high performance lubricants used by millions of drivers everyday.

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Gasoline Fuel Stratified Injection: Like a Diesel, But Different

It's been 13 years since Volkswagen first put Fuel Stratified Injection (FSI) into production. Generically called Gasoline Direct Injection, this efficiency-improving system is getting ever more sophisticated. Here's what you need to know as a basis for diagnosis and to help your customers.

Gasoline FSI

The concept of injecting gasoline directly into the cylinders of an internal-combustion engine originated in Europe in 1902 for use in very early aircraft, believe it or not. The logic was compelling, but without the benefit of sophisticated combustion science and the precision of electronic controls, it was just too inaccurate and unwieldy to be successful.

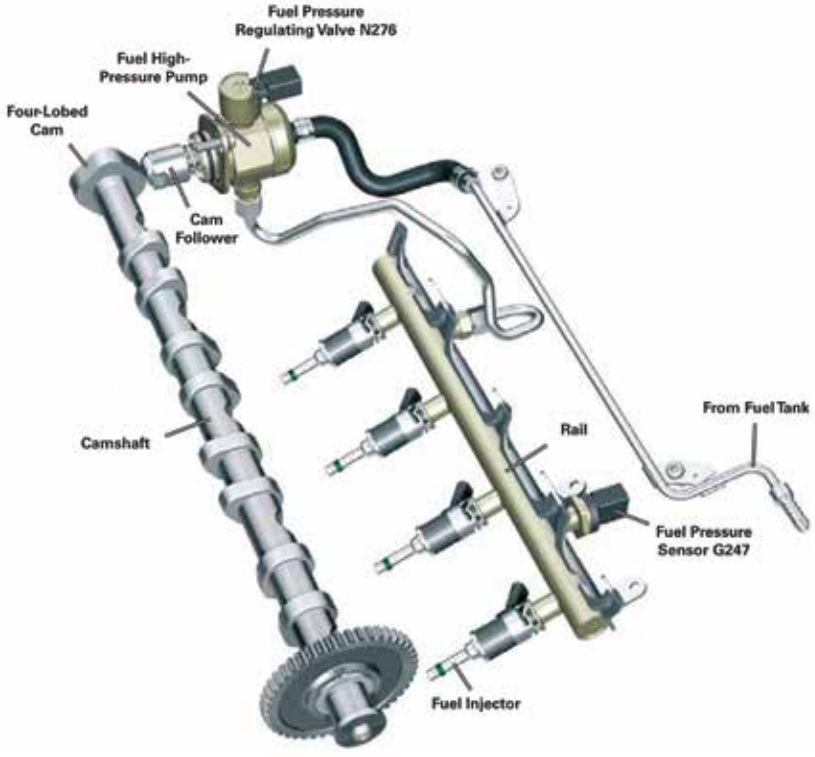
Back in the 1970s, two critical forces revived interest in the venerable idea: Fuel supply and price crises, and concerns over air pollution, characterized by Earth Day and the Clean Air Act. Various "programmed combustion" designs were tried by different automakers, the basic goal being to get extremely lean air/fuel mixtures to fire dependably by having a reasonably rich plume present around the spark, but technology still had not evolved to the point that they were practical enough for commercial production.

The potential for a 15% increase in fuel efficiency (or, to look at it another way, that same percentage less CO_2 emission) and overall cleaner running kept Volkswagen's engineers at it, however. The company introduced a 1.4L four with Fuel Stratified Injection (FSI) for overseas markets in 2000, and has been refining the system and using it on more and more engines, turbocharged (TSI) and otherwise, ever since. VW's main collaborator and supplier in this effort has been, naturally, Robert Bosch GmbH of Germany, which recently celebrated the production of its 50 millionth GDI injector, and 10 millionth high-pressure pump.

Worth the trouble?

You might wonder why they've bothered to develop this complex technology when regular low-pressure sequential port electronic fuel injection seems to work so well. Certainly, systems from L-Jetronic through Motronic have served us admirably for decades, but they have some inherent drawbacks that just can't be engineered away. First, timing precision ultimately depends on when the intake valve opens, not necessarily on the millisecond when the injector is pulsed. Besides being relatively crude in its essence, it also means that only one injection event is possible (more on this later), and that only during the intake stroke. Further, spraying gasoline into the ports and at the backs of the valves provides an opportunity for a portion of it to condense on the metal surfaces, thus falling out of atomization to perhaps be pumped raw out of the cylinders.

"Paradymn shift" has become a cliché, but it really does apply here. Not only do we get the benefits of stratified charge and controlled swirl that allow incredibly lean mixtures during certain modes, but there's also no quenching, and timing is determined by the light-speed of the electronics, not



Right: On the 2.0L, a four-lobe cam on the end of the intake camshaft operates the high-pressure pump.

Opposite Page: Volkswagen's first FSI engine powered the 2000 Lupo model, a "city car" sold overseas that got incredible fuel mileage, yet had plenty of performance.

the ponderous movement of heavy steel valves as operated by camshafts. Fast heating of the catalytic converter is made possible, too, as we'll explain.

Broadly, GDI is quite similar to a common-rail diesel injection system, albeit at only a fraction of the pressure (in case you've never heard, some "EFI" diesel pumps generate up to 30K psi (2,000 Bar!). Volume through the injectors changes, however, not only according to the open time the ECM commands as determined by electronic logic based on sensor input, but also by varying the pressure in the rail.

Biz End

Since what happens in the combustion chamber is where the real subtleties lie, we'll concentrate on a description of that.

Just as the shape of the piston top has a great deal to do with the dynamics of the burn in a D.I. diesel, so it is with GDI. The plume of atomized gasoline is made to swirl and take shape as it strikes this sculpted area, and the engineering of this required the most technical study imaginable to determine the optimal airflow characteristics and define the shape of the piston. Something called "Doppler Global Velocimetry," which makes it possible to evaluate airflow characteristics and mixture formation while the engine is running, was employed in this research.

The goals here are to avoid both detonation and quench by having the fuel burn in a controlled "programmed" manner, rather than just randomly. The plume is shaped so that the mixture is rich enough to fire right at the plug gap, but very lean elsewhere. Once initial ignition is achieved, the flame front keeps burning and consumes every trace of fuel.

All parts that are in direct contact with fuel use designs and materials that allow dependable operation on any available gasoline grade or quality without fear of undue corrosion or wear. The requirements in terms of manufacturing tolerances and material durability are much more stringent for compressing a thin liquid like gasoline to very high psi than for doing the same with relatively slippery and viscous diesel fuel, but VW and Bosch engineers have addressed this in admirable fashion.

On later models, each injector has six individual openings, providing optimum mixture preparation, reduced HC emissions, particulate matter formation, and avoids oil dilution.

Plenty of PSI

The high-pressure piston pump is driven by a two- or four-lobed cam (depending on the model and year) on the end of the intake camshaft through a roller, which reduces friction as well as the forces on the cam chain. The use of the four-lobe cam of later

Note the carefully-sculpted piston top that works with swirl and the pattern of injected gasoline to shape the charge in such a way that extremely lean blends will fire dependably.

When we first realized that FSI/GDI operates at up to 2,000 psi (133 Bar), we were reminded of the fuel pressures in pre-common-rail diesels. That's almost halfway up the gauge of this old diesel injector "pop" tester.

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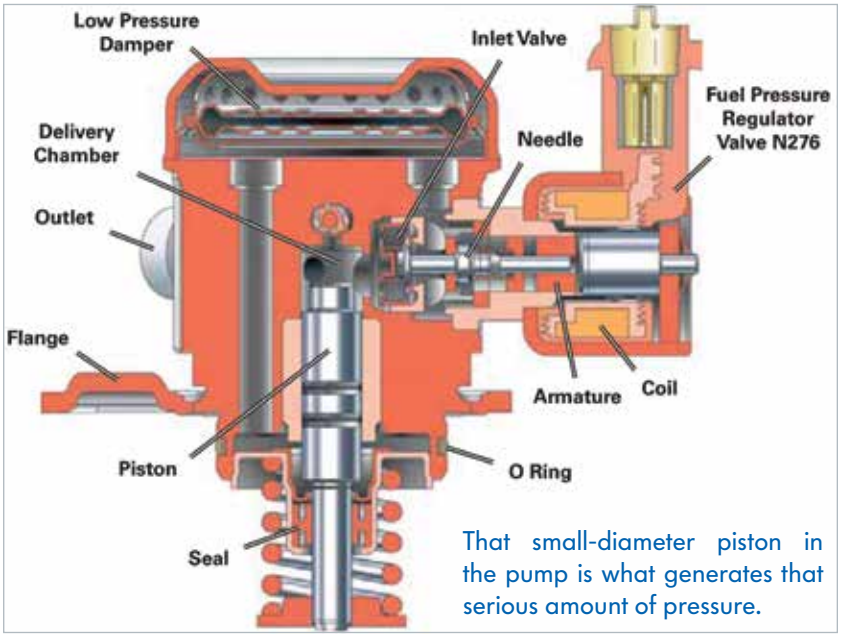
versions allows a shorter piston stroke. This, in turn, results in reduced pressure fluctuations. The metering precision of the injectors is also improved, as there is now one feed stroke per injection. This provides improved oxygen sensor control and fuel efficiency.

In a typical Volkswagen, the high-pressure pump is capable of generating a maximum of 2,175 psi (145 Bar). The fuel pressure requested by the engine control module is adjusted by the Fuel Pressure Regulator Valve N276, which keeps it between 725 psi (50 bar) and maximum, depending on requirements.



That small-diameter piston in the pump is what generates that serious amount of pressure.

Later versions of the high-pressure pump have their own pressure-limiting valve. It opens at approximately 2,900 psi (200 bar) and admits pressure into the pump chamber. Previously, pressure was discharged into the low-pressure circuit. Excessively-high pressures can build up in overrun, or when the engine heat soaks after shut-off. Pressure pulsations in the low-pressure circuit are reduced by a damping element integrated into the pump.

After the pump's intake valve closes, electrical power to the solenoid valve is shut off. This valve is kept closed by the pressure in the pump until the piston feed stroke is complete and the intake stroke begins.

Hot Cat Fast

Volkswagen FSI and TSI systems were designed from the ground up with emissions control in mind. The "homogenous" split catalytic converter heating process makes a good example.

This process brings the catalytic converter to operating temperature quickly after a cold start by using two injection events for each combustion cycle. The first takes place during the intake stroke and achieves an even distribution of the air/fuel mixture. In the second, a small amount of additional fuel is injected shortly before Top Dead Center (TDC) of the compression stroke. This late injection increases exhaust gas temperature, which heats up the catalytic converter so that it can start doing its job sooner.

Deposits and Service Notes

Just as with any other big-departure technology, FSI/GDI had some teething problems early on. They couldn't be blamed on the design or materials, though. For example, since the backs of the intake valves aren't continually bathed in gasoline and its detergent additives, anything that happens to stick to them won't be washed off.

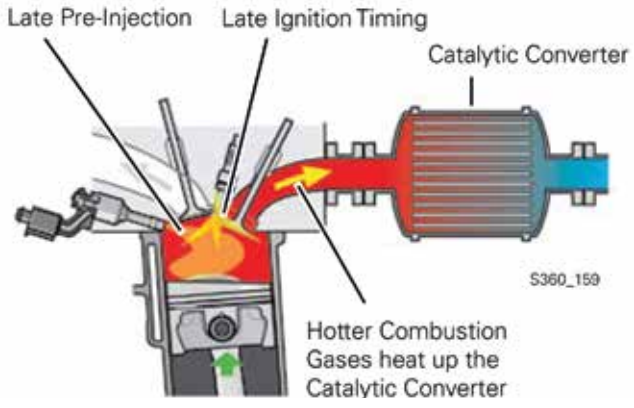
That is, Positive Crankcase Ventilation (PCV) gases and the exhaust that's allowed into the intake for the purpose of internal Exhaust Gas Recycling (EGR). Even though VW PCV systems filter these more thoroughly than any other we've seen, they are by their very nature made up of many, many hydrocarbon compounds, some of which are sticky and tend to cause deposits. And even after the most efficient combustion possible, the waste gases are still not perfectly clean.

Volkswagen's tech site, www.erWin.com, is the place to find out the best means of combatting and eliminating these deposits, thus keeping your customers happy with your level of service. All we'll say here is that you should use only the highest quality motor oil in their engines, and advise them to fill up with "Top Tier" gasoline.

Gasoline FSI

Speaking of service, we'll conclude with some important notes:

- Always follow the official cautions and warnings when opening the high-pressure fuel system lines. Serious injury can result if proper procedures are not observed -- the pressure is high enough to force gasoline through your skin, sending you to the hospital, or worse. "When servicing direct injection systems, the high fuel pressures that GDI systems utilize should always be in the minds of technicians. Bleeding down the fuel system properly is an important facet of service," says Bob Pattengale, Director of Training for Bosch.



The second injection event occurs near TDC of the compression stroke. It makes the exhaust stream hotter, thus helping the cat get up to operating temperature fast.

- Pattengale also warns us about possible electrical danger. "GDI injectors often actuate at approximately 70 volts and 10 amps, with the capability to rise to over 120 volts," he says.

- When it comes to testing, be aware that applying continuous voltage to Fuel Pressure Regulator Valve N276 for longer than one second will damage it.

- On V6s, in order to install the camshaft roller chain, the High-Pressure Fuel Pump pinion must be locked with special tool T10332. ●

Making a Connection

Today's Volkswagens have some of the most sophisticated computer technology imaginable aboard. Problems in the basic electrical system, however, can disable and defeat it. So, before you get into high-tech computer troubleshooting, check related wires, connections, grounds, etc.

In the 1970s, we technicians had to learn all about newly-developed electronic ignition systems. In the '80s, becoming familiar with electronic fuel injection was our challenge, followed by that of airbags later in the decade. The '90s brought us CANs and computer-controlled body systems. In the new millennium, we got hybrid technology, and expanded, integrated versions of all the on-board electronics. If we look back at the development of the automobile over the past 40 years, we can only imagine what the next 40 have in store for us.

But all this advanced technology depends on electrical wiring and connections -- always has, and always will -- and they're susceptible to both the forces of Nature and motoring from water infiltration to vibration and heat.

Every electronic system requires two basics: a power supply and a ground path. Each control unit in the system needs to be supplied with power and ground. Every computer-controlled system is just that, a system controlled by a computer through relays and solenoids. Again, each of these outputs needs an adequate voltage and ground supply. Of course, the control unit relies on a network of sensors to make its decisions, and sensors need a reference voltage supply, a signal path, and a ground as well. Multiply this by the many computer systems in the vehicle and

you can see that an extensive amount of wiring is needed. Now, CANs allow control units to share input signal data, thus reducing sensor duplication and wiring. But CAN communication is made up of very fast, but very weak electrical signals that are prone to outside interference. Poor electrical connections can interrupt CAN communication and set fault codes in all the systems involved. Each system and communication network needs to be problem-free if it is going to function properly.

Physics 101: Electricity

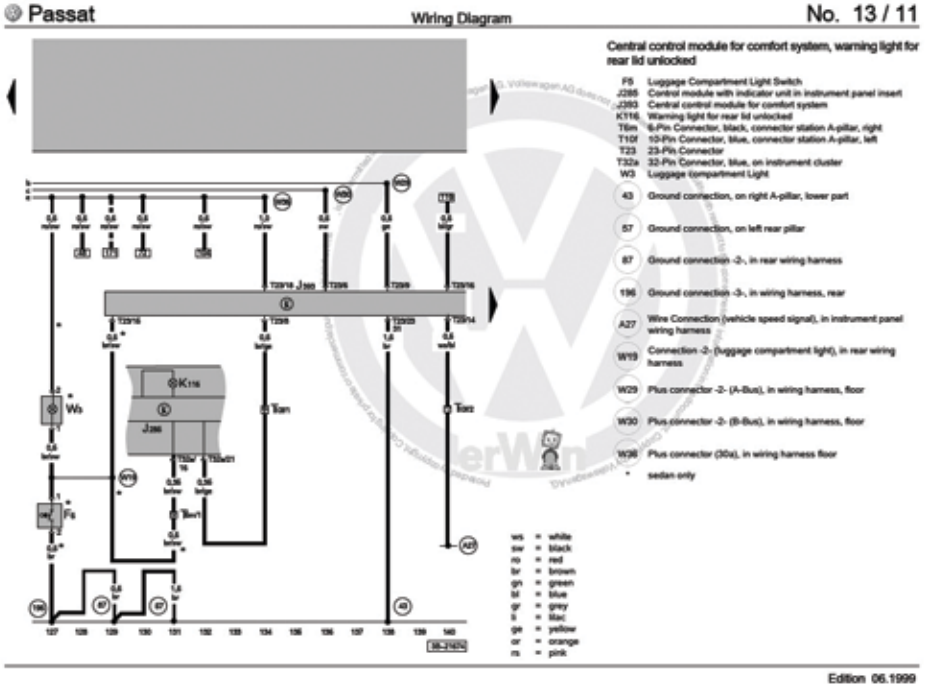
Electricity is the movement of electrons through a conductor in order to perform work. Voltage is "pressure" under which the electrons travel, amperage is the number of electrons passing a given point (you could call it "volume"), and the ohm value is the resistance a conductor offers to moving electrons. A typical automotive battery has six cells that produce 2.1volts each. If we wire them together in series (that is, the positive of one attached to the negative of the next), we add up the voltage and arrive at 12.6V. When the engine starts running, the alternator provides approximately 13.8 to 14.2V in order to charge the battery and provide electrical power for the vehicle. So, engineers design automotive components to operate at around 12 to 14V.

Although modern vehicles have a huge number of electrical components, each one can be reduced to a simple electrical circuit. For our purposes here, a circuit is defined as an electrical path that starts at the positive terminal of the battery or alternator, passes through a conductor to a component (in order to perform work) and returns through a ground path to the negative post of the battery terminal or alternator.

Harnessing

Whenever a problem occurs, it is your job to identify the problem circuit and test it. You are going to need to verify that the voltage supply is adequate and that there is a good ground path. Throughout a wiring harness there may be a few connectors. These make the harness easier to assemble, and also improve serviceability. On the other hand, they are also potential problem areas. Each connector has a male and female blade that fit together. If water

Here, we are checking the power supply to the central locking module. Battery voltage read 12.6, and here at the module and ground we're finding 12.31V.



With a paid subscription to www.erwin.vw.com you can access detailed factory wiring diagrams for any Volkswagen. In this case, we are looking at the "comfort system" CAN wiring because one of the door modules is not operating the windows or the door locks.

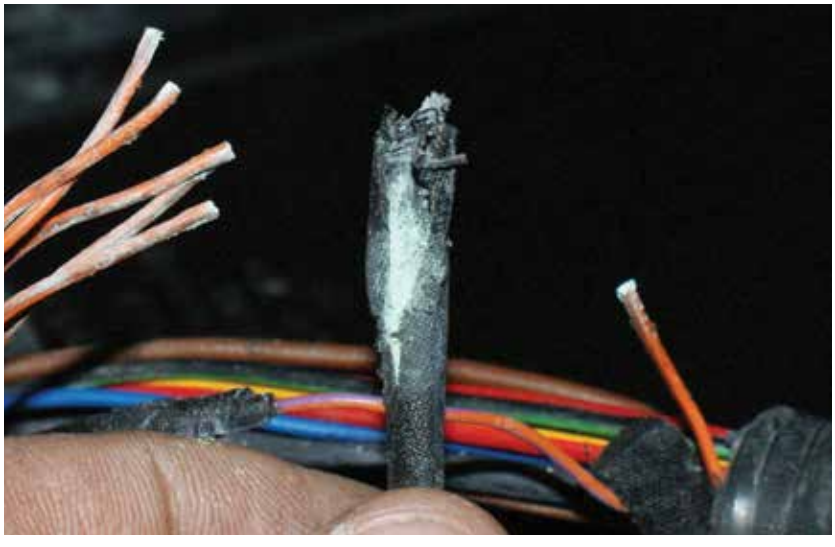
or something like a soft drink happens to penetrate the connection, corrosion occurs or deposits develop, compromising electrical contact. Voltage will drop at that point, depriving whatever that branch of the harness serves of its proper amount of power. Of course, this can (and frequently does) happen on the ground side of a circuit also. In automobile electrical systems, voltage is typically sent out along wires to electrical consumers, but the entire body and chassis of the vehicle serves as the ground path.

A poor connection on the ground side will also prevent a component from functioning properly. You may have 12V to the electrical consumer, but if the ground path is poor the current won't complete the circuit, or at least not to an acceptable extent. You can measure the voltage on the ground side -- you should find little or none. If you put the ground lead of your meter on the negative battery post and the red lead on any other ground you should see little to no voltage. Think of your digital multi-meter as measuring a difference in potential. The negative battery post is the perfect ground (or, the alternator case). If your red lead measures almost no voltage, then the wire you are probing with the red lead must be a good ground as well. This is true to a point. The more current that passes through a circuit causes the ground to "work" harder. If the ground path is not up to the task, then voltage will rise on the ground. If the rise is significant, the component will stop working. This is also known as "voltage drop."

If a fuel pump starts to seize, the current will rise and the voltage will drop. If the current rises high enough, it can melt the wire -- that's why a fuse is installed in the circuit. When the current is getting to the point where it will melt the wire, the fuse blows and opens the circuit.

Corrosion is a different matter. It prevents voltage and current from passing through a circuit. The electrical consumer will try to draw current, but since the voltage supply to the consumer is inadequate, it will pull the voltage down, resulting in voltage drop. If you measure the voltage to the consumer at this point you'll see the low voltage on the power supply side of the circuit.

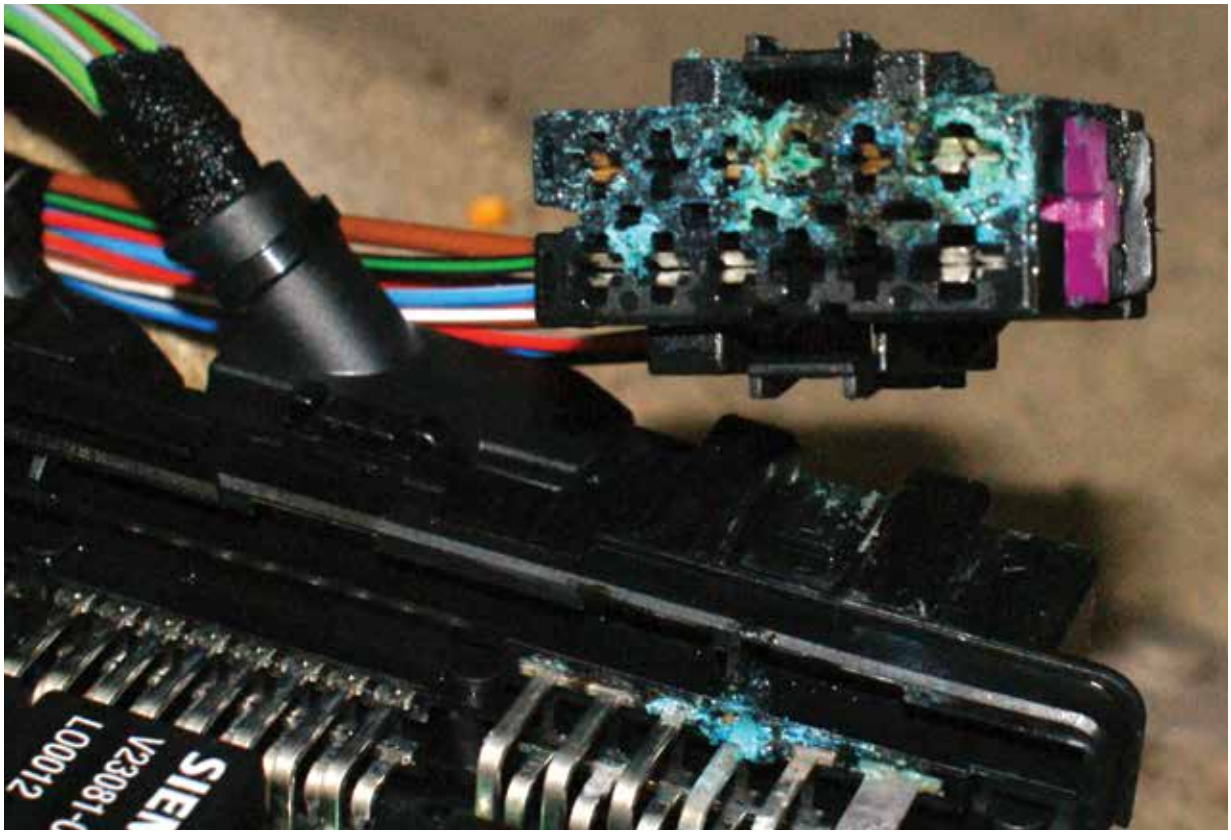
You'll have to look at the wiring diagram of the problem circuit and isolate where the drop is occurring. Sometimes these connectors can be buried underneath carpeting, so this may not be an easy task. You should start by checking voltage at parts of the circuit you can easily access. The actual component is a good place to start, followed by the fuse box. You should put the ground lead of your meter on the negative battery post, but this may not always be close to where you are working.



On this vehicle, we couldn't communicate with the right rear door module. Take a look at this catastrophic corrosion at the interior CAN splice and you'll see the reason. These wires leave the central locking module and splice off to each door and the instrument cluster for communication. There is a separate CAN high and CAN low splice, so be sure to check both.

Testification!

The best tool to use when diagnosing electrical circuits is a Digital Multi-Meter (DMM, previously known as a Digital Volt Ohm Meter, or DVOM). A test light will let you know if there's power on the circuit, but it will light up if there is anywhere from 6 to 12 V present. Computer-safe test lights that use LEDs instead of an incandescent bulb will indicate a proper ground even if the ground cannot handle a "loaded" circuit (one that is flowing heavy current). When testing for voltage, the best place to put the ground or black lead of your DMM is the negative battery post (okay, maybe the alternator case). You



Look at the connection to this central locking module and you can see why it was not operating properly. You may be able to clean up some corrosion, but it will eventually return. Replace the connector housing and pins and it will be a permanent repair.

can easily run a jumper lead from the post to your meter and you will be sure you have absolute ground. If you are going to use a body ground, you should still verify what the voltage drop (if there is any) is by measuring the voltage there compared to that at the negative battery post. Keep in mind if you see .5V while testing, it may seem like a small number. But if you're measuring the voltage on a sensor signal wire, .5V can be a significant difference. Acceptable voltage drop across a connector is .1 of a volt (the traditional standard of .2V is no longer valid).

Now this may not seem like a large drop to you, but let's look at the overall circuit of an accessory power supply. From the battery, the circuit usually continues to a power distribution hub in a fuse/relay box. If you start off at 12.6V from a perfectly good battery, your first drop across the lug may leave 12.5V (12.6 - .1 = 12.5). Then, it may pass through the ignition switch and that is another .1V or so loss, so now you are down to 12.4V. Another 2/10ths may disappear at the fuse, leaving you with 12.2V. Another connector in the circuit? Perhaps you've now got 12.1V. So, you've already lost half a volt on a circuit that is functioning normally, and you haven't even turned the component on! If we measure .5V on the ground side of this consumer, then the actual component is not "seeing" the 12.6V of the battery, but only the difference between the 12.1V that made it through, minus the .5V on the ground. If you were to put your meter across the connector, you would measure only 11.6V.

Results

Remember, the DMM will only measure the difference in potential between the voltage on the power supply and the voltage on the ground. Most consumers will run at slightly lower-than-designed voltage, but corrosion across a connector can drop the voltage by several volts, not just a couple of tenths.

As an aside, it's always a good idea to add a stable voltage supply from a modern battery charger

Your local Volkswagen dealer's parts department can provide you with a replacement harness with the correct connector already installed. All you have to do is cut the wires to the correct length and crimp the connections to the existing harness.

while testing as you may have the key on for quite some time. Current flowing through the vehicle with the ignition key on will eventually drop the battery voltage to unacceptably low levels for testing. Simply measure the voltage with the battery charger on the vehicle and start subtracting voltage drop from there. If you find that you have close to 12V at the fuse, but that drops to 6V at the consumer, look at the factory wiring diagram available to you at www.erwin.vw.com and see what connectors are in the circuit so you can locate them for testing. Check the voltage on both sides of any connector while trying to operate the load.

As with any other system, there are rules that have to be followed. Volkswagen is very concerned with the proper repair of its vehicles so that they can continue to operate as there were engineered to do. Subtle modifications can change these operating characteristics. For example, Volkswagen does not want you to solder wires together as a repair. A crimp connector is all that is required. Further, the repair should be wrapped in heat-shrink tubing to protect it from moisture intrusion. Wires that are smaller than .35mm in diameter must be crimped with factory terminal ends and special tool J1920, or equivalent. These smaller wire diameters are generally used for MAF, oxygen sensors, and CAN systems. They carry low voltage and low current signals and are prone to outside electrical interference, so connection quality is more critical. When repairing a CAN harness, the wires should be twisted to help reduce the possibility of RFI (Radio Frequency Interference). When it comes to airbag harnesses, there is only one repair point allowed between connectors in the harness. Otherwise, that section of harness must be replaced. Also, repaired wiring should be at least 30mm away from any connector. Volkswagen makes available most connectors and repair harnesses that have prefabricated pins that fit into factory replacement connectors.

Finally

With existing factory wiring repaired according to Volkswagen guidelines, the electrical systems in the vehicle will work as designed. Computer-controlled systems have extensive self-diagnostic capabilities and even minor modifications can be picked up as a flaw by the diagnostic software. Surely, you already know that a warning light that does not come back on after a repair is your best friend, and who couldn't use a few more of those?

Straight Talk

Frame alignment competencies and resources evolve to meet change head-on

With the high number of full-frame unitized vehicles on the road, automakers such as Volkswagen of America Inc. have recognized the necessity, where possible, of developing good repair methodologies without having to replace an entire frame. This has become especially important when there are restrictions about how to repair the frame, such as on heating and straightening.

Image courtesy I-CAR.

The complete, safe collision repair of Volkswagen models is rooted in accessing and using the automaker's genuine service information and employing its other approved and model-specific resources. These include service information, repair procedures, training, tools, equipment, and supplies.

Driven by the many new materials being incorporated into a vehicle's construction mix — stronger and safer metals and alloys, innovative thermoplastics and even bonding and attachment supplies — these key resources continue to evolve. For body shops and technicians committed to Volkswagen collision repair, embracing and keeping pace with change is a must. It's how competencies remain current over time. Even more traditional collision shop activities, such as frame straightening, have morphed, especially in recent years.

The New Mantra: Higher Strength, Lighter Weight, Improved Safety

Up until the early 1990s, mild steel (MS) accounted for nearly all of the steel used in vehicle manufacturing. It offered adequate strength and allowed for more "communized" collision repair practices because the material, associated repair knowledge, skills, procedures, and tools were similar regardless of the make and model. That is no longer the case.

Sixty percent of the steels and alloys used in manufacturing cars today did not even exist in production vehicles 15 years ago. Technicians must be able to identify and locate where various types of steels and other materials are within a damaged vehicle because radically different repair procedures are often required by Volkswagen.

Compared to MS, the newer steel classes (listed in order of increasing strength and formability) include:

- Advanced High Strength Steels (AHSS), such as bake-hardenable and some dual-phase steels, handle more stress, provide better resistance to fatigue, improve crash energy management, and allow overall vehicle weight reduction and associated cost savings.
- Advanced High-Strength Steels and Alloys, which include more advanced Dual Phase Steels (DPS) and Transformation Induced Plasticity (TRIP) steels, provide much higher final part strength and provide higher energy absorption at a lower overall cost than both MS or AHSS parts.

Left: To meet more stringent fuel economy, emissions, and safety regulations, Volkswagen builds vehicles with stronger, lighter, and safer materials. Mild-strength steel is being supplanted by advanced steels, metal alloys, thermoplastics, composites, foams, and other materials. Consequently, traditional heat straightening and other collision repair procedures have been superceded by newer methods more suitable to these modern materials (courtesy American Iron and Steel Association).

- Ultra High Strength Steels and Alloys (UHSS), such as boron steel, incorporate molybdenum to create steel with benefits that only higher-priced aluminum or titanium could offer in the past, but at a lower cost.

By incorporating there stronger steels and alloys into key areas, collision energy forces are now being strategically managed and transferred away from and around passenger cabins and occupants. In addition, structural assemblies of one type of steel may be reinforced by an AHSS or UHSS, which may be hidden from view. Technicians need to know where and what they are dealing with, along with Volkswagen's recommendations for frame straightening (heated or cold), sectioning/replacement procedures, and joining technologies.

Volkswagen provides make/year/model steel repair matrix diagrams to facilitate and guide repairs. In the 2011 Jetta above, MS, rated at 220 MPa (blue), accounts for 13 percent of the content (e.g. rear rails, rear body panel, front lower rails); AHSS, rated at 420 MPa (yellow), comprises 41 percent of the vehicle (e.g. upper front rails, strut towers, inner quarter panel); while UHSS, rated at 1,000 MPa (red), makes up 46 percent of the Jetta (e.g. floor structure, A- and B-pillars, roof frame) (courtesy Volkswagen).

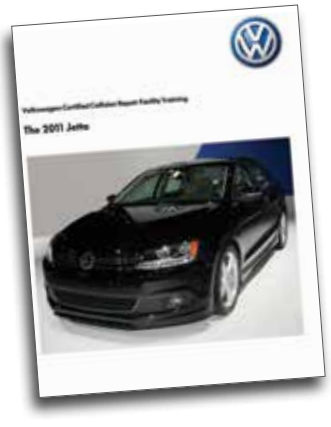
Volkswagen Empowers Collision Service-Readiness

"Maximizing survivability, not repairability, has been the primary driver in automobile design in recent years," explains Jeffery Poole, performance training coordinator for the Inter-Industry Conference on Auto Collision Repair (I-CAR). "Increased vehicle structure complexity requires a re-evaluation of how we repair vehicles. For collision professionals to keep up, they require the right knowledge, service information, tools and equipment, ongoing training, and more."

Fortunately, Volkswagen provides and keeps current the resources and guidance essential to the ability of body shops to effect the complete repair of all models back to their original pre-accident safety ratings. "If a body shop follows Volkswagen standards and specifications, they can positively impact the customer experience and help maintain the vehicle resale value," says Dan Ducharme, Volkswagen's manager of Parts Product Management.

Examples of these resources include:

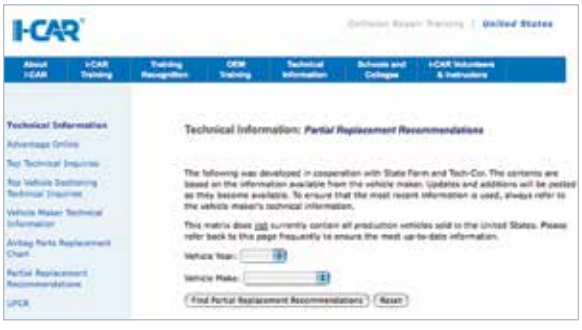
- The subscription-based Volkswagen Technical Service Information website (https://www.erwin.vw.com) provides independent facilities with the same service information available to the new-car dealers. Resources include model-specific collision repair information (e.g., steel schematics, repair illustrations), self-study training programs, links to online genuine Volkswagen replacement parts, approved tool/equipment vendors, and more.
- The Certified Collision Repair Facility (CCRF) program (www.vwccrf.com) administers Volkswagen certification for both dealer-affiliated and dealer-sponsored independent repair facilities. It also provides make/model/year body repair manuals, such as the 2011 Jetta manual above, that provide a useful overview for collision repair. However, the manuals may lag behind updated service information once a model is launched, so always consult the technical service information website.
- Volkswagen Collision Repair Training is required of CCRF technicians. In accordance with the automaker's safety standards and specifications, technicians must successfully complete certain required training courses facilitated by I-CAR (www.i-car.com). VW's list of required I-CAR courses provide training for advanced steel properties, steel unitized structural body straightening, assembly technologies, repair procedures, welding qualification tests, and more.
- Approved Vendor-Facilitated Training. CCRF-approved vendors often provide training in the use of their equipment, tools, and other products that is tailored to Volkswagen models. Check with your CCRF program contact and vendors.



Repair professionals should always consult VW service information (www.erwin.vw.com) for the most current and updated service information, technical service bulletins, tools, schematics, and collision repair procedures (courtesy Volkswagen).

Straightening is an Essential Early Step

During manufacture, Volkswagen vehicles are built using a jig and fixture system. Jigs are the key mounting points where a vehicle is attached to an automated assembly line. They are also integral



Always refer to Volkswagen technical information first. In rare instances where there are no specific Volkswagen website recommendations, the I-CAR webpage above lists two useful resources on the left-side navigation bar that are based on information and updates provided by individual automakers. The Uniform Procedures for Collision Repair (UPCR) database outlines industry-accepted, uniform repair procedures for various parts and assemblies, while the Partial Sectioning Guidelines matrix provides specific make/year/model sectioning recommendations (courtesy I-CAR).

features of frame alignment bench systems, should a collision repair ever be necessary. Fixtures are measuring points that are used to provide a reference for the proper location of those key mounting points throughout a collision repair. In general, fixtures are not a point that is held and pulled against. Rather, the fixture serves as a reference point for key location points to be pulled to before continuing repairs.

Volkswagen-approved tool and equipment vendors meet the automaker's exacting criteria. Examples include frame alignment benches and fixtures from Celette Inc. Www.erwin.vw.com should always be consulted, as it provides model-specific frame alignment directions (courtesy Volkswagen).

Using a dedicated bench system together with associated equipment and tools during collision repair, such as those supplied by Celette Inc. (which is now part of the Azimuth Group) or Car Bench, helps Volkswagen-certified collision repair facilities precisely measure, control and monitor the collision repair. The vehicle must be mounted and securely fastened to the bench at points not affected by the collision using the straightening brackets and vehicle-defined mounting points. This allows dimension variations in deformed or distorted parts to be recognized.

Key location mounting points can then be measured and repositioned in accordance with Volkswagen specifications and then locked down to prevent movement or damage during further repair. Whether a subframe element, suspension mounting point, safety system sensor, engine cradle, strut tower, or some other vehicle component, accurate positioning during the collision repair process is the key to replicating the original design.

For example, if bench measurement determined that these key location mounting points suffered no damage or displacement in the collision, then the vehicle can be locked down to the bench before any subsequent repair procedures are performed. If any key location point was damaged or displaced during the collision, it can be moved to the proper position on the bench, using the fixture as a reference point. Once positioned properly, the vehicle can then be locked down and further repairs initiated.

If a frame element needs to be straightened and service information indicates that it can be pulled rather than replaced, bench equipment jigs can pull the component to its proper position using fixtures as reference points to measure with. Should a part have to be sectioned or replaced, the fixtures that are located on the bench provide reference points for height, length and width that enable the repair technician to accurately place the new replacement part in its proper position relative to the rest of the vehicle.

Part Identification	Sectioning Procedure Required?	Complete Replacement Required?
Upper Front Rail	Yes	
Lower Front Rail	Yes	
Outer A-Pillar	Yes	
A-Pillar Reinforcement		Yes
Outer B-Pillar	Yes	
B-Pillar Reinforcement		Yes
Outer Rocker Panel	Yes	
Rear Rail	Yes	
Rear Body Panel		Yes
Quarter Panel	Yes	

The VW technical service information website provides specific sectioning guidelines for the 2011 Jetta, for example (courtesy Volkswagen).

The CCRF program publishes body repair training manuals as a benefit to VW-certified body shops. While this information is relevant as an overview for collision repair, once a vehicle is launched it is quickly superseded by more current, complete and readily-available technical service repair information. Always consult the Erwin website for specific recommendations: technical bulletins, step-by-step structural measuring, straightening and joining processes, sectioning/replacement locations and directions, and more.

Different strengths of steels within a Jetta assembly or part may require different handling. For example, the upper rail assembly consists of an adapter piece that is welded to the upper rail, a portion of the apron assembly, and the upper rail end plate. Repair guidelines direct the replacement of these parts, in addition to specifying certain weld techniques in defined locations and adhesive bonding technologies (courtesy Volkswagen).

Never assume that straightening and repair procedures for one type of steel or other material works for all. For instance, A and B pillars can be made from a combination of MS, AHSS, and UHSS, each with different recommendations. Here are a few other considerations that collision professionals need to be aware of before starting a repair:

- Some of the hollow areas (e.g. B pillar bases, upper rails) have been filled with foam inserts to reduce the amount of noise in the passenger compartment. These must be considered to ensure identical noise characteristics post-repair.
- Required 2011 Jetta sectioning /replacement instructions reflect the construction of parts being repaired. For instance, there may be multiple locations on one part or multiple strengths of steels that require specific handling.
- For measuring and straightening the 2011 Jetta, VW has approved the MZ Plus straightening bench system (Part #VAS 6630) and associated alignment bracket set (Part #6638), both available from Celette Inc.
- Specific Tools are Required for 2011 Jetta collision repair. For example, the VW-approved tool list allows a limited number of spot welders to be used, These are equipped with computer programs that direct the proper power supply to the welding tips unique for various types of AHSSs and UHSSs. They also allow different welding arm configurations to weld hard-to-reach areas.

Resistance is Futile

The constant changes in materials used to build automobiles today poses several challenges to collision repair and in particular to those who manufacture straightening equipment. Risk management and optimizing cycle time have become entrenched necessities. On one hand, the influx of new vehicle technology has forced insurers and repair facilities to confirm repair via documentation (increasingly electronic) that provides a record of where that vehicle was before, during, and after collision repair to confirm proper realignment. On the other hand, to help improve cycle time and technician efficiency, frame and bench straightening equipment manufacturers are retooling in response to inbound materials, associated procedures, and time erosion during repair.

In the near future, vehicle realignment equipment will see a blending of current and emerging holding and pulling technologies. Some equipment manufacturers suggest that automaker-dedicated bench equipment will yield to more universal equipment that can:

- Facilitate the holding and straightening of vehicles made of old or new materials.
- Incorporate automatic electronic measurement and documentation throughout the repair process to conserve time.
- Accommodate the safe and complete repair of multiple vehicle platforms, rather than being restricted to just a single platform.
- Enable facilities to properly repair more vehicle platforms, possibly even more brands, with less variety or number of benches.
- Allow documentation to be electronic and more automatic throughout the alignment process.

Looking forward, collision shops and their technicians must continue to adapt their repair knowledge, procedures and competencies to keep pace with technological changes being made in Volkswagen vehicle structures. Some shops may find the task overwhelming, while others will see and seize this opportunity.

Either way, old collision repair paradigms are yielding to new procedures and techniques that require a thorough understanding of innovative materials, and associated equipment and methodologies. For collision facilities and technicians, relevance, survival and profitability will hinge on this. ●

Volkswagen Dealers Listing

Alabama

Birmingham
Serra Volkswagen
(205) 856-6520

Huntsville
Hiley VW Of Huntsville
(256) 882-0200

Mobile
Dean Mccrary Imports
(251) 471-3326

Montgomery
Jack Ingram Motors, Inc.
(334) 277-5700

Tuscaloosa
Volkswagen Of Tuscaloosa
(205) 345-8040

Vestavia
Royal Volkswagen
(205) 978-4141

Alaska

Anchorage
Morrison Auto Group, Inc.
(907) 272-5522

Arizona

Avondale
Larry H. Miller VW Avondale
(623) 215-1660

Flagstaff
Findlay Volkswagen
(928) 522-2700

Gilbert
Berge Volkswagen
(480) 835-5010

Santan Volkswagen
(480) 786-8960

Peoria
Peoria Volkswagen
(623) 875-4005

Phoenix
Camelback Volkswagen
(602) 264-4355

VW North Scottsdale
(480) 538-4760

Prescott
Prescott Import Car Service
(928)778-9305

Scottsdale
Chapman Volkswagen
(480) 424-3536

Tucson
Chapman Volkswagen
(520) 748-1000

Larry H. Miller VW Tucson
(520) 670-3519

Arkansas

Fort Smith
Bill White Imports
(479) 648-3510

Little Rock
Owens-Murphy Volkswagen
(501) 661-0303

Rogers
VW Of Northwest Arkansas
(479) 631-0101

Sherwood
North Point Volkswagen
(501) 850-8953

California

Alhambra
Volkswagen Alhambra
(626) 407-0440

Bakersfield
Family Volkswagen
(661) 617-6200

Carlsbad
Bob Baker Volkswagen
(760) 438-3113

Cathedral City
Volkswagen Of Palm Springs
(760) 770-1100

Cerritos
Mckenna Motors Cerritos
(562) 653-9000

Chico
Chico Volkswagen
(530) 891-6275

City Of Industry
Puente Hills Volkswagen
(626) 839-8438

Clovis
Clovis Volkswagen
(559) 314-1465

Colma
Serramonte Volkswagen
(650) 746-3000

Corona
Cardinaleway Volkswagen
(951) 279-1220

Covina
Bozzani Motors
(800) 491-4909

Dublin
Dublin Volkswagen
(925) 361-9071

El Cajon
Mossy Volkswagen El Cajon
(888) 904-1416

Elk Grove
Elk Grove Volkswagen
(916) 421-9267

Encinitas
Herman Cook VW, Inc.
(760) 753-4439

Escondido
Mossy Volkswagen
(760) 745-8012

Fairfield
Volkswagen Of Fairfield
(707) 402-7130

Fresno
Michael Volkswagen
(559) 431-4994

Garden Grove
Volkswagen Of Garden Grove
(714) 590-4080

Glendale
New Century Volkswagen
(818) 552-6265

Hawthorne
Pacific Volkswagen
(310) 531-9471

Hayward
Team VW Of Hayward
(510) 300-2732

Huntington Beach
Mckenna Volkswagen
(714) 842-2000

Indio
Coachella Valley Volkswagen
(866) 308-5004

Irvine
Fladeboe Volkswagen
(949) 231-1035

Long Beach
Timmons Volkswagen
(888) 489-5001

Los Angeles
VW Of Downtown L.A.
(213) 747-7246

Merced
Merced Volkswagen
(209) 384-2000

Modesto
Central Valley Volkswagen
(209) 524-5595

Moreno Valley
VW Of Moreno Valley
(951) 485-4188

Murrieta
Murrieta Volkswagen
(951) 894-4721

Napa
Hanlees Volkswagen
(707) 253-9100

National City
South Bay Volkswagen
(619) 336-4030

Newark
Winn Volkswagen
(510) 668-8080

North Hills
Galpin VW Of San Fernando Valley
(818) 778-2120

Oakland
Volkswagen Of Oakland
(510) 834-7711

Ontario
Ontario Volkswagen
(909) 230-5659

Palmdale
Antelope Valley Volkswagen
(661) 274-2524

Pasadena
Volkswagen Pasadena
(866) 654-8591

Redwood City
Boardwalk Volkswagen
(650) 364-0100

Riverside
Riverside Volkswagen
(951) 509-2125

Roseville
Roseville Volkswagen
(916) 960-0898

Sacramento
Niello Volkswagen
(800) 423-1453

Wes Lasher Volkswagen
(916)441-2761

Salinas
Cardinale Volkswagen
(831) 449 0118

San Diego
City Volkswagen
(800) 927-2277

Volkswagen Kearny Mesa
(858) 300-8170

San Francisco
Royal Motor Sales
(415) 241-8154

San Jose
Capitol Volkswagen
(408) 265-4400

Volkswagen Of Stevens Creek
(408) 248-6500

San Juan Capistrano
Capistrano Volkswagen
(949) 493-4511

San Luis Obispo
Perry VW Of San Luis Obispo
(805) 544-5206

San Pablo
Hilltop Volkswagen
(510) 283-6300

San Rafael
Sonnen Motorcars, Inc.
(800) 460-4176

Santa Ana
Commonwealth Volkswagen
(714) 565-7500

Santa Barbara
Santa Barbara Volkswagen
(805) 966-6164

Santa Cruz
Volkswagen Of Santa Cruz
(831) 426-5100

Santa Maria
Community Volkswagen
(805) 348-3221

Santa Monica
VW Santa Monica, L.L.C.
(310) 828-0553

Santa Rosa
Hansel VW Of Santa Rosa
(707) 575-1051

Stockton
Hammer Lane Volkswagen
(209) 644-8500

Sunnyvale
Sunnyvale Volkswagen
(408) 739-2571

Thousand Oaks
Neftin Volkswagen
(805) 497-9404

Tracy
Tracy Volkswagen
(209) 229-7920

Vacaville
Vacaville Volkswagen
(866) 947-2787

Valencia
Parkway Volkswagen
(661) 253-4441

Van Nuys
Volkswagen Of Van Nuys
(818) 785-7111

Ventura
Barber Volkswagen
(805) 642-6707

Walnut Creek
Dirito Brothers Walnut Creek VW
(925) 934-8224

Woodland Hills
Livingston Volkswagen, Inc.
(818) 884-4444

Colorado

Aurora
Tynan's Volkswagen, Inc.
(303) 341-3213

Boulder
Gebhardt Volkswagen
(720) 974-2135

Colorado Springs
Al Serra Volkswagen
(719) 258-1050

Bob Penkhus Volkswagen
(719) 473-4711

Denver
Emich Volkswagen
(303) 758-7739

North Valley Volkswagen
(303) 438-5200

Fort Collins
Ed Carroll Motor Company, Inc.
(970) 226-3000

Glenwood Springs
Elk Mountain Motors
(970) 384-5354

Greeley
Ehrlich Vehicles, Inc.
(970) 346-3571

Lakewood
Larry H. Miller VW Lakewood
(303) 234-1311

Littleton
Mcdonald Automotive Grp. VW
(303) 795-1100

Connecticut

Canton
Mitchell Volkswagen
(860) 693-5907

Danbury
Danbury Volkswagen
(203) 546-6538

Enfield
Lia Volkswagen
(860) 745-2000

Glastonbury
Gene Langan VW, Inc.
(860) 633-0261

Greenwich
New Country VW Of Greenwich
(203) 302-1390

Hartford
Volkswagen Of Hartford
(860) 543-6012

Meriden
Langan VW Meriden, Llc
(203) 237-0261

Mystic
Volkswagen Of Old Saybrook
(860) 536-4931

New Milford
New Milford VW, Inc.
(860) 354-3977

North Haven
Montesi Motors Inc.
(203) 281-0481

Old Saybrook
Volkswagen Of Old Saybrook
(860) 388-3400

Plainfield
Central VW Of Plainfield
(860) 564-4014

Plainville
Crowley Volkswagen, Inc.
(860) 747-1607

Stamford
Riverbank Motors Corp.
(203) 327-2500

Stratford
Curran Volkswagen, Inc.
(203) 3786516

Vernon
Langan VW Of Vernon, Llc
(860) 645-0261

Watertown
Valenti Motors, Inc.
(860) 274-9846

Delaware

Dover
Dover Volkswagen, Inc.
(302) 734-4761

Wilmington Smith
Volkswagen, Ltd.
(800) 637-8093

Florida

Bradenton
Bob Boast Volkswagen
(941) 755-8585

Clearwater
Lokey Volkswagen
(727) 450-7991

Coconut Creek
Gunther VW Of Coconut Creek
(954) 590-3835

Daytona Beach
Fields Volkswagen
(386) 523-0500

Delray Beach
Autonation VW Delray
(561) 266-2712

Fort Lauderdale
Gunther Volkswagen
(954) 797-1646

Fort Myers
Volkswagen Of Fort Myers
(239) 433-8307

Fort Walton Beach
Lee Volkswagen
(850) 243-3171

Gainesville
Volkswagen Of Gainesville
(352) 433-4926

Holiday
VW Of New Port Richey
(866) 307-8588

Jacksonville
O'Steen Volkswagen
(904) 322-5150

Tom Bush Regency Motors
(800) 874-7129

Volkswagen Of Orange Park
(904) 269-2603

Lake Park
Schumacher Automotive, Inc.
(561) 227-6154

Lakeland
Lakeland Volkswagen
(863) 688-8112

Leesburg
Leesburg Volkswagen
(352) 360-7150

Melbourne
Prestige Volkswagen
(321) 309-8989

Miami
Deel Volkswagen
(305) 444-2222

Esserman International VW
(305) 728-8341

South Motor Co. Of Dade County
(305) 256-2370

Miami Gardens
Palmetto57 Volkswagen
(305) 474-8989

Naples
Volkswagen Of Naples
(239) 435-3202

Ocala
Volkswagen Of Ocala
(352) 861-0234

Orlando
Aristocrat VW East,Inc.
(407) 591-3990

David Maus Volkswagen
(407) 581-4321

David Maus VW North
(321) 214-3160

Panama City
Volkswagen Of Panama City
(850) 763-5495

Pensacola
Pete Moore Imports
(850) 457-1000

Pompano Beach
Vista Motor Company
(954) 942-3517

Port Charlotte
Port Charlotte Volkswagen
(941) 743-8883

Sanford
Aristocrat Volkswagen, Inc.
(407) 321-2277

Sarasota
Suncoast Volkswagen
(941) 923-1700

* Data as of 07/12/2013

St. Petersburg
Bert Smith International
(727) 527-7290

Stuart
Wallace Volkswagen
(772) 219-0007

Tallahassee
Capital Volkswagen
(850) 574-3777

Tampa
Brandon Volkswagen
(813) 630-4000

Kuhn Volkswagen
(800) 678-3275

Reeves Import Motorcars, Inc.
(813) 933-2817

West Palm Beach
Schumacher VW, Inc.
(561) 615-3319

Georgia

Alpharetta
Nalley VW Of Alpharetta
(678) 795-3444

Atlanta
Jim Ellis VW Of Chamblee
(770) 454-7711

Bogart
Volkswagen Of Athens
(866) 617-9921

Buford
Gunther VW Mall Of Georgia
(678) 745-9950

Columbus
Carl Gregory Volkswagen
(706) 243-3979

Dalton
Al Johnson Volkswagen, Inc.
(706) 278-9200

Lithia Springs
Heritage Volkswagen
(770) 745-1470

Macon
Butler Volkswagen, Inc.
(478) 314-4256

Marietta
Jim Ellis VW Of Marietta
(770) 955-2580

Martinez
Gerald Jones VW, Inc.
(706) 228-6900

Savannah
Vaden Volkswagen
(912) 629-6989

Snellville
Stone Mountain Volkswagen
(770) 979-2000

Union City
Heritage Volkswagen, Inc.
(770) 774-0758

Valdosta
Pipkin's Motors, Inc.
(229) 242-9920

Hawaii

Honolulu
Honolulu Volkswagen
(808) 687-6289

Waipahu
Tony Volkswagen
(808) 680-7175

Idaho

Boise
Boise Volkswagen
(208) 377-5400

Idaho Falls
Teton Volkswagen
(208) 522-4501

Twin Falls
Con Paulos Volkswagen
(208) 735-3900

Illinois

Bensenville
Larry Roesch VW Of Bensenville
(630) 279-8806

Chicago
Fletcher Jones Volkswagen
(312) 628-4350

The Autobarn City VW
(773) 794-7800

Countryside
Autobarn VW Countryside
(708) 354-6600

Crystal Lake
Anderson Volkswagen
(815) 455-9770

Dixon
Dixon Volkswagen
(815) 288-3366

Downers Grove
Pugi Volkswagen
(630) 598-9900

Evanston
The Autobarn Ltd. - VW
(847) 570-3081

Glenview
Jennings Volkswagen, Inc.
(847) 729-3480

Gurnee
Gurnee Volkswagen
(847) 855-1500

Highland Park
VW Of Highland Park
(847) 433-7900

Joliet
D'Arcy Volkswagen
(815) 409-4670

Libertyville
Liberty Import Center
(847) 680-8000

Mt. Prospect
The Autobarn VW Of Mt. Prospect
(847) 392-6300

Naperville
Bill Jacobs Volkswagen
(866) 599-2527

Normal
Sud's Volkswagen
(309) 454-1101

O'Fallon
Auffenberg Volkswagen
(618) 622-4645

Oak Lawn
Mike Haggerty VW, Inc.
(708) 425-8989

Orland Park
Volkswagen Of Orland Park
(708) 428-5000

Ottawa
Sierra Volkswagen, Inc.
(815) 433-3767

Peoria
Volkswagen Of Peoria
(309) 243-7000

Rockford
Lou Bachrodt Volkswagen
(815) 332-3001

Schaumburg
Fox Valley VW Schaumburg
(224) 353-2481

Springfield
Green On Dirksen, Ltd.
(217) 698-3100

Urbana
O'Brien Volkswagen
(800) 386-6767

West Chicago
Fox Valley Volkswagen
(630) 818-4181

Indiana

Bloomington
Royal VW Of Bloomington
(812) 332-9251

Clarksville
Sam Swope VW Of Clarksville
(812) 948-1541

Evansville
D-Patrick, Inc.
(812)473-6500

Fort Wayne
Vorderman Volkswagen
(260) 969-6065

Greenwood
Dreyer & Reinbold Of Greenwood
(317) 885-4809

Indianapolis
Falcone Volkswagen
(317) 803-8767

Tom Wood Volkswagen
(317) 688-6109

Lafayette
Mike Raisor Imports
(765) 447-0808

Merrillville
Team Volkswagen
(888) 805-3689

Mishawaka
Gurley Leep Imports,Inc.
(574) 254-7130

Iowa

Cedar Falls
Dick Witham Volkswagen
(319) 277-8123

Davenport
Volkswagen Of Quad Cities
(563) 386-1511

Hiawatha
Volkswagen Of Cedar Rapids
(319) 743-6055

Iowa City
Carousel Motors
(319) 354-2550

Johnston
Lithia VW Of Des Moines
(515) 253-0333

Mason City
Schukei Volkswagen
(641) 423-5402

Kansas

Lawrence
Crown Volkswagen
(785) 843-7700

Olathe
Bud Brown Volkswagen
(913) 393-8183

Topeka
Sunflower Motors, Inc.
(785) 266-8480

Wichita
Steven Volkswagen
(316) 681-1211

Kentucky

Florence
Kerry Volkswagen
(859) 371-8191

Lexington
Don Jacobs Volkswagen
(859) 260-2621

Louisville
Bachman Volkswagen
(502) 719-7250

Neil Huffman VW, Inc.
(502) 448-6666

Louisiana

Baton Rouge
Southpoint Volkswagen
(866) 308-5680

Bossier City
Moffitt Volkswagen, Inc.
(318) 746-2175

Harvey
Ray Brandt VW Westbank
(504) 349-7279

Lafayette
Southwest Volkswagen
(337) 456-8400

Mandeville
Northshore Volkswagen
(985) 626-1067

Metairie
Walker Volkswagen
(504) 465-2000

Maine

Auburn
Rowe Volkswagen
(207) 784-2321

Augusta
O'Connor Volkswagen
(866) 576-3042

Bangor
Darling's, Inc.
(207) 992-1550

Brunswick
Morong Brunswick
207-725-4323

Falmouth
Morong Falmouth VW
207-781-4020

Saco
Prime Volkswagen
(207) 283-2900

Waterville
Thompson Volkswagen, Inc.
(207) 873-0777

Maryland

Annapolis
Fitzgerald Automall
(410) 224-4636

Baltimore
Heritage VW Parkville
(410) 661-6588

Russel Volkswagen
(410) 744-2300

Bethesda
Martens Volkswagen
(301) 652-2452

Cockeysville
Volkswagen Of Hunt Valley
(410) 666-7777

Fallston
Cook Volkswagen, Llc.
(410) 877-1500

Frederick
Fitzgerald Volkswagen
(301) 696-9200

Gaithersburg
King Volkswagen
(240) 403-2300

Hagerstown
Sharrett Volkswagen
(301) 739-9999

Laurel
Ourisman VW Of Laurel
(800) 288-6985

Owings Mills
Heritage Volkswagen
(410)581-6696

Pasadena
Antwerpen Volkswagen
(410) 760-8452

Rockville
Ourisman VW Of Rockville
(301) 340-7668

Silver Spring
DARCARS Volkswagen
(301) 622-4040

Waldorf
Waldorf Volkswagen
(301)843-1234

Massachusetts

Auburn
Patrick Motors
(800) 367-7222

Bedford
Minuteman Volkswagen, Inc.
(781) 275-8006

Braintree
Quirk Volkswagen
(781) 917-1537

Brockton
Paul Clark, Inc.
(508) 587-9040

Danvers
Kelly Volkswagen, Inc.
(978) 605-1555

Fall River
Mattie Imports, Inc.
(508) 678-5555

Hanover
Coastal Volkswagen
(781) 616-0616

Hyannis
Tracy Volkswagen, Inc.
(508) 775-3049

Lawrence
Commonwealth Volkswagen
(978) 687-3001

Medford
Colonial VW Of Medford
(781) 475-5208

Middleboro
Metro Volkswagen
(508) 967-2800

North Attleboro
VW Of North Attleboro, Inc.
(508) 695-7131

Northampton
Northampton Volkswagen
(413) 586-2959

Norwood
Volkswagen Gallery
(800) 240-0382

Pittsfield
Flynn Volkswagen
(413) 443-4702

Tewksbury
Atamian Volkswagen, Inc.
(978) 851-4356

Watertown
Boston Volkswagen
(617) 783-1477

Wellesley
Wellesley VW, Incorporated
(781) 237-3553

West Springfield
Fathers & Sons, Inc.
(413) 737-7766

Westboro
Colonial Volkswagen
(508) 366-8383

Michigan

Ann Arbor
Volkswagen Of Ann Arbor
(734) 761-3200

Bay City
Thelen Volkswagen
(989) 684-2980

Dearborn
Lafontaine VW Of Dearborn
(313) 996-6000

Escanaba
Halbinsel, Inc.
(906) 789-9650

Farmington Hills
Suburban VW Of Farmington Hills
(248) 471-0800

Grand Rapids
Betten Imports, Inc.
(616) 301-2100

Grand Rapids
Gezon Volkswagen
(616) 361-7361

Holland
Crown Volkswagen
(616) 393-9205

Kalamazoo
Maple Hill Volkswagen
(269) 327-0816

Lansing
Williams Volkswagen, Inc.
(800) 258-2853

Livonia
Ralph Thayer Volkswagen
(734) 425-5400

Monroe
Elite Volkswagen
(734) 242-3900

Muskegon
Volkswagen Of Muskegon
(231) 799-2886

Rochester Hills
Fox Volkswagen
(248) 656-0400

Sterling Heights
Vyletel Volkswagen, Inc.
(586) 276-4652

Traverse City
Traverse City Volkswagen
(231) 946-5540

Troy
Suburban Volkswagen, Inc.
(248) 649-2074

Minnesota

Albert Lea
Dave Syverson VW, Inc.
(507) 379-2930

Brainerd
Auto Import, Inc.
(218) 829-3307

Brooklyn Park
Brookdale Volkswagen
(763) 331-6460

Burnsville
Burnsville Volkswagen, Inc.
(952) 892-9470

Grand Blanc
Volkswagen Of Grand Blanc
(810) 694-5600

Hermantown
Volkswagen Of Duluth
(218) 722-6989

Inver Grove Heights
Volkswagen Of Inver Grove
(651) 204-4610

Mankato
Mankato Volkswagen
(507) 625-5641

Rochester
Rochester Motors, Llc
(507) 282-9468

Saint Cloud
Eich Motor Company, Inc.
(320) 251-1737

Saint Louis Park
Luther West Side Volkswagen
(952) 374-0700

Saint Paul
Schmelz Countryside VW
(651) 484-0424

Mississippi

Gulfport
Volkswagen Of Gulfport
(888) 861-9626

Jackson
Volkswagen Jackson
(866) 294-4113

Missouri

Ballwin
The Dean Team Of Ballwin
(636) 227-6527

Columbia
Joe Machens VW Of Columbia
(573) 814-6700

Gladstone
Northtowne Volkswagen
(816) 468-2275

Hazelwood
Bommarito VW Of Hazelwood
(800) 731-8270

Kansas City
Molle Volkswagen
(816) 941-9500

Kirkwood
The Dean Team Of Kirkwood
(314) 238-1036

Springfield
Volkswagen Of Springfield
(417) 886-6000

St. Louis
Suntrup Volkswagen
(314) 892-7790

St. Peters
Bommarito VW Of St. Peters
(636) 928-2300

Montana

Billings
Volkswagen Billings
(406) 655-7500

Bozeman
Volkswagen Of Bozeman
(406) 586-1771

Great Falls
Bennett Imports
(406) 761-3305

Whitefish
DePratu Volkswagen
(406) 863-2520

Nebraska

Lincoln
Schworer Volkswagen
(402) 435-3300

Omaha
Performance Volkswagen
(888) 502-8675

Stan Olsen Auto Center
(402) 393-7006

Nevada

Henderson
Findlay Volkswagen
(702) 558-6600

Las Vegas
Autonation VW Las Vegas
(702) 942-4020

Las Vegas
Findlay North Volkswagen
(702) 982-4839

Reno
Lithia Volkswagen Of Reno
(775) 851-5826

New Hampshire

Greenland
Seacoast Volkswagen, Inc.
(603) 436-2938

Keene
Noyes Volkswagen, Inc.
(888) 355-2488

Lebanon
Miller Volkswagen
(603) 448-6363

Manchester Quirk
Volkswagen NH
(603) 206-2952

Merrimack
Autofair VW Of Nashua
(603) 943-8749

Rochester
Volkswagen Of Rochester
(603)-332-6242

Tilton
Autoserv Volkswagen
(603) 286-3141

New Jersey

Bernardsville
Volkswagen Of Bernardsville
(908) 766-1600

Burlington
Burlington Volkswagen, Inc.
(609) 386-0174

Cape May Court House
Burke Brothers, Inc.
(609) 463-4903

Cherry Hill
Cherry Hill Volkswagen
(856) 665-5660

Clifton
Gensinger Motors, Inc.
(973) 778-8500

Edison
Reydel Volkswagen, Inc.
(732) 287-2444

Egg Harbor Twsp
Atlantic Volkswagen
(609) 641-1788

Englewood Cliffs
East Coast Volkswagen
(201) 568-0053

Fair Lawn
Jack Daniels Motors, Inc.
(201) 398-1209

Flemington
Flemington Volkswagen
(800) 216-5124

Freehold
Volkswagen Of Freehold
(732) 339-6910

Hamilton Square
Hamilton Volkswagen
(800) 348-8816

Linden
Linden Volkswagen
(800) 343-5116

Lyndhurst
Three County VW Corp.
(201) 933-6566

Monroeville
Volkswagen Of Salem County
(856) 358-8103

Neptune
World Volkswagen
(732) 922-1503

Newton
Volkswagen Of Newton
(973) 383-2624

Pompton Plains
Crestmont Volkswagen
(973) 839-6444

Princeton
Princeton Volkswagen
800) 216-1546

Ramsey
Joe Heidt Motors, Corp.
(201) 327-2900

Rockaway
Trend Motors, Ltd.
888) 267-2821

Somerville
Open Road VW Of Bridgewater
(908) 685-1068

Summit
Douglas Motors Corp.
(908) 277-1100

Tinton Falls
Shrewsbury Volkswagen
800) 662-3140

Toms River
World VW Of Toms River
(732) 575-1800

Turnersville
Prestige Volkswagen
(856) 262-3090

Union
Union Volkswagen
(877) 986-4668

New Mexico

Albuquerque
University Volkswagen, Inc
(505) 761-1900

Albuquerque
Uptown Volkswagen
(505) 260-5055

Las Cruces
Sisbarro Autoworld, Inc.
(575) 541-7830

Santa Fe
Volkswagen Of Santa Fe
(505) 428-7341

New York

Amherst
Northtown Volkswagen
(716) 836-4666

Amityville
Legend Autorama, Ltd.
(631) 691-7700

Bowmansville
Schmitt's Volkswagen
(866) 308-5615

Bronx
Teddy VW Of The Bronx
(718) 696-6117

Brooklyn
Bay Ridge Volkswagen
(718) 680-1006

Volkswagen Of Brooklyn
(718) 646-6700

Cicero
Burdick Volkswagen
(800) 233-2002

East Rochester
VW Of East Rochester
(585) 586-2225

Elmsford
Lash VW Of White Plains
(888) 438-1359

Endicott
Gault Volkswagen
(607) 772-0705

Fayetteville
Romano VW Of Fayetteville
(315) 637-4491

Glenmont
Capital Cities Imported Cars, Inc.
(518) 463-3141

Great Neck
Bayside Volkswagen
(516) 482-3346

Hicksville
Platinum Volkswagen
(516) 822-4800

Huntington Station
Volkswagen Of Huntington
(631) 470-8100

Ithaca
Maguire Volkswagen
(607) 257-1515

Kingston
Volkswagen Of Kingston
(845) 336-6600

Latham
Martin Nemer VW Corp.
(518) 785-0906

Lynbrook
Sunrise Volkswagen, Inc.
(516) 596-1111

Middletown
Compass Volkswagen
(845) 344-4448

Mohegan Lake
Mohegan Lake Motors, Inc.
(914) 528-2528

New York
Open Road VW Of Manhattan
(646) 358-8100

Nyack
Palisades Volkswagen
(845) 689-3536

Oneonta
Volkswagen Oneonta
(866) 308-4291

Orchard Park
Volkswagen Of Orchard Park
(716) 662-5500

Pleasantville
Prestige Imports
(914) 769-5100

Queensbury
Garvey Volkswagen, Inc.
(518) 793-3488

Rensselaer
Cooley Motors Corp.
(518) 283-2902

Riverhead
Riverhead Bay Volkswagen
(631) 727-5590

Rochester
Dorschel Volkswagen
(800) 727-8789

Rome
Volkswagen Of Rome, Inc.
(315) 337-8900

Sayville
Donaldson's, Inc.
(877) 392-9324

Schenectady
Volkswagen Of Schenectady
(518) 374-9161

St. James
Smithtown Volkswagen
(631) 724-6600

Staten Island
Open Road VW Of Staten Island
(718) 513-7500

Wappingers Falls
Hudson Valley Volkswagen
(845) 298-2365

Watertown
F.X. Caprara Volkswagen
(315) 788-7400

West Islip
Atlantic Volkswagen
(631) 539-3653

Woodside
Koeppel Volkswagen, Inc.
(800) 669-0922

Yorkville
Steet Ponte Volkswagen
(315) 736-2787

North Carolina

Asheville
Volkswagen Of Asheville
(828) 232-4002

Burlington
Maxwell Volkswagen, Inc.
(336) 227-2727

Cary
Leith Volkswagen
(919) 297-1640

Charlotte
Carolina Volkswagen
(800) 489-2336

VW Of South Charlotte
(888) 699-4128

Durham
Southern States VW Durham
(888) 998-0075

Fayetteville
Valley Auto World, Inc.
(910) 867-7000

Goldsboro
Frema Motors, Inc.
(919) 778-1010

Greensboro
Flow Motors Of Greensboro
(336) 856-9050

Greenville
Joe Pecheles VW, Inc.
(252) 756-4982

Hickory
Paramount Automotive Group
(828) 449-1430

Huntersville
Keffer Volkswagen
(704) 464-4415

Jacksonville
National Volkswagen
(910) 938-1417

Raleigh
Leith Volkswagen Of Raleigh
(919) 828-0828

Wilmington
Bob King Volkswagen
(910) 392-3889

Winston Salem
Flow Motors Of Winston-Salem, LLC
(336) 761-3698

North Dakota

Fargo
Valley Imports, Inc.
(701) 277-1777

Ohio

Akron
Dave Walter, Inc.
(330) 434-8989

Amherst
Spitzer Volkswagen
(440) 988-4444

Bedford
Ganley VW Of Bedford
(440) 439-3444

Boardman
Volkswagen Of Boardman
(330) 726-8948

Brunswick
Brunswick Volkswagen
(888) 460-7080

Canton
Kempthorn Volkswagen
(330) 580-4916

Cincinnati
Beechmont Volkswagen
(513) 474-4777

Northland Volkswagen
(800) 521-PART

Columbus
Byers Imports, Llc
(614) 552-5490

Hatfield Volkswagen
(614) 465-8989

Dayton
Evans Volkswagen
(937) 890 6200

White-Allen European Auto Group
(937) 312-3022

Dublin
Midwestern Auto Group
(614) 553-5247

Fairfield
Fairfield Volkswagen
(888) 932-4734

Hudson
Collection VW Of Hudson
(234) 380-5920

Loveland
Kings VW Of Loveland
(513) 677-2710

Mentor
Classic Volkswagen
(440) 205-6504

North Olmsted
Ganley Westside Imports, Inc.
(440) 734-1076

Perrysburg
Ed Schmidt Volkswagen
(419) 874-4331

Springfield
Bill Marine Auto Center, Inc.
(937) 325-7091

Steubenville
Sunset Motors Incorp
(740) 264-1696

Willoughby Hills
Eastside Volkswagen
(440) 944-8700

Wooster
Volkswagen Of Wooster
(330) 264-1113

Oklahoma

Norman
Fowler VW Of Norman
(405) 310-3700

Oklahoma City
Cable Volkswagen
(405) 787-0095

Tulsa
Don Thornton VW Of Tulsa
(918) 712-8989

Oregon

Beaverton
Herzog Meier Volkswagen
(503) 372-3250

Bend
Carrera Motors
(541) 382-1711

Eugene
Sheppard Motors
(541) 343-8811

Gladstone
Armstrong Volkswagen
(503) 656-1215

Mcminnville
Mac Volkswagen, Inc.
(503) 472-4658

Medford
Lithia Volkswagen
(541) 774-7537

Portland
Dick Hannahs VW Of Portland
(360) 256-5000

Salem
Volkswagen Of Salem
(503) 581-7785

Pennsylvania

Allentown
Faulkner-Ciocca Volkswagen
(610) 791-4177

Ardmore
Piazza VW Of Ardmore
(610) 642-4275

Butler
Mikan Volkswagen
(724) 287-4763

Colmar
North Penn Imports, Inc.
(800) 887-2111

Danville
Jack Metzer Volkswagen
(570) 275-2212

Devon
Fred Beans Volkswagen
(610)254-9637

Downingtown
Jeff D'Ambrosio Volkswagen
(610) 873-2400

Du Bois
Central Volkswagen, Inc.
(814) 583-5121

Easton
Young Volkswagen, Inc.
(610) 991-9140

Edgemont
Y B H Sales & Service, Inc.
(610) 356-3493

Erie
New Motors Inc.
(800) 352-1052

Feasterville
Colonial Volkswagen, Inc.
(215) 355-8856

Greensburg
Sendell Volkswagen
(724) 837-9500

Harrisburg
Sutliff Volkswagen
(717) 231-1560

Hollidaysburg
Fiore Volkswagen
(814) 695-5533

Lancaster
Autohaus Lancaster, Inc.
(717) 299-0325

Langhorne
Volkswagen Of Langhorne
(800) 298-4300

Larksville
Wyoming Valley Motors
(570) 288-7411

Lebanon
H.A. Boyd, Inc.
(717) 273-9385

Leesport
Volkswagen Reading
(610) 777-6505

McMurray
Three Rivers Volkswagen
(724) 941-6100

Mechanicsburg
Cumberland Valley Motors
(717) 697-9478

Monroeville
Day Volkswagen
(724) 327-4950

Montoursville
Fairfield Volkswagen
(570) 368-8121

Moon Township
Day Apollo, Inc.
(412) 264-7171

New Kensington
Hillcrest Volkswagen, Inc.
(724) 335-9847

Norristown
Jim Wynn Volkswagen, Inc.
(610) 539-4622

Orwigsburg
J. Bertolet, Inc.
(570) 366-0501

Philadelphia
Chapman Volkswagen
(215) 698-8018

Pittsburgh
Cochran Volkswagen
(412) 245-3333

Scranton
Kelly Volkswagen
(570) 347-5656

State College
Volkswagen State College
(814) 206-0900

Warrington
Thompson Volkswagen
(215) 343-4810

West Chester
Garnet Volkswagen
(610) 361-0624

Wexford
Cochran VW Of Wexford
(724) 940-1000

Whitehall
Gilboy Volkswagen, Inc.
(610) 434-2953

York
York Volkswagen, Inc.
(866) 893-2337

Puerto Rico

Bayamon
Flagship Volkswagen
(787) 620-5876

San Juan
Volkswagen Kennedy
(787) 782-4087

Rhode Island

East Providence
Scott Volkswagen
(401) 431-0334

Wakefield
Speedcraft Volkswagen
(401)792-3300

West Warwick
Balise Volkswagen
(401) 822-4400

South Carolina

Columbia
Mcdaniels Volkswagen
(803) 786-6408

Wray Volkswagen
(800) 424-0183

Greenville
Steve White Volkswagen
(864) 288-8300

Hardeeville
Hilton Head Volkswagen
(843) 288-0510

Mount Pleasant
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