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VAG-COM

Diagnostic Software for VW/Audi/SEAT/Skoda

User's Manual
Version 409.0

See our Website for an Interactive Online version of this manual:
http://www.ross-tech.com/vag-com/tour/

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VAG-COM

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VAG-COM
Getting Started

VAG-COM allows you to turn a Windows-based PC into a sophisticated diagnostic tool for VW/Audi/SEAT/Skoda models from 1990-2005.

🌐 (Go to our website **www.ross-tech.com** to download the latest version of VAG-COM. Click on: "Download VAG-COM Software".)

Connect the Serial or USB end of Interface to the Serial or USB port on your PC. If your PC is further from the vehicle than 6 feet, connect a Serial Extension Cable between the PC and the Interface (USB is not extendable). ►
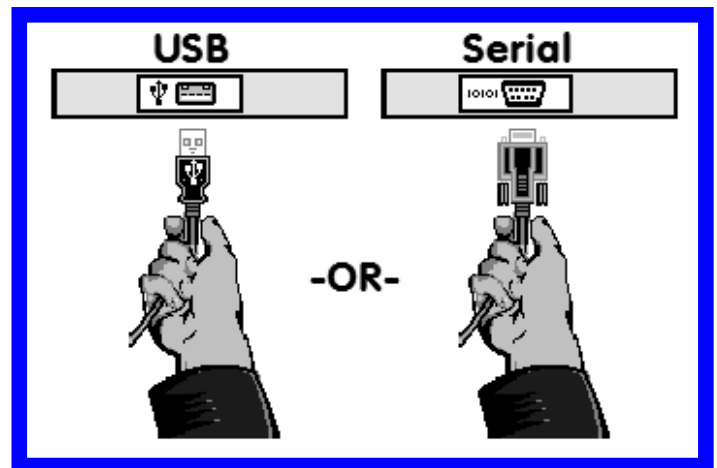
◄ If you are using a Serial Interface, you can skip to page 4 of this manual. If you are a USB Interface, this message should pop up.

Click on the Found New Hardware message and the Found New Hardware Wizard should start up. Select "Install from a list or specific location (Advanced)" then click [Next >] ►

◄ This dialog should appear. Select "Search for the best driver in these locations" Check "Include this location in the search:"

Getting Started cont.

Use the [Browse] button to find the VAG-COM folder (Usually C:\Program Files\VAG-COM\, unless you chose a different folder when you installed the software) Click [OK] ►
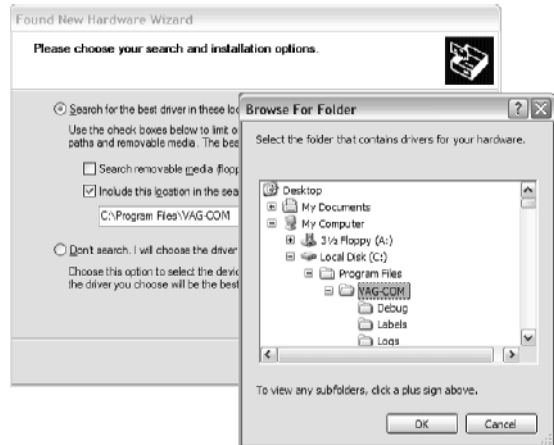
◄ Click [Next >] and this dialog should appear, warning you that we haven't paid Microsoft a pound of flesh to certify the driver.
You're going to have to click the [Continue Anyway] button..:-)

When the dialog to the right appears, Click [Finish] : ►

Note: If, for some reason, you installed your USB Interface without following the above instructions, and VAG-COM does not work correctly, go into your PC's Device Manager while the USB Interface is connected. Find the "VAG-COM Compatible USB Interface" and delete it. Then, unplug the USB Interface from your PC, wait 5 seconds and plug it back in. Proceed with the installation starting on Page 2.

Connect the car end of your Interface to your vehicle's Diagnostic Port. ►
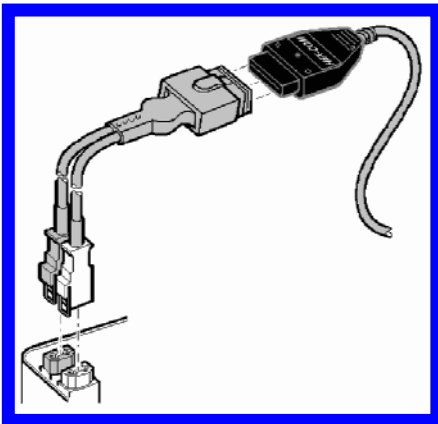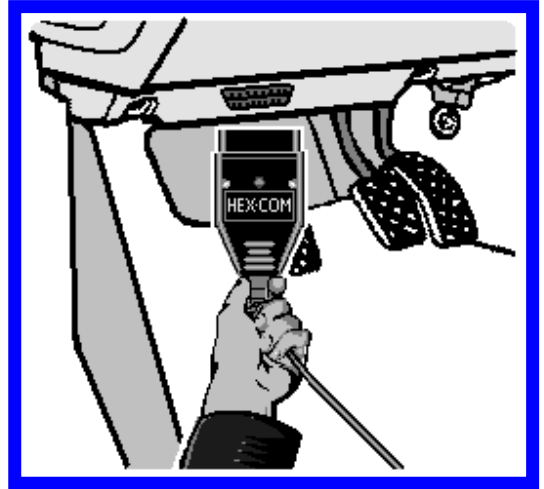
◄ If your vehicle has a 2x2 port (some pre-1996 vehicles), then use a 2x2 Adapter between the Interface and the ports in the car.

Start the VAG-COM program on your PC through either the Start Menu or the icon on your Desktop. ►

Getting Started cont.

Turn the vehicle's ignition switch to the ON position. Make sure the key is turned far enough that the dash lights are fully illuminated. The engine may either be running or stopped.

From the Main Screen in VAG-COM click the **[Options]** button to go into the Options screen
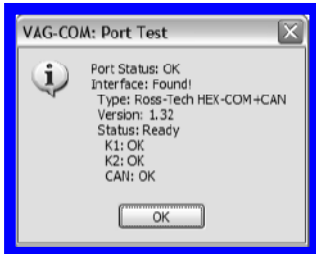
◄ Select the correct port for your PC's Serial Port (typically COM1 or COM2) or USB Port (USB) and click the **[Test]** button. Ensure that VAG-COM finds your interface. You should see a message like this.

- If the Adapter Status is not "Found!", check the connections at the car and PC. Make sure both are plugged in securely.
- If K1 or K2 status is not "OK", you may have a short or an open circuit in the car's diagnostic port (most likely caused by the Aftermarket Radio Problem, as shown in the FAQ in Appendix B of this manual). CAN Status will only be "OK" in vehicles that use CAN-Bus for diagnostics (some 2004+ models) when connected with either our HEX-COM+CAN or HEX-USB+CAN Interfaces.

Once you have tested successfully, click **[OK]** and click **[Save]** to apply this configuration, you will be returned to the Main Screen.

Click on **[Select Control Modules]** to view the Select Control Module Screen. Select one of your car's Control Modules such as Engine

After VAG-COM has connected, click on **[Fault Codes]** to check for Fault Codes (DTC's). Repeat the process for each of your car's Control Modules. If you encounter problems, see the FAQ in Appendix B of this Manual first. If you still have problems, feel free to contact us with full details about your PC and vehicle, preferably while you are in front of both.

Note: Your car will not have all the Control Modules listed in VAG-COM, only the ones on the Applications Page for your car. See our Website for more info:

🌐 **www.Ross-Tech.com/vag-com/cars/applications/**

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VAG-COM
Main Screen

This screen appears when you start VAG-COM by clicking the shortcut on your Desktop or by selecting VAG-COM from the Start Menu.

On this screen, you have 8 buttons that you can click with your mouse:

[Select]
[Auto-Scan]
[Control Module Finder]
[OBD-II]
[Applications]
[Options]
[About]
[Exit] (This closes the VAG-COM program)

See our Website for an Interactive Online version of this manual:

http://www.ross-tech.com/vag-com/tour/

VAG-COM
Select Module Screen

The various computers in the car are called "Control Modules". On this screen, you select which Control Module you want to "talk" to. Click on the button for "01 - Engine" in order to connect to the engine controller. Note: No single car has all Modules! Newer cars have more, older cars have fewer. Each tab contains groups of modules VAG-COM has buttons for all control module addresses currently supported by the VAS-5051 and VAS-5052 factory diagnostic tools.

◄ Due to the Airbag Issue in Appendix A, if you select **[15 –Airbags]** you will get this warning

Potential fix for the long-standing 6Q0-909-605-A Airbag Problem. ►
Although the root cause of the problem is definitely a <u>bug in the module's firmware</u>, we think we finally figured out why these modules have a greater propensity for setting the 65535 code when accessed with VAG-COM than with the dealer's tools, and how to avoid this.
While we are certain that we have identified one thing that can cause the 65535 DTC to set, we cannot be certain that we have identified everything that could cause it. So the standard warning message will remain in VAG-COM, at least for the time being.   In addition, if VAG-COM has any difficulties connecting to the airbag, you may see a screen like this. If you see this screen, please do *exactly* what it tells you!
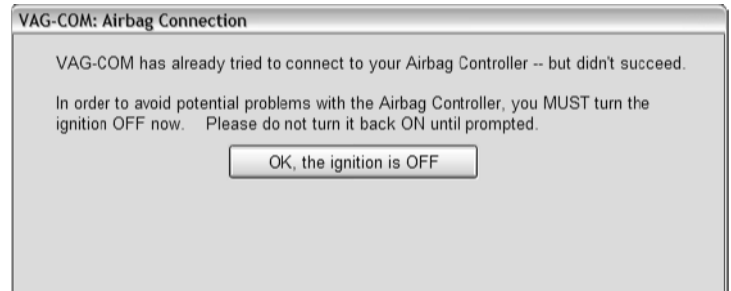
Module Tabs
Selecting the Tab for Common, Drivetrain, Chassis, Comfort/Conv., Electronics 1, or Electronics 2 will show you different lists of module buttons.

Direct Entry
You can also enter any address manually. Simply put in the address and click **[Go!]**

To return to the Main Screen, click **[Go Back]**

Note: Your car will not have all the Control Modules listed in VAG-COM, only the ones on the Applications Page for your car. See our Website for more info:
🌐 **www.Ross-Tech.com/vag-com/cars/applications/**

VAG-COM
Open Controller Function Screen

This screen will appear when VAG-COM is attempting to establish communications with any of the Control Modules shown on the Select Control Modules Screen.

Comm Status = Shows the status of the current communications session. It is normal for VAG-COM to take one or more tries to connect. Once communications have been established:

- **IC=** Shows the number of times the session has been initialized. If IC increases beyond 1, communications are less than 100% reliable.

- **TE=** is counters for transmitter errors within individual packets and can indicate unreliable communication.

- **RE=** is counters for receive errors within individual packets and can indicate unreliable communication.

- **Protocol** indicates whether the controller speaks **KWP-1281** or **KWP-2089**. (See the Function Chart in Appendix E in this manual for more information).

- A rotating cursor shows that communication is active.

Open Controller cont.

Controller Info
Once the communications session has been established, all of the Control Module's "Identification" data is presented here.

- **VAG Number** is the VW/Audi part number for this controller. This is often the same number as listed on the sticker on the controller itself.

- **Component** contains more identification information about the controller and may contain a version number for the controller's internal firmware.

- **Soft. Coding** is the Software Coding that determines various options for the controller.

- **Shop #** identifies the WorkShopCode stored in the scan-tool that last Recoded this Control Module. Note: Some older Control Modules are not "codeable" and you may see a Bosch part number or other information in these fields. See the Options screen for information on how VAG-COM deals with WSC.

- The **Extra** fields can show VIN and Immobilizer information or slave controller part numbers in some vehicles. This text is displayed in VAG-COM in the same manner it is presented by the controller, and may be in German in some controllers.

Basic Functions
This grouping of "Safe" functions are used to read data from the Control Module. Grayed out buttons are functions that have not yet been implemented or are not applicable for this specific controller. Each of these functions is detailed on the following pages.

Advanced Functions
These functions are capable of making various "programming" changes to the Control Module. You should refer to the Factory Repair Manual for your particular car (or to other documented procedures) before "playing" with these functions. It is completely possible to render your vehicle inoperable or damage components if you make changes in this section without the correct information and training. Each of these functions is detailed on the following pages.

Use **[Close Controller, Go Back - 06]** to properly close the communications session and return to the Select Control Module screen.

VAG-COM
Fault Code Screen

On this screen, VAG-COM shows you any DTC's ("Diagnostic Trouble Codes" or Fault Codes). VAG-COM shows the DTC numbers and also decodes each DTC into meaningful text. The 5-digit number is a standardized VAG fault code, which can be searched in the Factory Repair Manuals. The text is a description of the part and failure mode. The letter and number combination in parentheses is the DIN Component Identifier. This is followed by elaborators describing the condition of the fault. The second line contains the P-code, or generic OBD-II code (if it exists, there are thousands of VAG codes without generic OBD-II equivalents).►
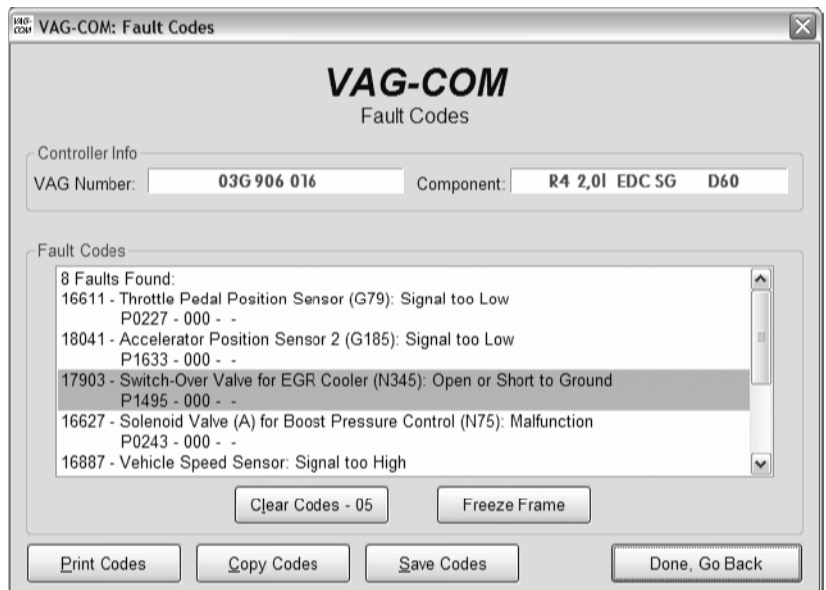
[Print Codes] will print a Fault Code Report. If your PC is not connected to a printer when this button is pressed, be sure to use Windows to set the printer to "Work Off-Line" first! Later, when you connect the PC to a printer, un-check "Work Off-Line" to print the report.
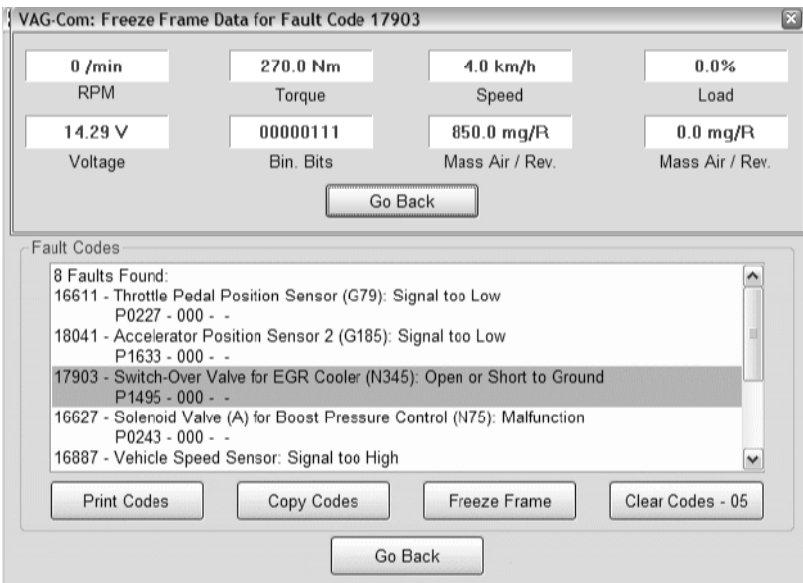
[Copy Codes] will copy your fault codes to Windows Clipboard. Once you have pressed the Copy Codes button, you may paste the results into the application of your choice, such as MS Word or Notepad.

[Save Codes] will save a plain-text Fault Code Report to the VAG-COM/Logs directory of your PC.

◄ **[Freeze Frame]** adds Freeze Frame data for Fault Codes on control modules using the KWP-2000 protocols. Note: Not all control modules fully support this; very few cars can currently handle freeze-frame data using the VAG proprietary protocols. Self-explanatory messages will appear in place of data when this function is not supported.

[Clear Codes - 05] will erase the DTC's from the Control Module's memory. Be aware, this is does not fix the problem that caused the fault! DTC's should only be erased after correcting the condition(s) that caused them in the first place. Note: There is no way to erase individual DTC's while leaving others alone. This is not a limitation in VAG-COM it's just the way the VAG protocols work.

[Go Back] takes you back to the main Control Module screen where you can select other functions.

VAG-COM
Measuring Blocks
(VAG 1551/1552 function 08)

On this screen, you can read all sorts of data from the Control Module in real-time.

Use **[Up]** and **[Dn]** to scroll through the available groups (000 - 255 on most Control Modules). Don't become discouraged when you find some that say "ERROR: Group xxx Not Available" or if you find some groups where the fields are all blank. Most 1996 and newer ECU's have Groups in the 200 range, but there are often "gaps" in the numbers.

You can also type a Group number into the Group box and click **[Go!]**

You can also **[Log]** the data from the measuring blocks. For more information see the section in this manual on Data Logging.

[Switch to Basic Settings] can be used to go to Basic Settings for the Group that is currently being displayed.   This should be done only under guidance from the Service Manual or when following some other documented procedure. For more information see the section in this manual on Basic Settings.

> **NOTE:** Multiple Groups are not permitted in Basic Settings.   The **[Switch To Basic Settings]** button is intentionally disabled if you have groups "running" in the second and third rows. To stop a running group, click on the box that displays the group number (as though you wanted to enter a new number). This button is also disabled on controllers using KWP-2000. On those, you need to go directly to the Basic Settings screen.

The data presented in each **Measuring Block** Group varies greatly from Control Module to Control Module and between different models and years.   Some groups are documented in the Factory Repair Manuals, but many are not. Feel free to explore the Control Modules in your car by scrolling through all the Groups. You can't hurt anything with the Measuring Blocks function!

In each case, VAG-COM will attempt to "scale" the raw data coming from the Control Module into real-world units like degrees C, km/h, etc. At the present time, all scaling conversions are to metric units.
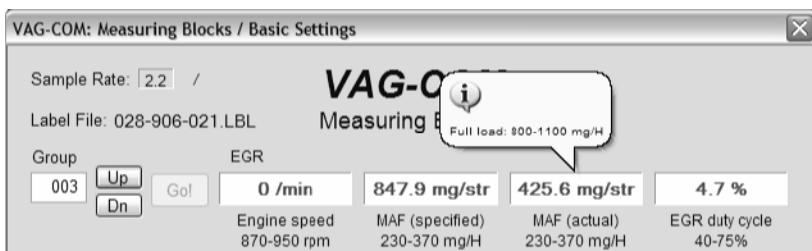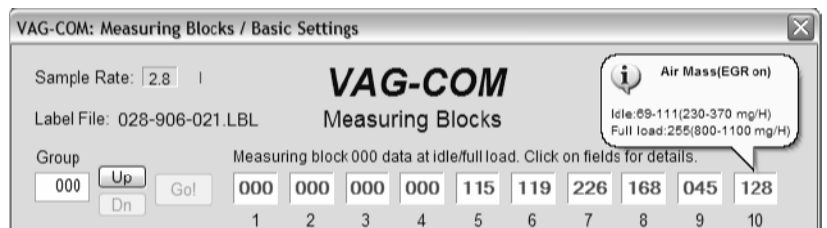
Measuring Blocks cont.

Note: Group 000 and any other group that displays 10 fields instead of 4 is an exception. No scaling is possible because the Control Module provides no "Data Type" information with the data for these. Groups of this type can only be displayed in the top row of the screen.

VAG-COM also tries to elaborate as much as possible what the data means. Unfortunately, the "Data Type" information coming from the Control Module is not that precise.   For example: VAG-COM can tell that a particular field contains a Temperature, but the data from the Controller doesn't tell us whether this is the Coolant Temperature or the Intake Air Temperature.

To reduce the confusion, VAG-COM supports Label Files and will display the name of the Label File. When a Label file for the Control Module you are looking at does not exist, VAG-COM will come up with an "educated guess" for what a particular Data Type means. The dealers' VAG-1551 and 1552 scan-tools do not provide any elaboration; they only show what's in the display fields!

On this page, the **Label File** field will indicate which label file is being used with this controller. Group 000 supports special Labels. Due to space constraints on the screen, these labels are displayed in a "balloon" when the user clicks on a field ▶

◀ Label Files also allow a third label field to be defined for each of the normal measuring block fields.   This label is displayed in a balloon when the user clicks on the field. The idea is to put "specified values" in this field:

Sample Rate: We can get just over 4.0 samples per second from our '97 VR6 ECU (single group) with the most aggressive protocol-timing settings. This ECU runs at 9600 baud. Most newer ECU's run at 10400 and should give proportionately more. Naturally, if two groups are being displayed simultaneously, the sample rate drops to around 2.0, and 3 groups simultaneously runs at around 1.3. Sample Rate will vary from controller to controller and the PC used will also have some effect. Some controllers (particularly AG4 transmissions and Digifant-III ECU's) use a "hybrid" data-type that requires reading a long header when changing group numbers. Viewing multiple groups still works with these data types, but the sample rate becomes extremely slow. If you see "Reading Header" all the time under the Sample Rate display, you'll know you've got one of these.

In Engine controllers using KWP-2000, there is a **[Turbo]** button in Measuring Blocks screen of the latest version of VAG-COM. Pressing this button can significantly speed up sampling, in some cases to over 30 samples per second when logging a single group. Once you have pressed **[Turbo]** you will remain in this High-Speed mode until you exit the Measuring Blocks screen.

[VAG-Scope] is a plug-in for VAG-COM that allows you to graph Measuring Group Information. See Appendix C for information on VAG-Scope.

Use **[Done, Go Back]** to return to the Controller Info / Select Function screen.

Warning! If you wish to observe real-time data while driving the car, use a second person who is not in front of an active airbag!

VAG-COM
Data Logging

You can log the data from the Measuring Blocks screen to a .CSV file. These files can be opened and analyzed with Excel or other spreadsheet applications.

While the Log Dialog is open;

[Start], **[Stop]**, and **[Resume]** can all be done with the same button. **[Start]** begins saving the data to a log file. ►

[Stop] discontinues the saving of data to a log file ►

[Resume] continues the saving of data to a log file.

The **[Marker]** function places a sequential number in the file when you click the Marker button. This can be helpful for data analysis.

The **[Browse]** button allows you to specify the location for your logs. By default, Log Files will be placed in the LOGS sub-folder in your PC's VAG-COM directory.

By default, the name of the log file will be the controller number followed by the number for each group number that you are logging. The name can be changed to anything you'd like. If you re-use an existing filename, your new data will be appended to that file.
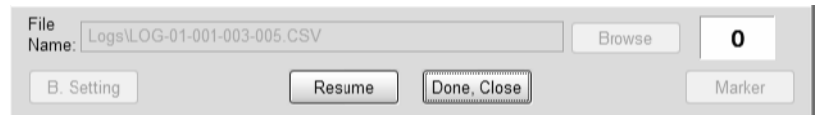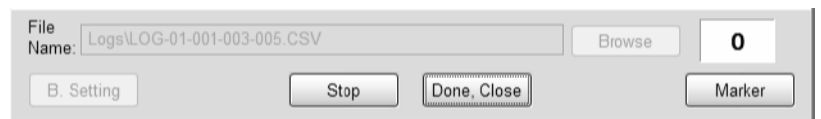
Data Logging cont.

Switch to Basic Settings is not currently available while logging (but may be added later). However, you can start a log while you're in Basic Settings. If VAG-COM keeps insisting that it can't open a Log file, you're probably missing the LOGS folder.

Example using Microsoft Excel:

1. Choose the Measuring Block Group that you want to view.
2. Click **[LOG]** button
3. Use default file name if desired. It will append the old file if you use a particular name more than once.
4. Click **[DONE]** when you're finished logging data.
5. Open Microsoft Excel
6. Click File->Open (change filetype to all *.*) and select the log file that you made.
7. With mouse select the columns you want to graph.
8. Click the Chart Wizard button.
9. Select XY (Scatter) and click one of the formats that has lines.
10. The chart wizard will prompt you to name axes if you want.

You can also use the **[VAG-Scope]** plug-in for VAG-COM that allows you to replay LOG files. See Appendix C for information on VAG-Scope.

Warning!
If you're going to use VAG-COM while you're driving, please use a second person! Let one drive while the other observes the data, making sure the person holding the PC is not in front of an active airbag! Obviously, do not break any laws, speeding or otherwise while using VAG-COM!

VAG-COM
Single Reading
(VAG 1551/1552 function 09)

This function allows you to look at real-time data from control modules that support it. However, the data stream coming from the control module gives NO CLUE what the data means or how to scale it into real-world values.

The only way to know what the values mean is to find a reference to this function in the Factory Repair Manual for your car.

This function is rare, but it is used, for example, with some OBD-I 2.8L 12V V6 engines.

The very name of this function annoyed us, so we added a twist. You can look at two channels of "Single Readings" at once!

Use **[Done, Go Back]** to return to the Controller Info / Select Function screen.

VAG-COM
View Readiness
(VAG 1551/1552 function 15)

The Readiness Code is a set of 8 bits, each of which corresponds to one monitored emissions "system" in an OBD-II car. When all readiness bits show "pass", it means that all systems have been checked and pass the on-board tests. Whenever you clear DTC's or remove power from the ECU, all readiness bits will be set to "fail". Most cars do not have all 8 systems, so as soon as you apply power again, the bits corresponding to systems that are not actually in the car will come up "pass" again.

VAG-COM: Open Controller

VAG-COM
Open Controller

Comm Status
IC=1 TE=0 RE=0
Protocol: KW1281 \

Controller Info
VAG Number: 06A 906 032 E   Component: 19MATM10.HEX 161   2730

VAG-COM: View Readiness

Readiness Status:
0110 1101

Exhaust Gas Recirculation	Seconday Air Injection
Passed	Failed or Incomplete
Oxygen Sensor Heating	Evaporative Emissions
Failed or Incomplete	Failed or Incomplete
Oxygen Sensor(s)	Catalyst Heating
Failed or Incomplete	Passed
Air Conditioning	Catalytic Converter(s)
Passed	Failed or Incomplete

Go Back

The above screen-shot was taken immediately after clearing the DTC's in a 2000 New Beetle 1.8T. You can see that this car does not support "monitors" for the EGR, Catalyst Heating, or Air Conditioning because this specific car does not have EGR or Catalyst Heating. It does have Air Conditioning, but a "monitor" is only required if the system uses ozone-depleting refrigerant (R12).

It takes a variety of specific driving conditions to "test" all the systems. It can be done in a short time using a very specific and complicated procedure found in the On Board Diagnostic section of the Factory Repair Manual for your engine. The alternative is just to drive the car for 2-3 days. Make sure you include at least one short highway trip and your Readiness Bits should all read "Pass" again.

Use **[Go Back]** to return to the Controller Info / Select Function screen.

Note: This function is only available on Engine Controllers that are OBD-II compliant (all 1996 and newer US-Model gasoline engines). Non-US models and older TDI's may not support this function even though they are otherwise OBD-II compliant. OBD-I did not require any "monitors". 12V 2.8L V6 engines may have readiness bits stored in or near Measuring Block Group 029.

VAG-COM also Decodes Readiness bits into meaningful data on modern TDI engines (a VAG-COM exclusive, not even the VAS-5051/5052 does this!) ►

VAG-COM: Open Controller

VAG-COM
Open Controller

Comm Status
IC=1 TE=0 RE=0
Protocol: KW1281 \

Controller Info
VAG Number: 038 906 012 FD   Component: 1,9l R4 EDC G200SG 4102

VAG-COM: View Readiness

Readiness Status:

10000101	00010111	10000000	10000000

MIL Status   Number of EOBD-related DTC(s)
MIL ON   5

Comprehensive Components
Passed

Fuel Sytem
Failed or Incomplete

Exhaust Gas Recirculation
Failed or Incomplete

Go Back

VAG-COM
Advanced ID
(KWP-2000 only)

The Advanced ID function is only for control modules using the KWP-2000 Protocol.

Note: Not all control modules fully support this. The amount of data appearing on this screen will vary based on what the control module supports. "N/A" in red means that data isn't available from that module. Some fields (like Chassis Number) may be blank if the module has never had a chassis number "installed".

VAG-COM
Login Dialog
(VAG 1551/1552 function 11)

The Login Function must be used on some (but not all) Control Modules before you can Recode or change Adaptation values. On others, it "enables" certain features like cruise control. Valid Login codes can be found in the Factory Repair Manual for your car. If working on an Immobilizer, select **[Use 7-digit PIN/SKC]** to enter a 7-digit Secret Key Code. This function is described in the SKC section of this manual.

Use the **[Do It!]** button to save the Login and return to the Select Function Screen.

Use the **[Cancel]** button to cancel the Login and return to the Select Function Screen.

The "Login Lost due to dropped session" warning appears in the upper right corner of the screen if a session is disconnected after you have done a Login. You will need to do another Login. ►

The most common cause of this is the use of an incorrect login code or a 7-digit PIN/SKC based on an incorrect Immobilizer ID or incorrect data entered in the 7-digit dialog.

VAG-COM
7-digit PIN/SKC Dialog

The 7-digit PIN/SKC dialog is used for Key Matching and Immobilizer 3 Adaptation.

You must enter the following information:

- **7-digit SKC that the dealer generated for your exact Immobilizer ID Number.**
- **Date on which the SKC was *GENERATED BY THE DEALER*.**
- **Workshop Code (WSC) for the dealer that generated the SKC.**
- **Importer Number for the dealer that generated the SKC.**

The 7-digit SKC is useless without these other items.

When you have filled in all of the data click **[OK]**. If any of the entered data does not make sense, this message may appear ►
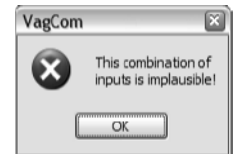
When you have successfully submitted the 7-digit PIN/SKC, you are taken back to either the Login or Adaptation screen (wherever you were when you clicked on **[Use 7-digit PIN/SKC]**). Now, you should have "XXXXX" in Login or Adaptation value.

Note:

Unlike the factory diagnostic tools, with VAG-COM, the same PIN can be used for a particular car at any time in the future, as long as you keep track of the PIN, along with the Date on which the PIN was *GENERATED BY THE DEALER*, the dealer's Workshop Code (WSC) and the Importer number.

If you obtain a 7-digit SKC, but the dealer has not provided the WSC, look at the window stickers of vehicles on the dealer's lot. The dealer number will be listed next to the name and address of the dealer. In the US, the dealer number will be a 4 followed by five more digits, for example 401742. To obtain the WSC, delete the 4 and simply use the remaining five digits, 01742 in the above example.

The Importer number should be:

444 for all dealerships in the US
999 for all dealerships in Canada
995 for all dealerships in France

Use the **[OK]** button to save the 7-digit information and return to the Login or Adaptation screen

Use the **[Cancel]** button to return to the Login or Adaptation screen without saving.

VAG-COM
Basic Settings
(VAG 1551/1552 function 04)

This screen is presented when a Control Module is in Basic Settings Mode.

Basic Settings Mode is very similar to Measuring Blocks, and the contents of each display group is the same. The difference between the functions is that the Control Module may try to perform various calibrations while in Basic Settings mode.

Warning!
You should refer to the Factory Repair Manual for your particular car (or some other documented procedure) before "playing" with the Basic Settings function. Failure to follow the proper procedures can result in serious damage to the vehicle.

Although you can use the **[Up]** and **[Dn]** buttons to scroll through the available groups just like on the Measuring Blocks screen, this is probably not a good idea since you may put the Controller into Basic Settings for a Group that you did not intend.

You can also enter a Group number directly and click **[Go!]**

[Switch to Meas. Blocks] will switch back to the passive (and "safe") Measuring Blocks mode.

NOTE: Multiple Groups are not permitted in Basic Settings. The data presented in each **Basic Settings** Group varies greatly from Control Module to Control Module and between different models and years. Some groups are documented in the Factory Repair Manuals, but many are not.

Basic Settings cont.

VAG-COM also tries to elaborate as much as possible what the data means. Unfortunately, the "Data Type" information coming from the Control Module is not that precise. For example: VAG-COM can tell that a particular field contains a Temperature, but the data from the Controller doesn't tell us whether this is the Coolant Temperature or the Intake Air Temperature.

To reduce the confusion, VAG-COM supports Label Files and will display the name of the Label File. When a Label file for the Control Module you are looking at does not exist, VAG-COM will come up with an "educated guess" for what a particular Data Type means. The dealers' VAG-1551 and 1552 scan-tools do not provide any elaboration; they only show what's in the display fields!

Use **[Done, Go Back]** to return to the Controller Info / Select Function screen.

The most common use for the Basic Settings function is to recalibrate the Throttle Body (sort of like having a Chiropractor do an "adjustment" on the engine). Another common use for Basic Settings is to bleed the ABS Hydraulic Unit on newer cars. Please refer to a Factory Repair Manual for your car before attempting to do any of these procedures!

You can begin and end a Data **[Log]** while in Basic Settings. See the section in this manual on Data Logging.

Basic Settings in KWP-2000:

On Controllers using KWP-2000, there is an **[ON/OFF]** button that allows you to initiate and exit Basic Settings while still being able to see the values in the measuring groups.

VAG-COM
Output Tests
(VAG 1551/1552 function 03)

The Output Tests function is used to test a Control Module's Electrical Outputs (and the wiring that connects it to the various devices). Output Test under KWP-2000 includes simultaneous measuring data

To begin Output Tests, and to progress through each step, click **[Start/Next]**.

Notes: The Outputs that can be tested and the sequence in which they become active is controlled strictly by the Control Module; this is not a function of the Diagnostic Tester. To find out which Outputs can be tested and the sequence in which they will become active, please refer to the Factory Repair Manual for your car. Once the Test Sequence has been started, clicking **[Done, Go Back]** will take you back to the Open Controller Function Screen. **THE TEST SEQUENCE WILL STILL BE ACTIVE!**

Most Control Modules will permit the Output Test Sequence to be run only one time per session. If you run the Test Sequence to completion, VAG-COM will allow you to return to the previous screen without closing the session, but you may not be able to run the Output Test Sequence again. If you need to run the Sequence again, manually Close the Controller and re-start the session. On some cars, you must cycle the key OFF and ON or even start the engine (to clear the cylinders of fuel).

Some Outputs require additional action before they become active. Fuel Injectors are a common example. To activate a Fuel Injector, you must press (and in some cases release) the gas pedal. Exact details can be found in your Factory Repair Manual. On most systems, the Output Test function is only available when the Engine is not running.

Warning:

Do not use the Output Tests function on any system while the car is in motion! Running Output Tests on the ABS brake system can temporarily disable the brakes entirely and cause individual wheels to lock and unlock. We strongly suggest you refer to the Factory Repair Manual for your specific car before running Output Tests on any Control Module so you will know what to expect!

If you try to perform Output Tests on an Airbag controller, a warning will pop up. For example, in the VW Touareg, a specific procedure must be performed to be able to start the vehicle if Output Tests on the Airbag Controller have been performed. ►

Use **[Done, Go Back]** to return to the Controller Info / Select Function screen.
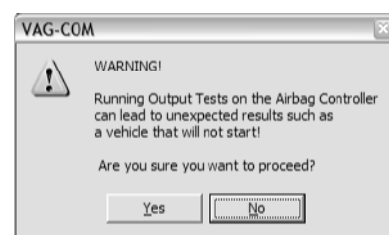
VAG-COM
Recode or Long Coding
(VAG 1551/1552 function 07)

Recode is used to set various options in a Control Module. ►

Warning!
You should refer to the Factory Repair Manual for your particular car (or some other documented procedure) before attempting to Recode a Control Module. At the very least, write down the original values. There is no other way to "undo" or restore the original values if what you're trying to do doesn't work out.

Note:
Some Modules require a valid Login before you can re-code them.

A feature unique to VAG-COM:
You can leave the Work Shop Code unchanged, or enter any workshop code you desire. Certain other programs always leave a tell-tale WSC when you re-code a module.

The Importer Number is only relevant for recoding controllers that use KWP-2000. By default, this will remain unchanged unless you have set up an Importer Number in the Options screen.
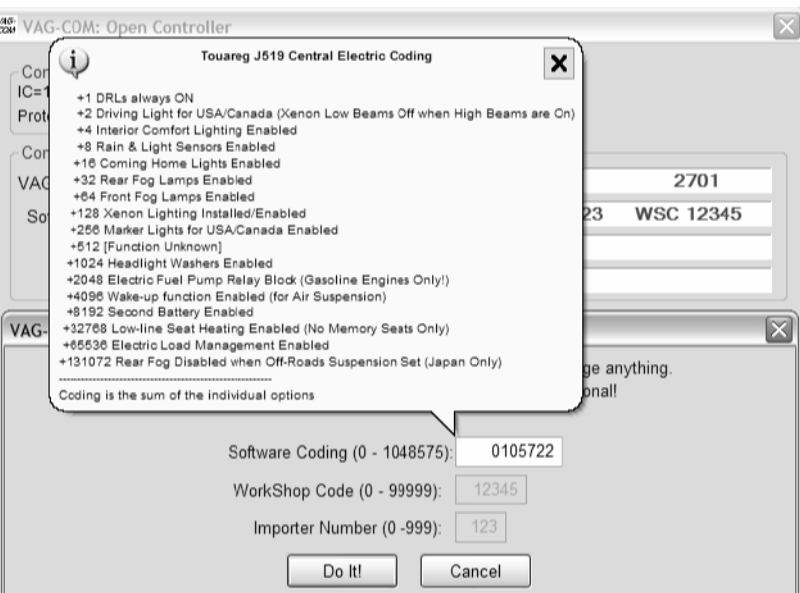
◄ Up to 20 lines of coding chart data can be included in a Label File. This data is shown in a balloon on the coding screen.

When coding new Airbag Modules in many VW models, VAG-COM can "Suggest" an appropriate Coding value. This feature is available only when VAG-COM is used with one of our Professional Grade interfaces. Disclaimer: We cannot guarantee that the coding which VAG-COM may suggest will be correct, but there should be no harm in trying it. If it's not correct, the control module should simply refuse to accept it and the coding will remain at 00000. ►

◄ Long Coding. This function is needed to Code some control modules (especially Gateways) in the newest cars. Due to the complexity of Long Coding strings (up to 255 bytes of hexadecimal data) we've accommodated (and urge) the use of Copy & Paste in this function:

Use the **[Do It!]** button to save the new Soft Coding to the controller and return to the Open Controller Function screen.

Use the **[Cancel]** button to return to the Open Controller Function screen without saving.

VAG-COM
Adaptation
(VAG 1551/1552 function 10)

The Adaptation function allows you to alter certain values and/or settings in control modules which support it. ►

Warning!
You should refer to the Factory Repair Manual for your particular car (or some other documented procedure) before "playing" with the Adaptation function. However, many available Adaptation Channels are totally undocumented!

You can use the **[Up]** and **[Dn]** buttons next to *Channel Number* to scroll through all 99 possible channels, or you can manually enter a channel number and click **[Read].** If a channel exists, VAG-COM will show you the *Stored Value*. If a channel does not exist, the Stored Value will show as "N/A". Other data the controller may or may not send will be decoded and shown in the four display fields at the top of the screen.

Once you have reached a channel of interest, you can use the **[Up]** and **[Dn]** buttons next to *New Value* to incrementally change the value. Or you can directly enter a *New Value* and click **[Test]**. This will tell the controller to temporarily use the new value so you can evaluate it's effects.

◄ Label Files can support values and description for Adaptation channels. A help chart for Adaptation Values may be included in Label Files. If a help chart has been created for an adaptation channel, is displayed in a balloon when you access an Adaptation Channel:

Adaptation cont.

When you are satisfied with the effect of a *New Value*, you can store it in the Controller permanently by clicking **[Save]**.

Note: Channel 00 is a special case. Performing a **[Save]** to Channel 00 resets all adaptation values to their original factory defaults. This only works in controllers that support this function, see your Factory Repair Manual to find out if this procedure applies to each controller in your vehicle.

Note: Some Engine and Immobilizer controllers will require a valid Log-In before permitting you to **[Test]** or **[Save]** Adaptation values.

Examples of things that can be done with Adaptation:

* Altering the Idle Speed (only SOME engines)
* Changing the Service Intervals and resetting the Service Reminder Indicators (newer instrument clusters)
* Disabling/Enabling various components of the Airbag/SRS system.
* Changing the sensitivity of the Interior Monitor (Sonar Scan) component of the Alarm System in many newer Audis.
* Swapping ECU's and re-matching keys (newer immobilizer-equipped cars)
* Selecting certain Central Locking options in newer vehicles.

Click **[Done, Go Back]** to return to the Open Controller Function Screen.

Note: Values put in with **[Test]** but not saved will persist until controller is powered-down.

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VAG-COM
Security Access Screen
(VAG 1551/2 Function 16, KWP-2000 only)

The Security Access Function must be used on some (but not all) KWP-2000 Control Modules before you can Recode or change Adaptation values. On others, it "enables" certain features like cruise control. Valid Login codes can be found in the Factory Repair Manual for your car. ►

Use the **[Do It!]** button to save the Login and return to the Select Function Screen.

Use the **[Cancel]** button to cancel the Login and return to the Select Function Screen.

◄The Security Access Function supports 7-Digit SKCs.   This is needed for Immobilizer Functions (such as key programming) on the latest vehicles like the Touareg:

Use the **[Do It!]** button to save the Login and return to the Select Function Screen.

Use the **[Cancel]** button to cancel the Login and return to the Select Function Screen.

VAG-COM
Auto-Scan
(VAG 1551/1552 function 00)

This function scans each controller in the vehicle to retrieve controller information (VAG number, Component number, Soft. Coding, WSC, and fault codes). ►

First, you must **Select Chassis Type:** There are dozens of different control modules that exist across the entire range of VW/Audi vehicles. No one car has all Modules! Newer cars have more, older cars have fewer. Because of this, you must select a Chassis Type that contains only those modules that are plausible for a given chassis.
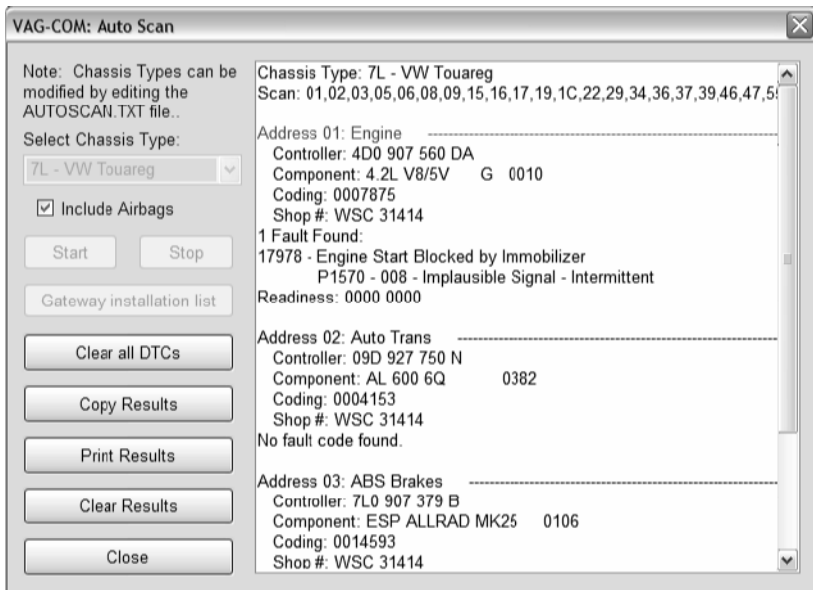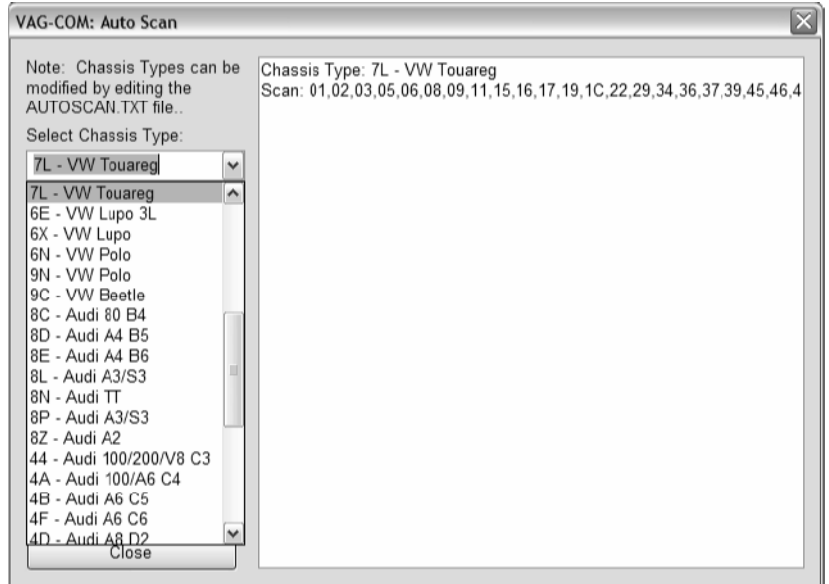
[Start]
This begins the Auto-Scan. Beware; this process can take several minutes. By default, **Include Airbags** is unchecked due to the MkIV Airbag Issue (see Appendix A in this Manual). If you check **Include Airbags**, a warning will appear. While the scan is running, VAG-COM will cycle through the Open Controller and Fault Code screens for each controller before returning to the Auto-Scan screen.

◄ Double-clicking on any of the Control Modules highlighted in **RED** will open the Fault Codes screen for that controller and allow you to clear the codes.

[Stop]
This stops the Auto-Scan.

[Clear Results]
This erases your results.

Auto-Scan cont.

[Clear All DTC's]
This function is implemented in two ways.   On pre-CAN vehicles, VAG-COM will access each control module and clear DTCs from each one individually.   On vehicles using CAN for diagnostics, VAG-COM performs this function without accessing all the control modules individually. This function is only available when used with one of our HEX Interfaces ►
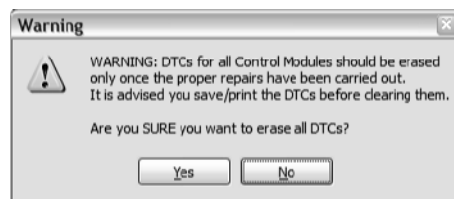
[Copy Results]
If you close the Auto-Scan dialog, any data in its output box will be lost. If you would like to keep a record, click the **[Copy Results]** button first, then you can then paste the results into the application of your choice, such as MS Word or Notepad.

[Print Results]
This function sends the results to your printer.

[Gateway Installation List]
Usually available only on Gateways in cars using a direct CAN connection for diagnostics (new A8 and all Golf-5 chassis cars). This *very fast* function takes about 3 seconds to query the car's Gateway to find out what modules are installed in the car and what their status is.   Any modules having fault codes should show a "Malfunction".   Modules are directly accessible from this screen by double clicking on the appropriate line.   This screen-shot is from a Golf-5 in Europe ►
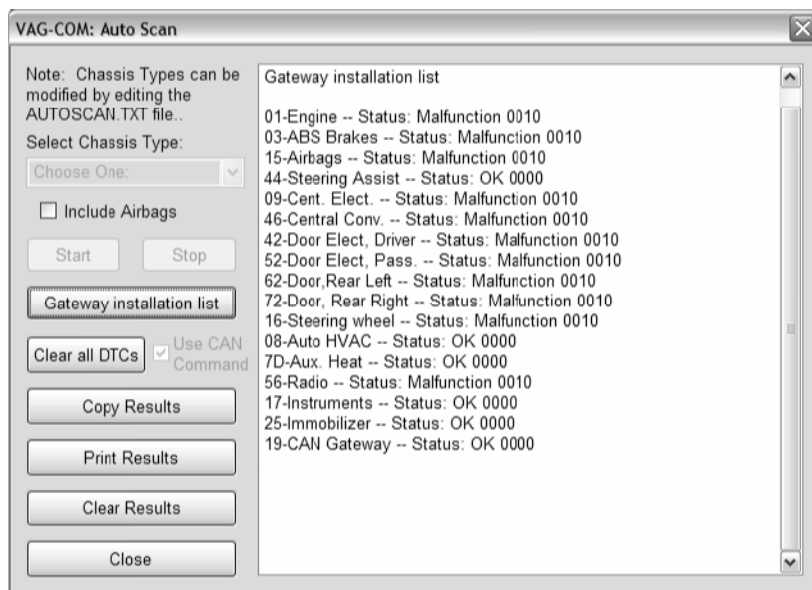
**Select Chassis Type**
There is a file in the VAG-COM directory called AUTOSCAN.TXT, which contains all of the vehicle profiles. You may edit this with a Text editor (like Notepad) to create a custom profile for your vehicle. To help you figure out which controllers are in your car, you can run the Control Module Finder on the Main Screen.

To return to the Main Screen, click **[Close]**

VAG-COM
Control Module Finder
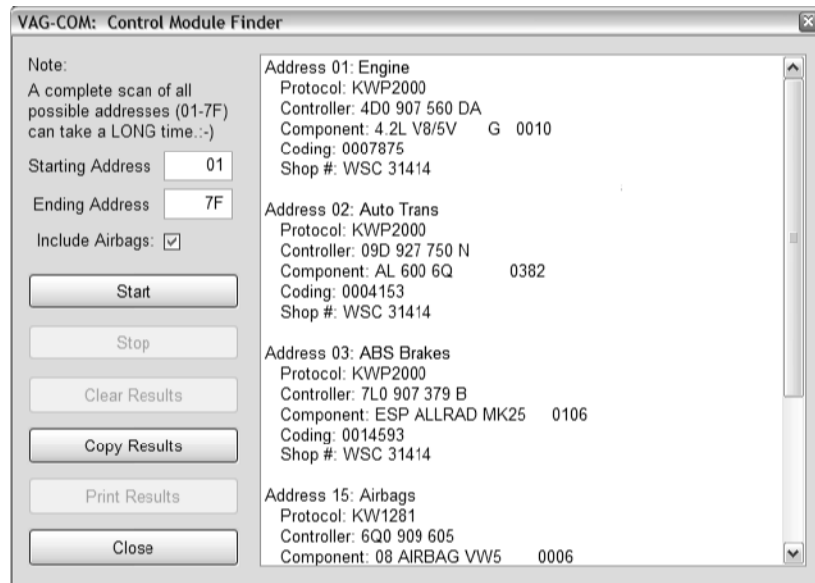
This function cycles through each possible address in the vehicle, finding each controller and reporting its Address, Name, Protocol, Controller VAG Number, Component Number, Soft. Coding, and Work Shop Code.

Note: No one car has all Modules! Newer cars have more, older cars have fewer.

[Start]
This begins the finder. Beware; a "full" scan can take 45 minutes or more. Of course, you can scan selected address ranges. By default, **Include Airbags** is unchecked due to the MkIV Airbag Issue (see Appendix A in this Manual). If you check **Include Airbags**, a warning will appear.

[Stop]
This stops the finder.

[Clear Results]
This erases your results.

[Copy Results]
If you close the Finder dialog, any data in its output box will be lost. If you would like to keep a record, click the **[Copy Results]** button first, then you can then paste the results into the application of your choice, such as MS Word or Notepad.

[Print Results]
This sends the results to your printer

To return to the Main Screen, click **[Close]**

VAG-COM
OBD-II
(VAG 1551/1552 Address Word 33)

This is an OBD-II compatibility-test only!

This test can be used to determine whether a car is ISO/OBD-II compatible, i.e. whether it "speaks" the OBD-II protocols, if the car uses the ISO-9141 hardware layer for OBD-II.

> **Note:**
>
> • There are three different hardware standards for OBD-II. Interface Adapters that work with VAG-COM only support one of these, ISO-9141.   The ISO-9141 hardware layer is used by most OBD-II compatible cars produced world-wide except U.S. Ford and GM products.   This test is useless on U.S. Ford or GM vehicles.
>
> • OBD-II scan tools use completely different protocols than those used by the proprietary VAG scan-tools that VAG-COM emulates. The results of this test have nothing to do with VAG-COM working with any VW/Audi/SEAT/Skoda vehicle.
>
> • No VW or Audi products prior to model year 1996 are OBD-II compliant! Please note that most vehicles sold outside of the US are NOT OBD-II compatible, and even US-market TDI's are not OBD-II compatible.
>
> • The newest vehicles using KWP-2000 are not scannable with generic OBD-II scanners.

Please see the FAQ in Appendix B:
What's the difference between VAG-COM and an OBD-II Scan-Tool?

OBD-II cont.

🌐 A "Special version of OBD-2 software that works through the Serial Interface Adapter shipped with VAG-COM" is available directly from its author, Alex Peper at **www.obd-2.com** .This OBD-2 software does not work with USB Interfaces.

When ordering, please let Mr. Peper know that you need the "Special version for my Ross-Tech Adapter". Before ordering Alex's software, please make sure that whatever car you intend to use it on passes the OBD-II compatibility test in VAG-COM! If it does, Alex's software is almost 100% certain to work. Why would you want OBD-II software in addition to VAG-COM? If you own a 1996 or newer car that is ISO/OBD-II compatible in addition to your VW/Audi, you can now use your Serial Interface and Alex's software to do OBD-II diagnostics on that car as well! Our USB Interfaces are not compatible with the third-party OBD-II software.

Click **[OK]** to return to the Main Screen.

Note:
We do not sell or provide support for Mr. Peper's Software. Please direct all inquiries and questions directly to him.

VAG-COM

Applications

Transport Mode
On vehicles using CAN for diagnostics, there is a special Transport Mode that is used by the factory to put the cars into a "sleep" to conserve battery charge during long periods of inactivity.

[Activate Transport Mode]
Clicking this button will put applicable vehicles into Transport Mode, shutting down most systems.

[De-activate Transport Mode]
Clicking this button will "wake up" applicable vehicles from Transport Mode, powering up most system.

Check for and erase faults

[Gateway Installation List]
Usually available only on Gateways in cars using a direct CAN connection for diagnostics (like the new A8 and all Golf-5 chassis cars). This *very fast* function takes about 3 seconds to query the car's Gateway to find out what modules are installed in the car and what their status is. Any modules having fault codes should show a "Malfunction". Modules are directly accessible from this screen by double clicking on the appropriate line. This screen-shot is from a Golf-5 in Europe: ►
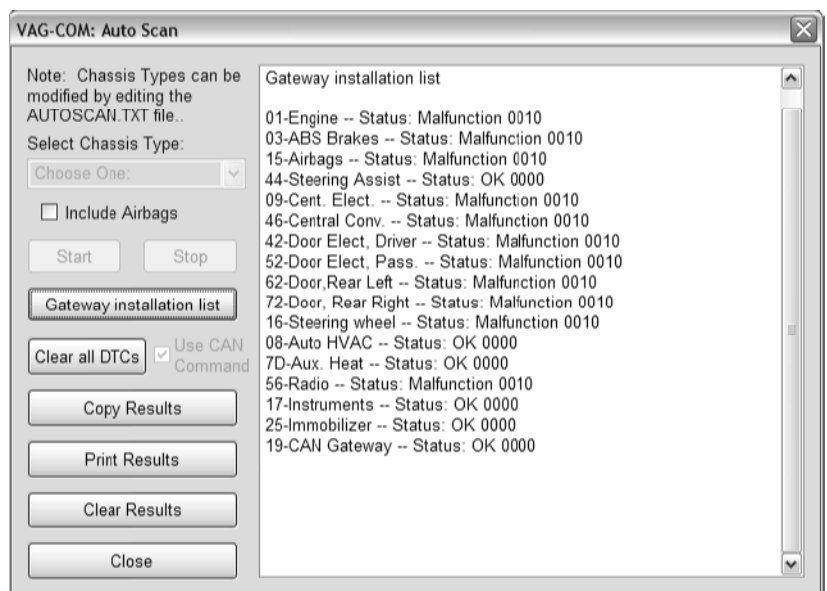
[Ease All DTCs]
On vehicles using CAN for diagnostics, VAG-COM performs this function without accessing all the control modules individually:

VAG-COM

Options *Screen*

On this screen you can set a number of Options.

Select Com Port

Set the COM Port to which you have connected the Interface Adapter.

> You can then click **[Test]** to see if VAG-COM can find the adapter. See the Getting Started section on page 2 for more information.
> The **[LED's]** button is useful for testing a port's outputs with the Interfaces that have LED's.

Debug Output Level

A zero in this field (the default) means NO debug output will be generated whatsoever. This should decrease VAG-COM's susceptibility to interference by things like virus scanners (except when logging data). To generate Debug Output, put a number in this field. The number should be of a reasonable size, such as 100. Small numbers will generate very little information.

Left Margin Printing

This is the number of spaces that printed pages are shifted to the right.

Window Size

This function allows you to change the apparent size of the VAG-COM window on your screen. Adjust this in small increments since it is possible to make VAG-COM so large that it is much bigger than your screen! To see the resizing take effect, do a Test and Save, then close VAG-COM. When you restart, the new window size should be shown.

Color Scheme
This display mode changes the background color from blue to white, and looks better on some older monitors. The change will take effect after you close and restart VAG-COM.

Options *Screen cont.*

Protocol Options

- **Start Baud** is the first baud rate that VAG-COM will try when connecting to a controller. The current default value is 0. This means VAG-COM will determine the correct start baud on its own. With the HEX Interfaces, this field is unavailable since they figure out the Start Baud automatically.

- **KW2 Delay** has to do with the amount of time used during the initialization of a session between the PC and the car. The current default value is 30. Do not change this value from the default unless you are having difficulties communicating with a particular controller. Contact us for advice if you are.

- **TST Addr.** has to do with the packet addresses used by KWP-2000. The current default value is -1. Do not change this value from the default unless you are having difficulties communicating with a particular controller. Contact us for advice if you are.

- **Blk Int** affects the protocol timing. The current default value is 55. To get the highest sample rate possible in the Measuring Blocks screen, set this to 25. Note, however, that this may cause unreliable communications with some controllers.

- **Char Int** also affects the protocol timing. The current default value is 1. To get the highest sample rate possible in the Measuring Blocks screen, set this to 0. Note, however, that this may cause unreliable communications with some controllers.

- The **KP2 Time** parameter only applies to controllers using the KWP-2000 protocol. The current default value is 25. Decreasing it increases the sample rate in Measuring Blocks on control modules that use the KWP-2000 protocols. The default value should be safe for all applications, but if it's not, you can always increase it again (to a maximum of 99).

- Using the **Reduce CPU Usage** checkboxes will greatly increase responsiveness of other apps running at the same time as VAG-COM. The disadvantage is somewhat reduced sample rate.

    - **KWP-1281:** The default value is unchecked. This reduces CPU usage when connected to controllers using KWP-1281. Using this feature *may* make the session with some control modules unreliable.

    - **KWP-2000:** The default value is unchecked. This reduces CPU usage when connected to controllers using KWP-2000.

- **Force HEX Dumb** causes the HEX Interfaces to function like a "dumb" Interface, so the PC handles all protocol timing, rather than letting the Interface take care of timing. This should not be necessary with any known controllers.

- **Force K on Engine** is used on controllers that use the CAN-Bus for diagnostics. This box is checked by default since the K-line often delivers faster sample rates while datalogging than does the CAN-Bus.

Options *Screen cont.*

- The **WorkShop Code** (known as the WSC) is found on the Admin screen of a dealer's VAS-5051, as well as on the dealer's stamp. The default value is 00000. For example, using the stamp below, the dealer's number is 401/742. To derive the Work Shop Code, drop the first digit and use the remaining digits in order.

  401/742
  Evergreen Terrace
  Volkswagen, Inc.
  Springfield, USA

  So, Evergreen Terrace Volkswagen has a WSC of 01742. This only applies to US VW dealers. Canadian dealerships use a 4-digit number on their stamp. To find the WSC, place a 9 before their number.

- The **VZ/Importer** number is essentially a "region code" extension to the Work Shop Code (should be 444 for US, 999 for Canada). The default value is 000.

  If you are an individual user or independent mechanic, just leave the WorkShop Code set to "0000" and VZ/Importer number set to "000". This allows VAG-COM to operate in "stealth" mode, keeping whatever WSC and Importer numbers that were already in the controller. If you are using VAG-COM at a Dealership, enter your Dealer's Workshop Code and VZ/Importer number. VZ/Importer number and Work Shop Code are not easily changed once set on this screen. Contact us for advice if you need to do so.

- **Shop Name** is displayed on reports, such as the Fault Code Report.

- **[Restore Defaults]** will reset all Protocol Options (except WorkShop Code and VZ/Importer number) to their "as-delivered" settings.

[Save] causes the current options to be stored.

[Apply] lets you use and test the options without storing them.

[Cancel] takes you back to the Main Screen without any effect.

VAG-COM

About Screen

License Info

- The **Serial Number** will initially be "Please test on car before registering" until you have connected to a car and checked fault codes in a controller. After you have done this, you will have a Serial Number composed of letters and numbers.

- **License Status** should always be Fully Registered / Activated with our Current Interfaces, since they have activation built-in. With all other Interfaces, this will be "Unregistered/Shareware" until you Register/Activate VAG-COM.

  See our Website for more info:

  ⊕ **www.Ross-Tech.com/vca**

On this screen, you will also find a Copyright Notice, License info, and Contact Information.   The Web and E-Mail "links" open up your browser or mail program, respectively and can be used if your PC is connected to the Internet.

To return to the Main Screen, click **[Go Back]**.

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VAG-COM
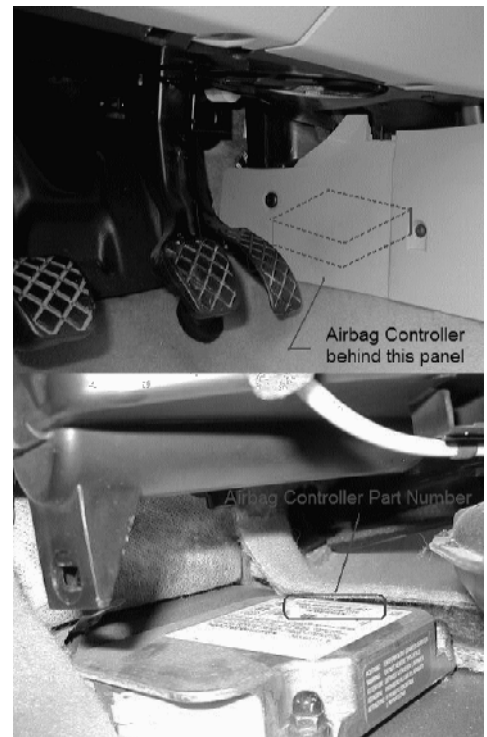
Appendix A: VAG-COM Problems & Issues

Possible Issues, all versions:

- We have some reports indicating that VAG-COM versions 211.1 and newer do not get along with the Zone Alarm firewall application. If you are using Zone Alarm, turn it off while using VAG-COM.

- SP1 (Service Pack 1) for Windows 2000 adversely affects VAG-COM's ability to do real-time and makes communications with some controllers unreliable. If using Windows 2000 with Service Pak 1, you should apply Service Pak 2 or Service Pak 3.

- 1991-1994 TDI Engines: We have a number of reports indicating that VAG-COM doesn't work with these using a "dumb" Interface. For these vehicles, you will need to use our HEX-COM or HEX-USB Interface.

- If you try to connect to a control module and you get the error message "**Can't Synch Baud Rate**", go to the Options Screen and try setting the **Start Baud** to 9600. If 9600 doesn't work, also try 4800 and 1200. Turn the car's ignition OFF and back ON after each failed attempt to connect!

2000-2001 VW Golf/GTI/Jetta/Beetle Airbag System (important!)

We have had a number of reports of Air Bag Warning Lights staying on permanently after scanning with VAG-COM. The Air Bag Controller shows DTC number 65535, indicating an internal error which cannot be cleared.

This problem seems to be limited to airbag controllers with the part number: 6Q0-909-605-A. There are a number of different "Index" or "color-code" variations of this controller and not all of them are affected, but we haven't got a definitive list of which ones are which. If you have a 2000-2001 Golf, Jetta/Bora, Beetle, or a similar SEAT or Skoda model, you should physically inspect the airbag controller and look at the part number. If it is *not* 6Q0-909-605-A, then it should be safe to scan. If it is 6Q0-909-605-A, then it is at risk of this problem -- *please avoid scanning the airbag controller in these cars*, unless you are prepared to buy a new one!

Appendix A: VAG-COM Problems & Issues cont.

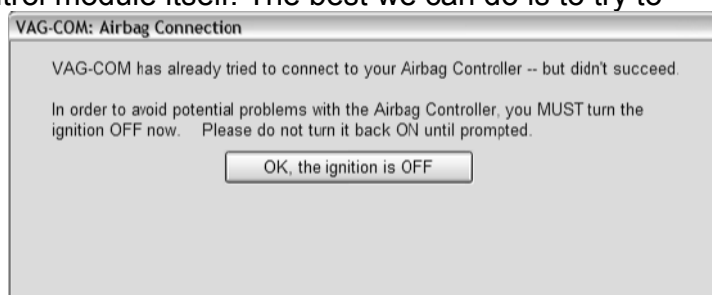**2000-2001 VW Golf/GTI/Jetta/Beetle Airbag System cont.**
So, can you unintentionally connect to the Airbag controller? When you try to access the Airbag controller, you need to click on Airbags in the Select Control Module screen. Then, you are confronted with a disclaimer screen asking if you really want to proceed, the default answer is "No". We have no reports of people scanning their airbags by mistake with these safeguards in place. Also, please note the disclaimer on the Download Page. If you have a vehicle with the affected part number and are concerned, simply do not scan the airbag controller. Accessing the other control modules in the car should not affect the airbag controller in any way.

Comment: There is no way that scanning a controller should cause it to become dysfunctional in this manner, even if the scan-tool fouls up in some way.   We believe there is a bug in the firmware in these controllers. We also believe VW knows this, but isn't admitting it.   The affected controllers are no longer available as replacement parts, they have been superceded by a new part number: 1C0-909-605-A which appears not to have this problem.

On the previous page is the location of the airbag Controller in the Golf/GTI/Jetta: (Thanks to Drew Weirshousky for the excellent photos!)

Update: Although the root cause of the problem is definitely a bug in the module's firmware, we think we finally figured out why these modules have a greater propensity for setting the 65535 code when accessed with VAG-COM than with the dealer's tools, and how to avoid this. While we are certain that we have identified one thing that can cause the 65535 DTC to set, we cannot be certain that we have identified everything that could cause it. So the standard warning message will remain in VAG-COM, at least for the time being. With the Intelligent HEX Interfaces, the chance of having VAG-COM trip this bug in the airbag controller is much less than with a "dumb" interface. Release 404.0 and newer have some additional safeguards in it specifically designed to avoid this issue. So if you want the safest possible thing, download and install the latest Release 404.0 or newer and use that with a HEX Interface on this airbag controller. Of course, we still can't give you any guarantees. The fault arises out of a bug in the firmware of the control module itself. The best we can do is to try to avoid "waking" that bug.

In addition, if VAG-COM has any difficulties connecting to the airbag, you may see a screen like this. If you see this screen, please do *exactly* what it tells you! ►

VAG-COM: Airbag Connection

VAG-COM has already tried to connect to your Airbag Controller -- but didn't succeed.

In order to avoid potential problems with the Airbag Controller, you MUST turn the ignition OFF now.   Please do not turn it back ON until prompted.

OK, the ignition is OFF

1997 VW Passat B5 Central Convenience System
These controllers seem to have a bug that causes them to drop the communications session when VAG-COM requests the door-slave controller "Extra" info.   A work-around is available in Version 0.70e which simply does not request any "Extra" info.   If you have a 1997 B5 Passat (non-US models only), use 0.70e on the Central Convenience system. 1998 and newer Passats do not have this problem.

1990-1992 VW 2.0L 16V Engines
Works fine with the HEX-COM and HEX-USB.   If you're using a "dumb" interface, you must set the **Start Baud** on the Options Screen to 4800 to get these to work. If you have anything else in Starting Baud Rate, the ECU will "choke" and you'll need to turn the ignition OFF and back ON again before you can communicate.

Appendix A: VAG-COM Problems & Issues cont.

1990-1993 VW Cabrio/Cabriolet Airbags
These controllers do not communicate with VAG-COM. In fact, they do not communicate with Volkswagen's VAG-1552 scan tool either, unless the 1552 has an old, outdated program card installed.

1994-1997 C4 (A6/S6) Instrument Clusters
These have a high bit-error rate. We suspect they use a software-UART and "stretch" bits sometimes. The error-detection/correction logic built into VAG-COM's low-level protocol drivers as of version 0.70 seems to take care of this in a majority of cases, but I still had few reports of customers not being able to communicate with these clusters. In version 0.75 or or newer, please ensure that **Char Int** on the Options Screen is set to approximately 3 (which is the default). On some PC's, it may be necessary to adjust this value to something other than 3. On very fast PC's try a higher value. On very slow PC's, try something less.

We have received reports from users who cleaned the terminals on the wiring connections at the back of their instrument cluster with electronics cleaner. This appeared to fix the problem with communicating with these clusters.

1995-2000 VW Sharan Electrical Controller (address 09)
These controllers have some strange bugs in the protocols which prevent them from working with VAG-COM. Make sure to use Release 409.0 or newer, which should fix the problem.

Concert and Symphony Radios
These are made by Matsushita. The **Concerts** have blatant bugs in the diagnostic protocols. We've added one work-around to the low level protocol drivers that works in some, but not all Concerts, and it is not 100% reliable in any case.

Some Concerts occasionally get "stuck" in an undesirable mode after attempting communications. If your Concert gets "stuck", the way to reset it is to remove all power from the radio for at least 10-15 seconds. This can be done by:

- Removing the radio from the car.
- Disconnecting the car's battery
- Pulling the fuse for the radio.

Note: Some radios will require you to enter the "security code" using the radio's front panel after loosing power. See the owner's manual for the radio for instructions.

It appears there is something not quite up to snuff in the **Symphony's** ability to drive the K-line. We've had some reports that they work better with non-optically isolated interfaces, and they may work better with the engine running (which means there is a higher voltage on the VBatt lines in the car).

1992-1994 2.6L V6 Engine (non-US only)
VAG-COM cannot communicate with some of these ECU's while using a "dumb" Interface. These ECUs (made by Hella) are so incredibly fussy about the protocol timing that there is no way to get them to work with a "dumb" interface and an application running in user-mode under Windows. For vehicles with these engines, we recommend the HEX-COM or HEX-USB Interface, which work great.

1996-1997 Audi A6 2.8L 12V V6 Engine
There is a bug in the Hitachi ECU that does not allow reliable monitoring or logging of multiple measuring groups. For these vehicles, we recommend only viewing or logging one group at a time.

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Appendix B: VAG-COM Frequently Asked Questions (FAQ) Index

VAG-COM
Appendix B: VAG-COM Frequently Asked Questions (FAQ)

1) Q: Will VAG-COM work with my car?
A: VAG-COM will work with most Volkswagen and Audi models sold World-Wide 1994 through 2005. It will work with some cars all the way back to model year 1990. It will also work with most late-model SEAT, and Skoda models sold in markets other than North America. If your VW or Audi has a 16-pin "OBD-II style" Data Link Connector, VAG-COM will definitely work. If your car has the old "2x2" Data Link Connection, check if there is a wire going to each of the 4 pins. If there are four wires, VAG-COM should work. If there are only three, it won't.

🌐 Please see these Application Charts at: **www.Ross-Tech.com/vag-com/cars/applications/** where you can select your model and see which modules can communicate with VAG-COM. Also see the Issues page in Index A of this manual for a few things that may not work as expected. If in doubt, e-mail us at support@ross-tech.com .

2) Q: Will VAG-COM work even if my car is "chipped"?
A: Yes. If it doesn't work in a "chipped" car, the chip-vendor did something seriously wrong! Chips from reputable vendors are fully VAG-1551 (and VAG-COM) compliant.

3) Q: What functions are included in the current release?
A: VAG-COM is a software program that turns your PC into sophisticated VW/Audi diagnostic tool, which performs the functions of a factory VAG-1551 or VAG-1552 scan tool. Please see the Function Chart in Appendix E for the current feature set.

4) Q: What are the computer requirements?
A: A PC running Windows: We recommend at least a Pentium-100 (or AMD equivalent) with 16MB of RAM and Windows 95 or newer. VAG-COM may work on some lesser PC's, but anything less than the above recommendation is unsupported. Windows 95, 98, ME, NT4, 2000, and XP are all fine. Available disk-space is a total non-issue, VAG-COM requires less than 1 MB. To use one of our Serial Interfaces, the PC must have an available RS-232 Serial port! Otherwise, you'll need to choose one of our USB Interfaces.
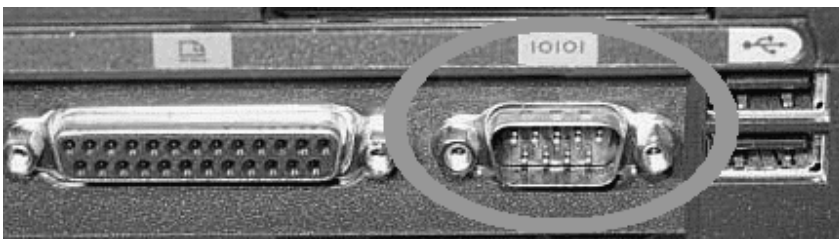
Observe the port we surrounded with the GREEN oval. Notice the 9 **MALE** pins? That is a SERIAL port and WILL work! Observe the port circled and crossed in **RED**. Notice the 15 **FEMALE** pins? That is a **MONITOR** port and will NOT work!

Appendix B: VAG-COM FAQ cont.

5) Q: What if my Laptop doesn't have a Serial Port?
A: We now offer our own USB Interfaces which use the USB port on your PC, rather than the Serial Port. We even offer USB Interface Upgrades for existing Ross-Tech customers. These interfaces work best with Windows XP.   If you have a PC that doesn't have a Serial port and it has a version of Windows prior to XP, we strongly urge you to update to Windows XP before installing VAG-COM. Realistic hardware requirements for Windows XP and VAG-COM are a 500 MHZ CPU with at least 128 MB or RAM.

If you want to use one of our RS-232 Serial interfaces (especially the HEX-COM) on a PC that doesn't have a serial port, we recommend you buy this Quatech SSP-100 PCMCIA-Card. We don't sell them, but we've had excellent results with them. See our website for installation and configuration notes.

USB<->RS-232 converters are often unable to handle the baud rate and timing requirements that are demanded by many control modules using the VAG protocol. We have had very poor results with most available *USB<->RS-232 converters, therefore USB<->RS232 converters are "Not Supported." Please do not ask us for technical assistance if you are using one of these converters*.

6) Q: What if the PC I wish to use with VAG-COM doesn't have Internet access?
A: Because our software is provided to you via our download page, rather than on floppy disks or CD's, you will need a way to transfer the Self-Installing EXE file to the PC that you will be using with VAG-COM. The file fits easily on a floppy disk and can also be burned onto a CD-R or CD-RW. Make sure that you do not run the EXE file until you have copied it onto the PC where you would like VAG-COM to be installed.

Additionally, in order to activate VAG-COM, you will need to copy and paste the Serial Number from the PC that you will be using with VAG-COM into our Registration Form. Likewise, when we return your Activation Code, you will need to copy and paste that into the PC that you will be using with VAG-COM as per the instructions on our Activation Page.

7) Q: Can I use VAG-COM on a desk-top computer?
A: Yes, but you will probably need an extension cord for your interface.   We usually stock serial extension cables in 15' (3m) and 25' (7.5m lengths.   Note: We do not support the use of extension cords with our USB interfaces. The USB standards specifically exclude the use of extension cords.

8) Q: Will there be a Mac or Linux version?
A: There will be no "native" Mac or Linux versions. The time and effort required to "port" VAG-COM to these platforms would never pay. One person has gotten VAG-COM running under Linux using WINE.   Another person has managed to get VAG-COM working on a MAC with Virtual PC. If you get VAG-COM working on a platform other than Windows, we'd be happy to give you credit here, just don't expect to receive any support from Ross-Tech for that platform.

Appendix B: VAG-COM FAQ cont.

9) Q: Will there be a Windows-CE/PocketPC or Palm-OS version?
A: Possibly at some point in the future, but we don't have a timetable yet. We conducted a poll of current and potential VAG-COM users about where we should concentrate development efforts. The results:

      75 % Improving and adding features to the Windows version
      11 % Porting VAG-COM to Windows CE / PocketPC
      9 % Porting VAG-COM to Palm
      3 % Porting VAG-COM to LINUX
      2 % Porting VAG-COM to Macintosh

Some of our customers use VAG-COM on a tablet PC such as a Fujitsu Stylistic or on an ultra-portable PC such as a Toshiba Libretto. These can be purchased inexpensively on auction sites. These REAL PC's work wonderfully and have very small form factors (the Libretto is about the size of a VHS video cassette).

10) Q: What's the difference between VAG-COM and an OBD-II Scan-Tool?
A: OBD-II is a government mandated diagnostic protocol that is primarily aimed at diagnosing emissions-related problems. An OBD-II scan tool will work in many different brands of cars. VAG-COM uses VW's proprietary diagnostic protocol and will only work in VW/Audi vehicles. Although you can use an OBD-II Scan Tool in an OBD-II compliant (1996 or newer) VW or Audi, an OBD-II Scan Tool can only talk to the engine, not the numerous other "intelligent" systems in the car.   Want to reprogram your central locks or your Radio? Diagnose a problem with your ABS, Airbags, or Automatic Transmission? Re-align your Immobilizer after swapping ECU's? Reset your Service Reminder Indicators?   Communicate with a pre-1996 model (not OBD-II compliant) car? An OBD-II Scan-Tool can't do any of these things. Please see our OBD-II Test in this manual for information on using third party generic OBD-II software through our Interface.

11) Q: Can I use VAG-COM to roll back my electronic odometer?
A: No. A brand new instrument cluster (with less than 100 km on it) can be rolled forward, one time only. Of course, this assumes that the instrument cluster is "diagnostics capable". Not all instrument clusters with electronic odometers are.

12) Q: Can I use VAG-COM to "Flash" the chip in my ECU?
A: No, we have investigated flashing, but found that there are several different methods of encryption for various VW/Audi vehicles, as well as delicate licensing issues to overcome. Therefore, we do not intend to pursue flashing any further at this time. You cannot alter boost, timing, fueling, rev limiter, or speed limiter with VAG-COM. You should contact a chiptuner if you wish to have those parameters altered.

13) Q: Is there anything else I need to make full use of VAG-COM?
A: Yes. A good **Factory Repair Manual** containing the VAG Scan-Tool procedures for your car. VAG-COM is a tool, not an on-line service manual. We could not possibly document everything you can do with it in every year and model of VW/Audi that VAG-COM can be used with.   The most cost-effective manuals with good Scan-Tool procedures for US/Canadian vehicles are the CD-ROMs from Robert Bentley Publishers.   We offer these at a discount to registered VAG-COM users. Beware, however, that many of the paper "Service Manuals" published by Bentley do not contain Scan-Tool Procedures. If a paper Bentley manual is called a "Service Manual" it usually does not have scan-tool procedures. If it is called "Official Factory Repair Manual", it does. An additional source of manuals that contain Scan-Tool procedures is Dyment Distribution Services (1-800-544-8021).
🌐 For European VW manuals, check **http://erwin.volkswagen.de/index.jsp** For European Audi manuals, check **http://erwin.audi.de/index.jsp**

14) Q: I already have VWTool / VDS-PRO, why would I want to upgrade?
A: Due to the untimely demise of its developer, VWTool has not been updated since early 1999. If you have an older car, and you are satisfied with the way VWTool works, there is probably no good reason to upgrade to VAG-COM.   If you have a brand-new car, or you are a professional mechanic, you likely want a tool that is current. There are numerous Fault Codes in the 2000 and newer cars that VWTool can't decode into text, and it can't touch any of the new control modules in 2001 newer models that use KWP-2000.   In addition, VWTool is a 16-bit program written in an ancient version of Visual Basic and can be unreliable running under newer versions of Windows.   VAG-COM is a 32-bit program written in C/C++ and can be much more robust under 32-bit Windows.

15) Q: How do I Register/Activate my software?
A: All of our Current Interfaces have Activation built-in, so there is no need to Activate VAG-COM.

🌐 If you have an older Interface without built-in Activation, or have purchased an Interface somewhere other than Ross-Tech, go to **http://www.ross-tech.com/vca/** to Register/Activate VAG-COM.

16) Q: What's the difference between the Shareware version and the fully registered/activated version?
A: All of our Current Interfaces have Activation built-in, so VAG-COM will always be Fully Registered. If you have an older Interface without built-in Activation, or have purchased an Interface somewhere other than Ross-Tech, VAG-COM will operate in Shareware mode until it is Activated. The differences between Shareware and fully registered/activated versions are listed near the bottom of each function page in this Manual and in the VAG-COM Function Chart in Appendix E.

17) Q: Is Product Support included in the price?
A: Absolutely. If you have a question or problem, please post it to the VAG-COM mailing list, mail it to us directly, or give us a call. However, please understand that we don't know everything about every VW/Audi ever made.

18) Q: Why can't I get VAG-COM to communicate at all?
A: Check the following:

- Is the adapter plugged into the car?   An adapter that is not plugged into the car will always be "Not Found". It gets power from the car!
- Is the car's ignition switch in the ON position?
- Is it plugged into the correct serial port? Some PC's have the ports mis-labeled.
- Are the serial ports on your PC properly configured?
- Disable Palm-Pilot Synchronization software!
- If you have a 1997 or newer car with an aftermarket radio, read the Aftermarket Radio Page:
  🌐 go to http://www.ross-tech.com/vag-com/aftermarket-radio.html
- Check our Issues page in Index A of this manual for any special configuration settings that may be necessary for your vehicle.
  Note: If you test the COM port, but an hourglass appears, you may have an IRQ conflict. This may not show up in Device Manager as a conflict. But, try this:
- Start>Run>MSINFO32.EXE to bring up the System Information utility..
- Go to Hardware Resources>IRQs This should show a list of all devices by their IRQ, so you can see if there are any repeated or shared IRQs.

If all else fails, feel free to call us or email us at support@ross-tech.com , making sure to provide the **brand and model of vehicle, brand and model of PC, and version of VAG-COM**.

Appendix B: **VAG-COM FAQ cont.**

19) Q: VAG-COM communicates, but it's "flaky"..
A: The diagnostic protocols require a degree of real-time response from the diagnostic tool. Certain other programs and services can prevent VAG-COM from responding in the timely fashion that the protocols require.   Some control modules are fussier about this than others.   Fixes:

Make sure you are using the latest version of VAG-COM. If you have any other programs running, close them. If you have any of the following active on your computer, turn them off:

- · Virus Scanners
- · Task Scheduler
- · Microsoft Active-Synch
- · Fast-Find
- · Some Novell Netware network drivers
- · Canon "Multipass" multi-function printer/scanner software
- · Power Management -- some laptops are notoriously difficult, try running the laptop on AC power!

Other Tips:

- · <u>Go through all the stuff in your System Tray:</u>

  Right-Click on each little icon. If there's a "Disable" or "Exit" option, do it!
- · Windows 2000 with SP1: Install IE 5.5 or SP2.
- · Windows 95/98/Me: Pull up a task list by pressing CTRL-ALT-DEL.   Kill everything except Explorer and Systray.
- · All versions of Windows: Start -> Run -> MSCONFIG. Take a look at what other non-essential stuff Windows is loading and disable it.
- · STOP or remove PCMCIA Cards, especially anything made by Xircom. Some IBM brand cards are also problematical.
- · Try turning off your COM Port's FIFO buffers.   Open the properties sheet for the COM Port in Device Manager.   Select the Port Settings tab. Click the Advanced button.   Uncheck the "use FIFO buffer" checkbox.
- · Some Windows installations, especially ones that have had numerous program installed and uninstalled over the years may be hopeless. Try installing a clean copy of Windows in a different folder than the original.

- · If you have an older, slower PC running Windows XP, try setting the Display Properties>Appearance to Windows Classic Style instead of Windows XP Style.

If all else fails, please call us or email us at <u>support@ross-tech.com</u> , making sure to provide the brand and model of vehicle, brand and model of PC, and version of VAG-COM.

20) Q: How do I eliminate the "CAN'T OPEN CODES.DAT" message?
A: Ensure that VAGCOM.EXE and CODES.DAT are both in the same folder. Then run the VAGCOM.EXE file directly, not from a shortcut. If you want to run VAG-COM using a shortcut, ensure that the shortcut's START_IN property points at the folder where VAGCOM.EXE and CODES.DAT are (i.e. whatever folder you installed VAG-COM in). The simplest way to fix this is to download and install the latest version of VAG-COM.

Appendix B: VAG-COM FAQ cont.

21) Q: Why does my dash BEEP when I access my ABS controller?
A: In many of the newer models, there will be a series of BEEPS from the dash when you access the ABS controller (and the ABS light will be ON while you are talking to it). This is perfectly normal and is done to notify the driver that the ABS is non-functional while in diagnostic mode.

22) Q: Are there any Fault-Codes that can and should be ignored?
A: Yes. Most 1995 and earlier Bosch ECU's will show you a DTC "00513 - Engine Speed Sensor (G28) if you scan them when the engine is not running. This fault code goes away by itself once you start the engine. If this sensor were truly defective, the engine would not run at all! Please ignore this code. In addition, many Automatic Transmission Control Modules will show a DTC 00526 that indicates a faulty brake light switch. This can also be ignored and will not appear if you press the brakes once before checking for Fault Codes.

23) Q: Are there any known Bugs / Problems / Issues?
A: Please check the Problems & Issues section of this manual in Appendix A.

24) Q: What's the Work Shop Code?
A: Every VW/Audi dealer in the world is assigned a unique Work Shop Code. Brand-new factory VAG-1551/1552 or VAS-5051 scan tools will not function until a WSC is entered, and once it has been entered, it cannot be changed. Whenever a Control Module is Re-Coded, or certain Adaptations are performed, the scan tool sends its WSC to the control module and the control module records it for posterity. Thus, if a scan-tool is used to do something like disable certain airbags, in principle, it should be possible to tell who (which dealer) did that. Like the factory scan-tools, VAG-COM will accept a WSC once on the Options Screen. If you enter a WSC there, it will be sent to the control modules exactly like it's supposed to be. If you leave the WSC on the Options Screen at it's default of 00000, VAG-COM will operate in "stealth mode". Instead of sending a fixed WSC, it will put back whatever was already in the control module, with one exception: If it finds the "telltale" WSC (30011) that VWTool/VDS-PRO likes to leave behind, VAG-COM will replace it with something more innocuous.

25) Q: What's with the DEBUG files?
A: See the Options screen to learn more about Debug files.

26) Q: Why are the CODES.DAT and DEBUG files encrypted?
A: Because we don't want to make it too easy for someone to compete with us! :-) We have a large number of man-hours invested in creating that CODES file. It was done by digging through every factory service manual we could get our hands on and typing them all in (actually, Linda did most of that). If we distributed it as plain text, someone else could easily adapt it for use in their own program.

Note: the file CODES.DAT file is user-extensible. You can add DTC's in plain text and the program will display them. Just make sure you insert your additions in the right spot -- the DTC numbers must remain in numerically ascending order as the program finds DTC's using a binary search.
The debug files can record pretty much everything that happens between the car and the PC. A program like VAG-COM is actually fairly simple to write IF you understand the VAG diagnostic protocol. No documentation is available for this protocol. We figured it all out by watching what happens between the car and another scan-tool. Again, a large investment in time, not to mention the ISO-9141 Data Line Monitor we brought in from Germany. So we don't want everyone and his brother to be able to see what happens between VAG-COM and the car. On the other hand, if you have a communications "glitch" with one of your controllers, we do need to see what's happening, and encrypting the debug files seemed like a good compromise.

Appendix B: **VAG-COM FAQ cont.**

26) Q: Do I need an Interface Adapter?
A: Yes. The ISO-9141 port in your car is not directly compatible with any standard PC port. The ISO-9141 port in your car is somewhat RS-232 like, but you can't just wire up a cable -- you must put electronics in between to allow a PC to communicate with the car. We offer several complete packages consisting of an Interface Adapter, the full-function version of VAG-COM, free updates and unlimited tech support starting at $229.

27) Q: Can I use an Interface adapter that came with another software package?
Possibly. The following interfaces should work with VAG-COM Release 311.2 but will not work with Release 404.0 or newer.

- Any interface adapter that works with VWTool or VDS-PRO

- The ISO-only interface adapter that Alex Peper ships with his Vehicle Explorer OBD-II software package but NOT the "combination" adapters

- The interface adapters supplied with the German Posicon software that is used by many VW and Audi OTS's

- The VAS-6103 cable that should now be in the workshop at every VW/Audi dealership works with most control modules in most cars, but won't work with some ECUs.

If you have some other adapter, simply try it, you can't hurt anything. Most other "OBD-II" adapters will *NOT* work. Release 404.0 and newer do not work with Opto-Isolated Interfaces. If in doubt, contact the hardware supplier for support.

28) Q: Can I buy an Interface adapter somewhere else?
Yes. You may find vendors that are willing to sell compatible interface adapters without any software license. We have no problem with that. Once you're up and running, you can register your VAG-COM software with us for $99, but please don't expect start-up support from us if you can't get it working. Also, we cannot provide support for 3rd party hardware. We have reports that some 3rd party Interfaces do not work correctly with some controllers. If you buy someone else's interface and can't get it working, contact your vendor for support! Of course if you buy one of our complete hardware/software kits, we will provide start-up support. Release 404.0 and newer do not work with Opto-Isolated Interfaces.

29) Q: Can I build my own Interface Adapter?
Yes. There are a number of websites with plans and schematics. However, we will not provide links to them, nor do we sell connectors or parts. We do not have the time or inclination to help people debug their home-built interface adapters via e-mail or over the telephone. If you choose to build your own adapter, that's fine -- we have no problem with that. Just don't expect any assistance from us until you have VAG-COM talking to your car in shareware mode. We have reports that some 3rd party Interface designs do not work correctly with some controllers. Once you've got it working, you can register the software for $99 and get full support for the software as well as free updates. Of course if you buy one of our complete hardware/software kits, we will provide start-up support.

Appendix B: VAG-COM FAQ cont.

30) Q: Why does VAG-COM require Activation?
Because VAG-COM will run through a "dumb" interface which is not particularly difficult to make and we would like to get paid for our work! The reality is that there are many people in this world that just won't pay for software unless they have to. We've invested a large amount of time and expense into reverse-engineering the VAG protocols and we're trying to make a living with this product. Further more, we're trying to sell it at a price that makes it affordable to everyone. The activation scheme is intended to ensure that we get paid by every user, not to make life difficult for registered customers. All of our Current Interfaces have Activation built-in so users never have to worry about Activation, De-Activation, etc.

31) Q: What if I need to run VAG-COM on more than one PC?
Purchase of a VAG-COM system entitles the buyer to simultaneous use of the program on only one PC. If you have a need to run VAG-COM on more than one PC, you should buy one of our Current Interfaces (which have the Activation built in). Existing registered customers are eligible for Upgrades to our newer interfaces.

32) Q: How do I permanently move VAG-COM from one PC to another?
(This also applies to reformatting your hard drive, installing new OS or performing other system overhauls).

All of our Current Interfaces have Activation built-in, so you can download and install VAG-COM onto as many PC's as you'd like, so VAG-COM is fully Registered and Activated once you test it on a car. If you have an older Interface without built-in Activation, or have purchased an Interface somewhere other than Ross-Tech:

1. Download and Install the latest version of VAG-COM on your new PC.

2. Test it to make sure it works properly on that machine. Contact us for support if you have any difficulties.

3. Fill out the appropriate Registration Form using the serial number from the About screen and we'll send you a new Activation Code, subject to the following caveat:

You must provide us with a De-Activation code from a prior installation. To generate a De-Activation Code, you need version 0.76 or newer on the old, previously activated machine. In other words, if you've got an older version on that machine, you may have to update it. The best way to send the De-Activation code is to grab the DE-ACT.TXT file that is generated in the VAG-COM folder when you use the De-Activate button.

Additional notes:

· All Activation Requests or Re-Activation requests must be made using the appropriate Registration Form. Email requests will not be accepted.

· Once again, if you intend to use VAG-COM on multiple PC's or swap PC's often, we HIGHLY recommend you purchase one of our Intelligent Interfaces (upgrades for existing registered users are also available).

Appendix B: VAG-COM FAQ cont.

33) Q: What's the De-Activate button for? Why would I want to do that?

All of our Current Interfaces have Activation built-in, so there is neither a need nor a choice to De-Activate.

If you have an older Interface without built-in Activation, or have purchased an Interface somewhere other than Ross-Tech, here are some reasons why you may wish to De-Activate VAG-COM:

- To move your activated copy of VAG-COM permanently from one PC to another. See the previous question.

- Some things you might want to do to your PC will kill the Activation. If you're going to re-install Windows or update to different version of Windows, re-format or re-partition, or replace your hard drive, then you're going to loose your Activation anyway, and you'll need to ask us for a new activation code when you're done.   Sometimes we can tell from the Serial Number that you're requesting a new activation for the same PC. Sometimes we can't. It depends on exactly what you've changed.   Now you can always get a new Activation with no questions asked IF you are our customer and you supply proof of de-activation from a previous installation.   So if you're about to undertake surgery on your PC, please use the De-Activate function first.

To De-Activate, simply go to the About Screen and press the Register/Activate/Transfer button. Next you will see a button labeled as "De-Activate". Press the De-Activate Button. Doing so will generate a "Proof of De-Activation" code which you can copy and paste into the appropriate Registration Form using the serial number from the About screen. The "Proof of De-Activation" code is also written to a file called DE-ACT.TXT which you can easily put on a floppy disk for safe keeping.

Note: A De-Activation code cannot be used to activate a new installation of VAG-COM!   You must fill out the appropriate Registration Form to receive a new Activation Code.

34) Q: Why has VAG-COM become De-Activated on its own?
There are a few conditions that can cause previously-registered installations of VAG-COM to become De-Activated:

- Performing major systems maintenance like upgrading your operating system, swapping hardware or reformatting your hard drive will "kill" an activation.   If you're going to do maintenance of this type, manually de-activate first -- see the previous question.

- A problem with your system clock such as a dead CMOS battery, or manually setting the system clock backwards in an attempt to defeat the time limit on other shareware products. VAG-COM's Serial Number may change if it perceives that is has gone "back in time".   A PC without a properly functioning system clock is considered defective.

- The use of some "System Cleaning" utilities that root around in the Windows Registry can kill the activation.

Appendix B: VAG-COM FAQ cont.

34) Q: Why has VAG-COM become De-Activated on its own? Cont.

- "Machine Gun Clicking".   We have not been able to reproduce this here, but have enough reports from users to believe that it happens: If the user is impatient and "machine-gun" clicks on the VAG-COM icon and causes a second instance of VAG-COM to begin loading before the first instance has finished loading, it can "kill" the activation.   This appears to be most common on older, slower PC's, and PC's which have a marginal amount of RAM for the version of Windows that is installed.   Current release versions (208.X and newer) contain code to prevent multiple instances of VAG-COM from loading.   If you're still running any older version, we'd like to suggest you download an update.

- If you're an existing registered user with a "dumb" interface, Beta 310.0 or newer will remain shareware until you request a new activation code. Legitimate activations for previous versions won't be affected. Existing registered users with dumb interfaces must complete the short form to request a new activation code for Beta 310.0 or newer. Requests submitted via e-mail or forms with incomplete information will be rejected and will delay your activation. Our Current Interfaces are not affected by this.

If your previously activated copy of VAG-COM becomes de-activated for some reason, don't panic. First establish that your Serial Number is stable (make note of the last 4 digits of the Serial Number, and close and restart VAG-COM and restart Windows a few times to ensure that the Serial Number remains constant). Then fill out the appropriate Registration Form to receive a new Activation Code. Note: Your old activation code won't work!

35) Q: Can I sell my VAG-COM System to someone else?
You can sell the Interface, but the software license and support are not transferable.   If you have a "dumb" interface and the purchaser wants the full-function version, he will have to register as a new user for $99. All of our Current Interfaces act as "dongles" for VAG-COM, so the software should be fully functional on any PC that meets our requirements. However, we only provide support to the original purchaser. If you purchase a second-hand "dongle" Interface and want to be a "registered user" and get technical support, you'll still need to pay $99 to register.

36) Q: Why and How should I test VAG-COM prior to Activating it?
A: As per our Guarantee no refunds will be issued once you have received an Activation Code from us. Therefore, it is in your best interest to test VAG-COM with your PC and your vehicle prior to requesting an Activation. First, Download and install VAG-COM on your PC. Find your vehicle on the Applications Page to see which control modules are in your car. Connect your Interface to your car's Diagnostic Port and to your PC. Go into the Options screen, select the correct port, and click the TEST button. Ensure that VAG-COM finds your interface.   Turn the ignition ON (turn the key so the Instrument Cluster lights up, but do not start the car) and Select one of your car's Control Modules (note: your car will not have all the Control Modules listed in VAG-COM, only the ones on your Applications Page): **http://www.ross-tech.com/vag-com/cars/index.html** After VAG-COM has Connected, check Fault Codes. Repeat the process for each of your car's Control Modules. If you encounter problems, please try the above Suggestions first. If you still have problems, feel free to Contact Us with full details about your PC and vehicle, preferably while you are in front of both. Of course, our Interfaces that have built-in Activation, are fully Registered and Activated once you test them on a car.

Appendix B: VAG-COM FAQ cont.

37) Q: Can I use VAG-COM while I am driving?
A: We strongly recommend against reading data while driving -- that would be an accident waiting to happen. Almost everything that changes while you drive can be LOGGED to a .CSV file, which you can analyze to your heart's content using VAG-Scope or Excel (or a number of other programs) preferably while the vehicle is not in motion..:-)

If you find it necessary to read data while the vehicle is in motion, we strongly urge you to use a second person -- one to drive, one to look at the PC. This second person should sit in the back seat, because a laptop used in the front passenger's seat becomes potentially lethal if an airbag drives it back into the passenger's head or torso in case of an accident.

38) What is "The Aftermarket Radio Problem"?
A: Please read The Aftermarket Radio Page on the Ross-Tech website:

🌐 **www.ross-tech.com/vag-com/aftermarket-radio.html**

39) Q: How do I upgrade my existing VAG-COM software to the newest version?
A: You should be able to simply Download and install the latest release of VAG-COM to the same folder where VAG-COM is currently located on your PC. The new version of VAG-COM should see and use your existing registration/activation. Very rarely, the software will revert to shareware when an upgrade is done. We're not sure what causes this (if indeed it happens). It's possible that people who rarely use VAG-COM didn't notice that something else previously killed their activation and only notice it when they go to test a new version.   Please check that your old version is still activated before you install an upgrade. If you perform an upgrade and feel it killed your registration, simply complete the short form to request a new activation code.

Note: If you're an existing registered user with a "dumb" interface, Beta 310.0 or newer will remain shareware until you request a new activation code. Legitimate activations for previous versions won't be affected. Existing registered users with dumb interfaces must complete the short form to request a new activation code for Beta 310.0 or newer. Requests submitted via e-mail or forms with incomplete information will be rejected and will delay your activation. Our Current Interfaces (with Activation built-in) are not affected by this.

If you purchase a genuine Ross-Tech Interface directly from us, or from one of our Distributors, you will receive free software updates for at least one year from date of purchase. Compatibility of present or future versions of VAG-COM with 3rd party interfaces is not guaranteed.

40) Q: What is the purpose of the "OBD-II" button? Why would I want to press it?
A: See the OBD-II section of this manual for more information. You can use this test to determine whether a car is ISO/OBD-II compatible, i.e. whether it "speaks" the OBD-II protocols, if the car uses the ISO-9141 hardware layer for OBD-II. This has nothing to do with the VAG protocol that VW uses, and the results of this test have nothing to do with VAG-COM working with any VW/Audi/SEAT/Skoda vehicle. No VW or Audi products prior to model year 1996 are OBD-II compliant! Please note that most vehicles sold outside of the US are NOT OBD-II compatible, and even US-market TDI's are not OBD-II compatible. Additionally, the newest vehicles using KWP-2000 are not scannable with generic OBD-II scanners.

Appendix B: VAG-COM FAQ cont.

41) Q: How do I print screens or data in VAG-COM?
A: Currently, the only printing feature built into VAG-COM is the Print Codes button on the Fault Codes screen. You can save data to a Log file and print using a spreadsheet program. Also, you can use a Print Screen utility to capture a current screen and print it.

42) Q: What are Label Files?
A: Please read The Label Files Page on the Ross-Tech website:

🌐 **www.ross-tech.com/vag-com/labels.html**

43) Q: How can I speed up my sample rate in VAG-COM?
A: The sample rate at which you can view and log data is largely determined by each controller in the car. There are a few things you can do to speed up the rate for a given controller. First, logging one group at a time, rather than two or three, will help greatly. In order to get the highest sample rate possible go to the Options screen and set **Blk Int** to 25 and **Char Int** to 0. Note, however, that this may cause unreliable communications with some controllers. The **KP2 Time** parameter only applies to controllers using the KWP-2000 protocol. Decreasing it speeds up the sample rate in Measuring Blocks on control modules that use the KWP-2000 protocols. Try setting it to 0. If any of these adjustments cause unreliable communications, change them back closer to the defaults. If in doubt, use the **Restore Defaults** button!

In Engine controllers using KWP-2000, there is a [Turbo] button in the latest version of VAG-COM. This can significantly speed up sampling, in some cases to over 30 samples per second. See the Measuring Blocks page in this manual for more information.

44) Q: What kinds of cool stuff can I do with VAG-COM?
A: See our Car Info & Procedures Page on the Ross-Tech website:

🌐 **http://www.ross-tech.com/vag-com/cars/index.html**

You can look up Vehicle Specific Application Charts for your car to see which control modules exist and can communicate with VAG-COM. Additionally, there are some very useful links to pages about Key Matching, Immobilizers, as well as some excellent spreadsheets submitted by our customers.

45) Q: How do I set up my USB Interface?
A: To use one of our USB Interfaces, you'll need to download and install the latest version VAG-COM with USB Support. After you have installed VAG-COM, you will need to follow the instructions on the USB driver installation page on the Ross-Tech website:

🌐 **http://www.ross-tech.com/vag-com/hex-usb/usb-config.html**

46) Q: Does Ross-Tech make diagnostic software for other makes of cars?
A: Currently, we sell only **VAG-COM**, which works on VW/Audi/SEAT/Skoda. We are developing diagnostic software for BMW/MINI vehicles, but are in the very early development stages. Our website will have information about the upcoming product. We do not currently have plans to develop software for any other makes of cars, but of course, all plans are subject to change. If you'd like to add generic OBD-II functionality for Chrysler/Imports to your existing Serial Interface, see our OBD-II test section in this manual for information about 3rd party software. We do not know of any other makers of similar software for other makes of vehicles.

Appendix B: VAG-COM FAQ cont.

47) Q: Can I use VAG-COM to retrieve my Radio Code to get it out of "SAFE" mode?
A: No, You'll need to get the radio code from your dealer (it should also be on a card that came with your car). Most likely, the dealer will need to physically remove the radio to read its chassis number, then the chassis number is input into a database at the dealership to retrieve the radio code. Neither VAG-COM nor the factory scan tools can retrieve the radio code for you.

48) Q: Does VAG-COM work with cars that require direct CAN access for diagnostics?
A: In some of its newest cars, VW/Audi has begun to require a different method of diagnostic access called CAN. In vehicles that require direct CAN access for diagnostics, only the Engine is accessible using the traditional k-line. For all other modules, diagnostics must be done via CAN. The first US application of this technology is in the 2004 Audi A8L. Outside of the US, the new Golf V and all its derivatives (Touran, new Audi A3, etc.) require direct CAN access for diagnostics as well.

We have integrated CAN compatibility into the current Release 409.0 version of VAG-COM, but since CAN uses different hardware, new interfaces are required.   These are now available as well. The new HEX-COM+CAN and HEX-USB+CAN interfaces are fully compatible with the new latest cars which require a direct CAN connection.

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Appendix C: VAG-Scope
### *Graphing "Plug-In" for VAG-COM*

Quick Instructions:

- You can use VAG-Scope in one of two ways: Allow VAG-COM to launch VAG-Scope by clicking the **[VAG-Scope]** button on the Measuring Blocks screen, or manually start VAG-Scope in stand-alone mode to play back VAG-COM Log Files.   You cannot do both at the same time.   If VAG-Scope is running in Stand-alone mode, VAG-COM will not start.   If you manually start VAG-Scope while VAG-COM is running, it will probably complain..

- Use the checkboxes next to each display field to select which items are graphed.

- Click on a field to select it for vertical scaling.   VAG-Scope will remember all scaling values for a particular control module by part number.
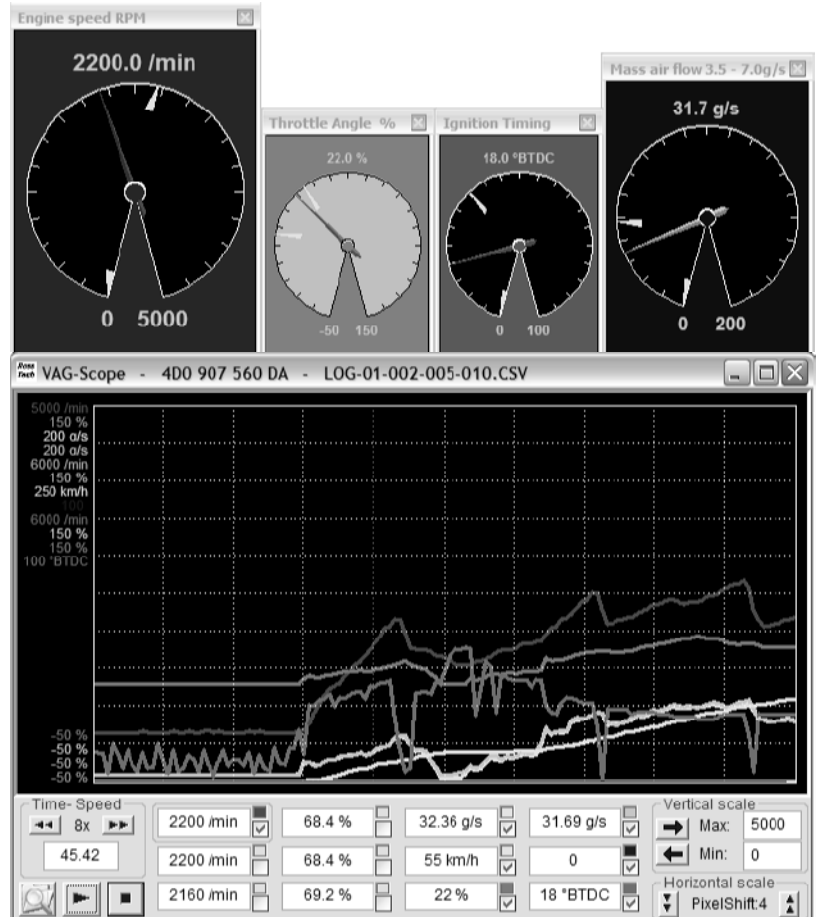
◄Click the Ross-Tech Icon for a menu item to access a Preferences Dialog:
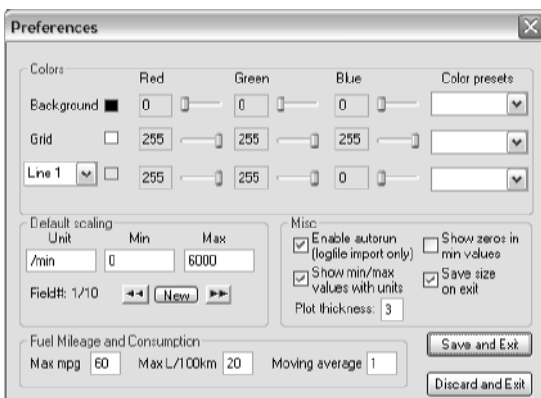
Preferences: Here you can set colors for the graph lines, the graph background and the grid. You can also set default scaling (based on the units VAG-COM sends)
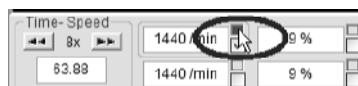
◄ **Gauges:** To display a gauge, **right-click** in the small color square next to the data you want to see on the gauge You can have as many gauges as there are lines on the graph. Each gauge can be independently re-sized and repositioned. Right-clicking on the gauge itself will give you several options.

NOTE: VAG-Scope can be used to play back Log files produced by any version of VAG-COM. Using it to graph live data in real-time requires VAG-COM Beta 212.2, Release 303.1 or newer. VAG-Scope is included in the latest VAG-COM release on our Download page.

Appendix C: VAG-Scope cont.

VAG-Scope -- FAQ:

Q: What are those numbers on the left of the graph?
A: They are the scaling numbers. They define the min and max values that will be graphed in the window. For instance, a temperature could be graphed between -10 and 130*C.

Q: Great, but I don't like the current ones.
A: Don't worry, everything is fully customizable. You have two different ways of choosing your scaling factors:

- In the preferences screen, you can either modify the values for an existing units, or add a new unit with its values. Make sure the unit is spelled exactly (including the case) as it appears in the measuring blocks/graphing data.

- In the main screen, click on a field (or use the blue horizontal arrow) to display its scaling values. The field you're working on is surrounded by a frame. You can then change the min and max scaling factors for this particular field

- Both settings are saved, so that next time you won't have to do it all over again!

Q: So what's the difference between these two different ways?
A: First, you need to understand how the values are stored/retrieved. When VAG-Scope graphs data from a controller it doesn't know, it applies the values in the preferences screen, for the units that are defined. If a unit is "unknown", the min will be 0 and the max will be 100.

Setting the values in the main screen allows you to override these defaults. For instance, let's say you set the rpm (/min) value in the preferences screen at 7000. This is fine for gasoline engines. But a friend visits you with his TDI. What you do is you set the /min fields in the main screen at 4500, to keep a good resolution in your graph.

At that point, as soon as you stop graphing, the values are stored in the "scaling" directory, in a file named by the controller part number. And next time you connect to the same controller, VAG-Scope will automatically remember your settings.

Q: What's the deal with the horizontal scaling?
A: This enables you to tell VAG-Scope the value of the horizontal shift (in pixels) each time a new sample is delivered by VAG-COM. This is customizable because of the range of sample rates you can experiment with VAG-COM: you can go from 10 samples per second on a '02 A4 3.0Q (engine, 1 measuring block at a time) to 0.4 on a Eurovan (transmission, 3 measuring blocks). The default is 3, but you may want to increase it if your sample rate is low. This way your graphs will be more readable.

This value is also saved automatically for each control module.

Q: Why do I have a big blank after I hit "pause" in live mode?
A: This is intentional. It shows the graph has been paused and avoids having a big discontinuity in the curves (for instance going from 800 to 7500 rpm in 0.2 second...).

The "pause" button (**II**) can be handy to make screenshots of a particular situation, like a boost spike for example.

Appendix C: VAG-Scope cont.

<u>**VAG-Scope – FAQ cont.:**</u>

Q: VAG-Scope says "unexpected end of values". What's wrong?
A: At this time, VAG-Scope does not support appended log files. More precisely, it will only read the first part of them. The solution is to give your files a more specific name than "LOG-001-003-xxx-xxx" :-)

Q: "This is not an original VAG-COM log file"
A: Guess what, you altered the file in some way. For instance, just reading and saving the file in excel adds comas to it, and this is what VAG-Scope relies on to parse the file. Solution: make a copy of the file before you edit it with a program that modifies the comas.

Q: I'd like to write my own VAG-Scope. Is this possible?
A: Yes, that's one of the reasons why VAG-Scope is open source (the other being we don't want to be bothered by 10 different feature requests a day). VAG-Scope was written using MS Visual C++ 6 and you will find the source code on our website.
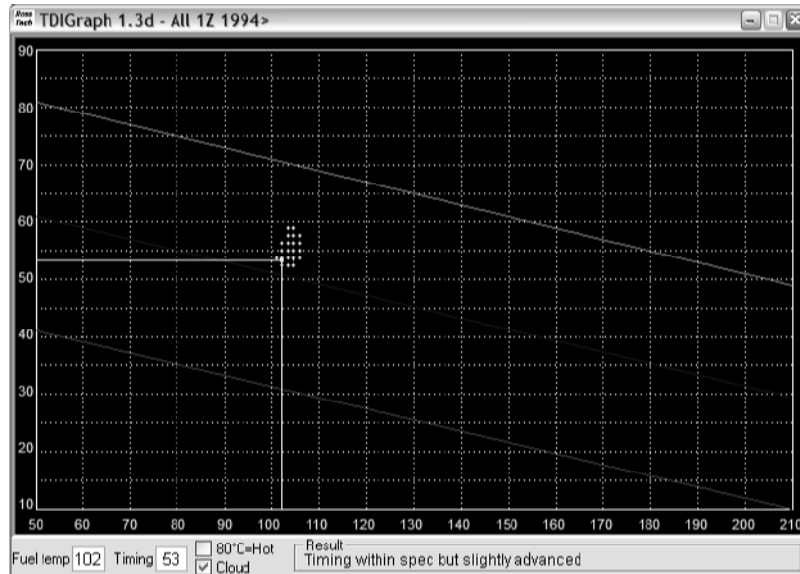
🌐 **www.ross-tech.com/vag-scope/**

Feel free to improve/write your own VAG-Scope and publish it. Obviously your file has to be called VagScope.exe so that VAG-COM can "spawn" it.

Q: But I can't program/all I know is VB!
A: Sorry, but you'll need to learn C ;-)

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Appendix D: TDI Timing Checker
"Plug-In" for VAG-COM

This plug-in allows you to check the injection timing setting on a TDI engine. This needs to be done after you changed the timing belt and every once in a while. The standard procedure for this is to have the engine idling at operating temperature (coolant temp >85*C), go to measuring block 000 for the engine, switch to basic settings and report fields #2 (injection timing) and #9 (fuel temperature) on a special graph.

This plug-in reports the timing on the graph in real-time, so you don't need to have your manual sitting on your lap at the same time. The application also gives you a comment in the "result" field, that will tell you if all the conditions are fulfilled to check the timing (some people don't realize you need to have the engine running, for instance...) and if your timing is within specs or not.

The history of the last 100 samples is displayed as a "cloud" of points. From the size and shape of this "cloud" you can see how much "jumping around" your engine is doing, and your average timing is probably right in the middle of the cloud.

Step by step:
- Start your engine
- Start **VAG-COM**
- Press the **[Select]** button
- Press the **[01-Engine]** button
- Press the **[Measuring blocks-08]** button
- Go to group 000
- Press the **[Switch to basic settings]** button
- Now press the **[TDI Timing]** button.

Note: The TDI Timing Checker works only as a "plug-in". You must start it using the **[TDI Timing]** button in VAG-COM. Starting it any other way will result in error messages and it won't work.

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Appendix E: VAG-COM Function Chart

Factory Diagnostic Tools: VAG-1551/1552 or VAS-5051/5052	VAG-COM Release 409.0	
Function Number / Name	**KWP-1281 ***	**KWP-2000 ****
00 Auto-Scan	<u>Yes</u>	<u>Yes</u>
01 Control Unit Info	<u>Yes</u>	<u>Yes</u>
02 Read Fault Codes	<u>Yes</u>	<u>Yes</u>
03 Output Tests	<u>Yes</u>	<u>Yes</u>
04 Basic Settings	<u>Yes</u>	<u>Yes</u>
05 Clear Fault Codes	<u>Yes</u>	<u>Yes</u>
06 Close Controller	<u>Yes</u>	<u>Yes</u>
07 Code Module	<u>Yes</u>	<u>Yes</u>
08 Measuring Blocks	<u>Yes</u>	<u>Yes</u>
09 Single Reading	<u>Yes</u>	Not Used
10 Adaptation	<u>Yes</u>	<u>Yes</u>
11 Login	<u>Yes</u>	<u>Yes</u>
15 View Readiness	<u>Yes</u>	<u>Yes</u>
33 Generic OBD-II	No	Planned
Data Logging (Exclusive to VAG-COM!)	<u>Yes</u>	<u>Yes</u>
High-Speed Data Logging (Exclusive to VAG-COM!)	No	<u>Yes</u>
Real-Time Graphs (Exclusive to VAG-COM!)	<u>Yes</u>	<u>Yes</u>
Real-Time Virtual Gauges (Exclusive to VAG-COM!)	<u>Yes</u>	<u>Yes</u>
Dual K-Line Support	Yes	Yes
7-Digit SKC/PINs (VAS only)	<u>Yes</u>	<u>Yes</u>
Control Module Finder (Exclusive to VAG-COM!)	<u>Yes</u>	<u>Yes</u>
Code Database current through MY 2005 (VAS only)	<u>Yes</u>	<u>Yes</u>
Diagnostics via direct CAN connection (VAS Only)	Not Used	<u>Yes</u>
Transport Mode (VAS Only)	Not Used	<u>Yes</u>

* KWP-1281:   The original VAG Diagnostic Protocol. Used on all diagnostic-capable systems from 1990 through model-year 2000.

** KWP-2000:   The "new" VAG Diagnostic Protocol. Used on a few 2001+ ABS systems and some 2002+ Engines, Transmissions, and Airbags.