

DETROIT DIESEL

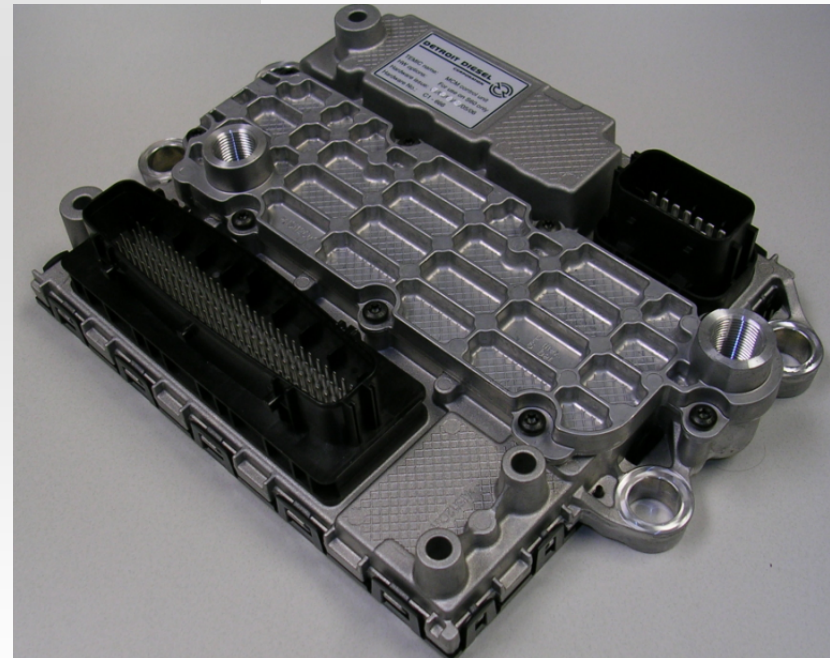
Technical Support



2007 Electronic Tools for DDEC VI



Using
DDDL
7.0



I. The 2007 Electronic Tools Family of Products



3 Different Electronic Tools will be created from 1 main software package

Current Product

DDDL

DRS

DDC Cal Tools

2007 Product Equivalent

**Detroit Diesel Diagnostic Link 7.0
(Customer Level – simple registration program)**

Detroit Diesel Reprogramming System (Service Level – requires hardware key and DRS ID for programming functions)

Drumroll (Engineering / Plant Level only – advanced access key registration)



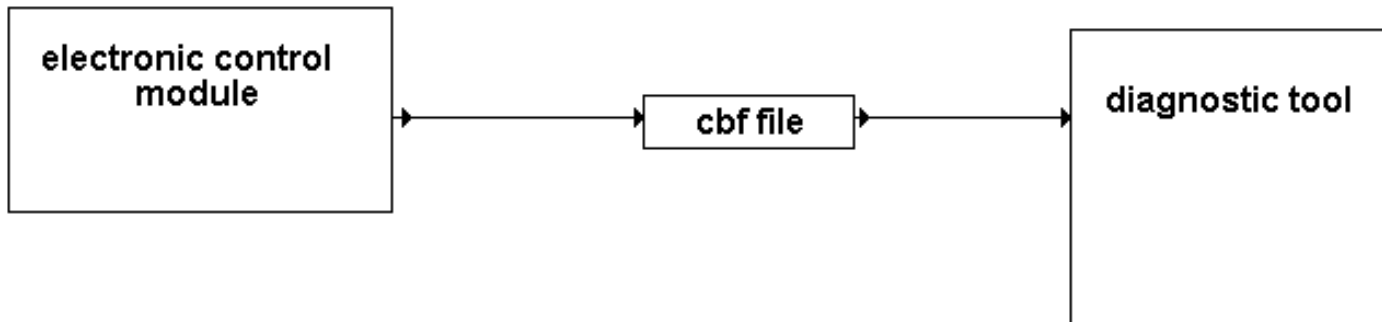
Operations for 2007 Electronic Tools

- 1- Perform Standard Fault Code Operations
- 2- Links to Traditional and Advanced Troubleshooting Information
- 3- Read Actual Values
- 4- Configure and Manage Parameters
- 5- Perform Service Routines
- 6- Playback Logs of All Connected Activity
- 7- Programming Capability for the CPC / MCM (DDRS only with reprogramming station, hardware key and ID)



2007 Electronic Tools for DDEC VI

The DDC 2007 electronic tools are written to the new DCX standard. The new standard calls for the diagnostic tools to be “data driven” by the ECU.



With this approach the primary diagnostic functions are contained in the ECU software with the tool serving as the gateway to these functions. The CBF file serves as the tool’s gateway to the functionality of the ECU. Updates to the new electronic tools may often be done through web downloads of a new CBF file rather than the release of new CDs.



There will be two types of updates for the 2007 electronics tools:

Web based updates:

- 1- Download new CBF files that will allow the user to work with new levels of ECU software and add functionality to the tool
- 2- New cases for Advanced Diagnostics as they are developed from field experience
- 3- Other data based update

CD updates:

- 1- Will be required when major changes to the program occur, such as changes to the graphical user interface



II. Understanding 2007 Hardware and Communications



2007 Electronic Tools for DDEC VI

- 1- All DDEC electronics systems prior to DDEC VI used the J-1587 (messaging) / J-1708 (hardware) standards for all diagnostic and data communications.**
- 2- All diagnostic software and translator hardware devices conform to the RP1210A communications standard of The Maintenance Council (TMC).**
- 3- The DDEC VI system will now use the J-1939 (messaging) / CAN (hardware) standards for diagnostic communications.**
- 4- DDEC VI Data Communications will continue to use the J-1587 (messaging) / J-1708 (hardware) standards.**
- 5- DDEC VI software and translator hardware devices will continue to conform to the RP1210A standard.**



2007 Electronic Tools for DDEC VI

Translator Box Hardware for DDEC VI Diagnostics



- 1- Translator box hardware for 2007 diagnostics must support CAN communications.
- 2- The Nexiq USB Link, the Nexiq Magic Key, and the DDC Multi-link translator boxes may all be used with 2007 diagnostic software.
- 3- The Multi-link will need a firmware update to function properly
- 4- The Nexiq Lite-link and DDC White translator do not support CAN communications and may not be used.



Additional Information on 2007 Electronics Communications

- 1- For data extractions (DDEC Reports) all the translator devices on the last page may be used as well as J-1708 devices like the Nexiq Lite-link.
- 2- The Nexiq USB Link will be the translator device for programming DDEC VI modules (MCM and CPC). The USB Link will also be fully backward compatible with programming earlier DDEC modules in 1st Quarter 2007.
- 3- DDC electronic tools software may only be used with the Windows 2000 or Windows XP operating systems.



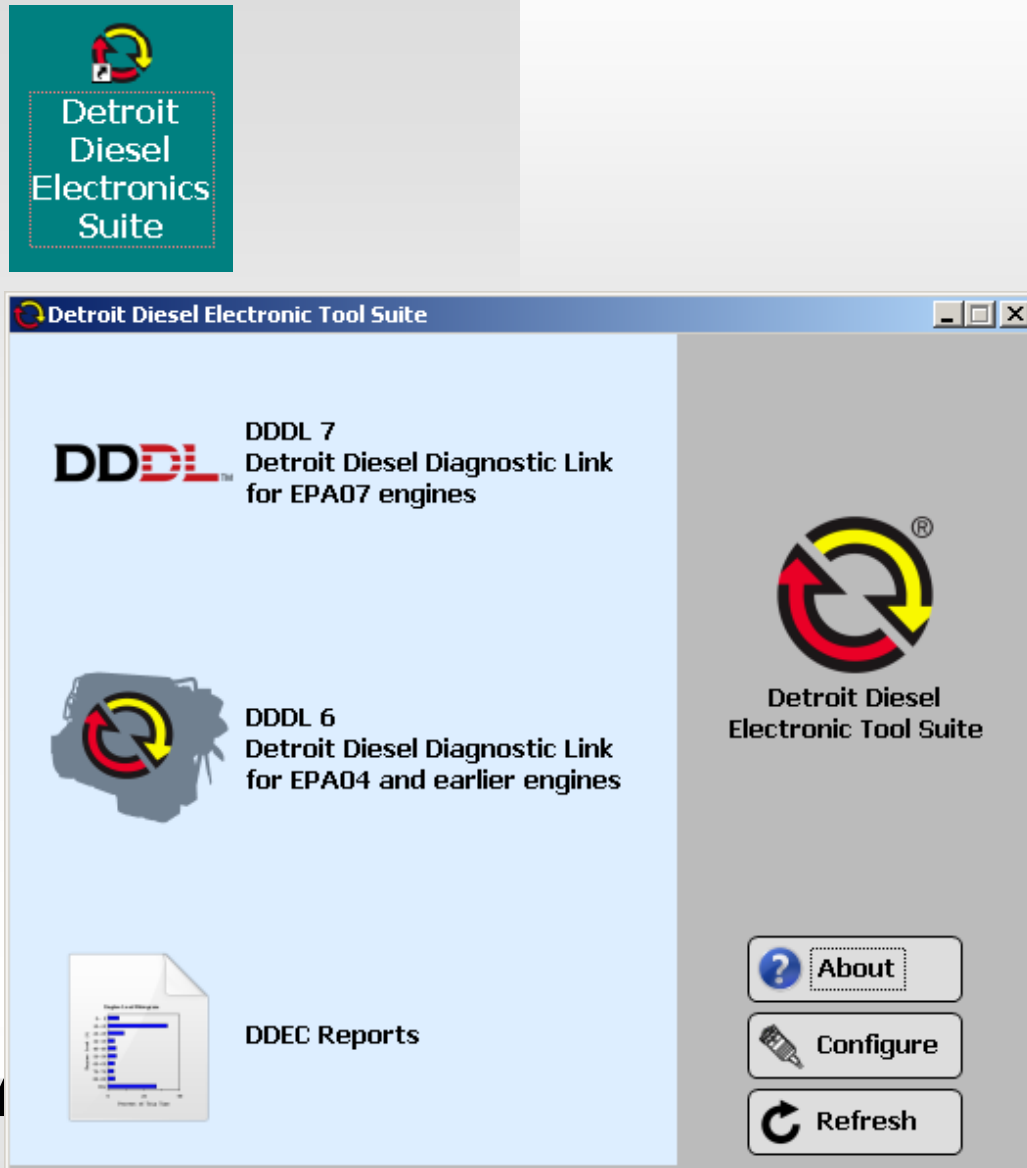
III. 2007 Electronic Tools Basics



Understanding the 2007 Launcher Utility The Detroit Diesel Electronic Tools Suite



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The Detroit Diesel Electronic Tools Suite is a utility designed to assist the user in determining the version of DDDL to use with a particular engine.

It monitors the J-1708 diagnostic bus for specific engine information and indicates the programs that may be used.



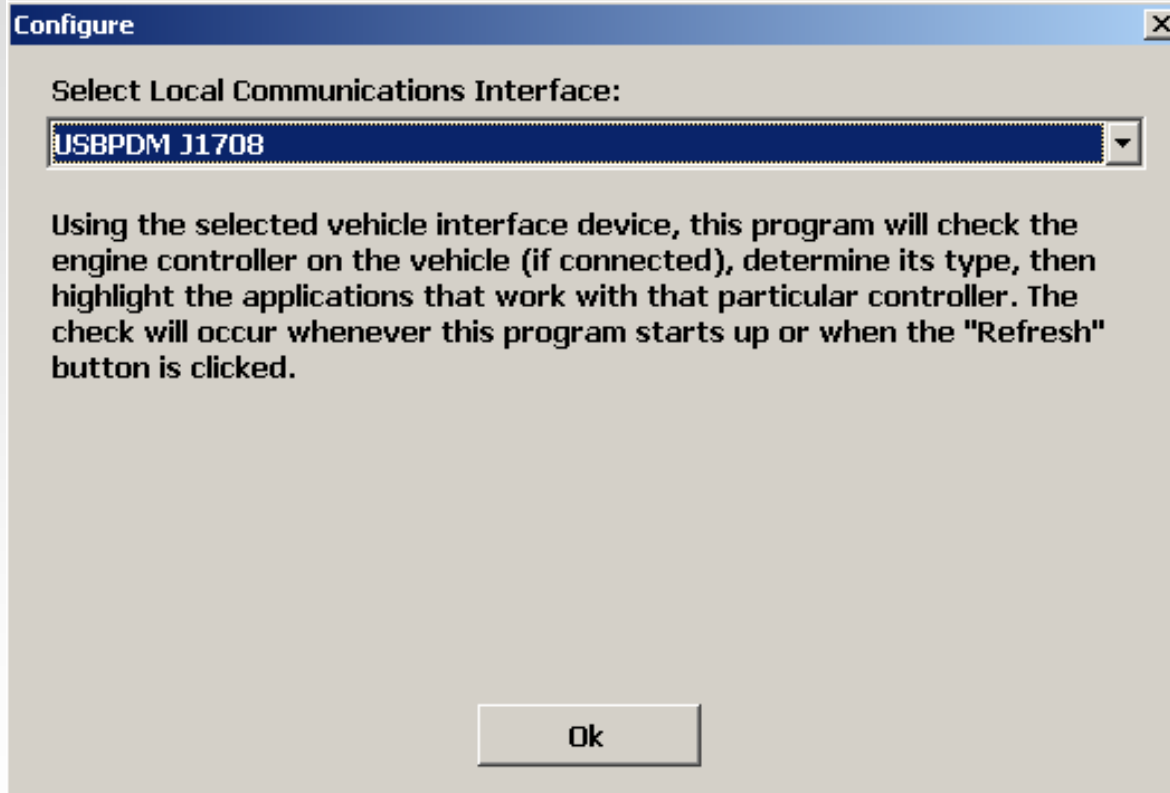
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When running this program for the first time please click on the "About" box from main screen and review important information about how the program operates.



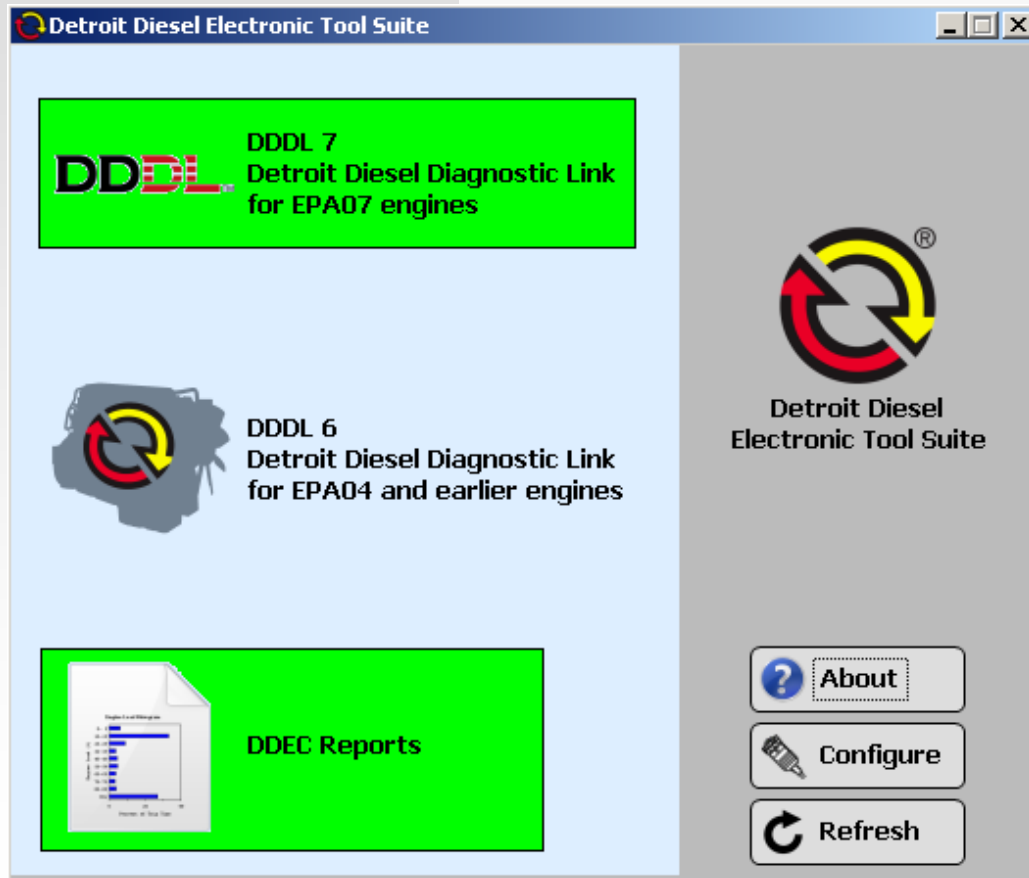
2007 Electronic Tools for DDEC VI



The next step is to configure the type of translator box you'll be using with the program. Choose the "Configure" box from the main screen of the utility and you'll be able to select from the same list of translators available for DDEC Reports. Make a selection from the list and choose "OK". You are now ready to use the program.



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When connected through the vehicle diagnostic connector and the ignition is switched on the utility will automatically detect the type of module you are connected to and highlight the programs that may be used with this system by drawing a green border around them. You may launch the program by clicking inside the green area.

Note: The program will present additional program choices when loaded with the Detroit Diesel Programming Software, however the underlying details of the program are identical.



Opening DDDL 7.0



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After the application has been successfully installed and the translator configured, you may access it from the Launcher utility or the icon that gets installed on your Windows desktop.

The DDDL application screen will appear as the software loads

Detroit Diesel Diagnostic Link
07.00-00499-00000



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Warning: This computer program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.



2007 Electronic Tools for DDEC VI

License

Please supply an access key

Version

Computer ID

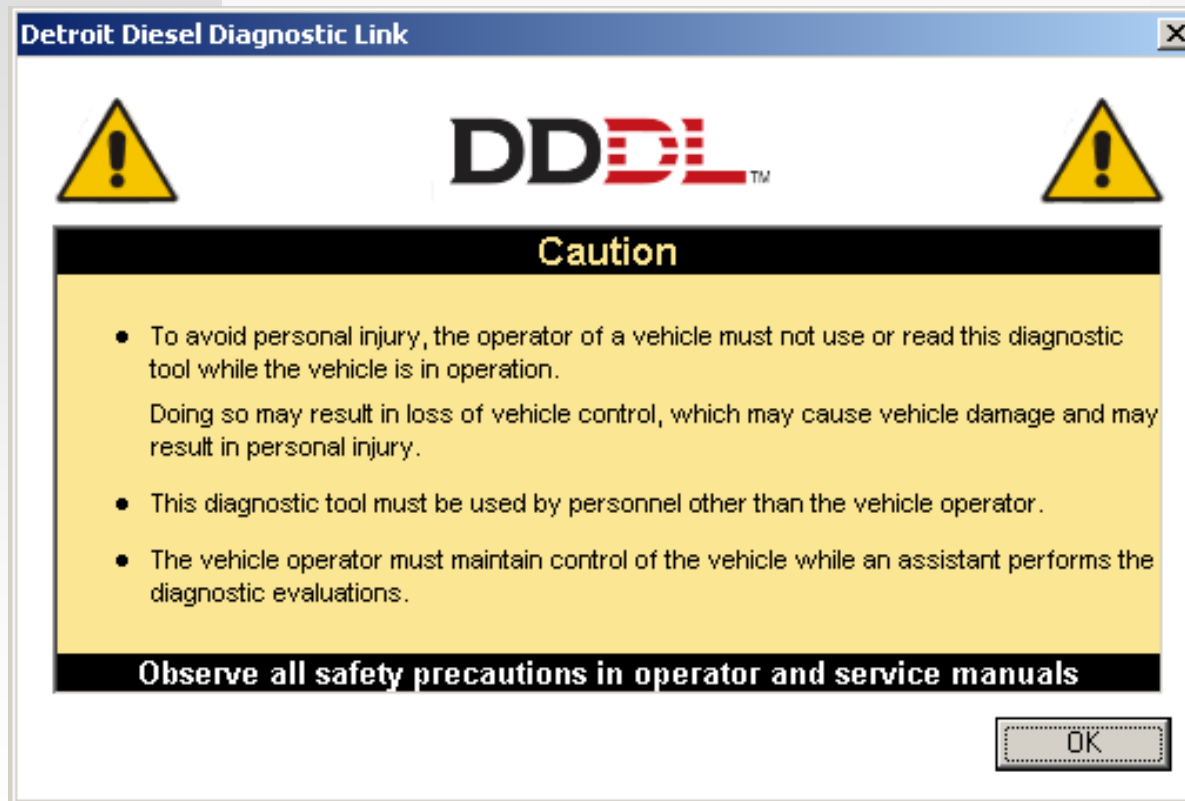
Access Key

You have 28 day(s) remaining of your 30 day trial period

The registration screen will appear before the program loads completely. Please check the registration process document on the CD for details on registering your software.



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You'll need to acknowledge the safety message to finish loading the application. We're now ready to start using the program.



Connecting Automatically With DDDL 7.0



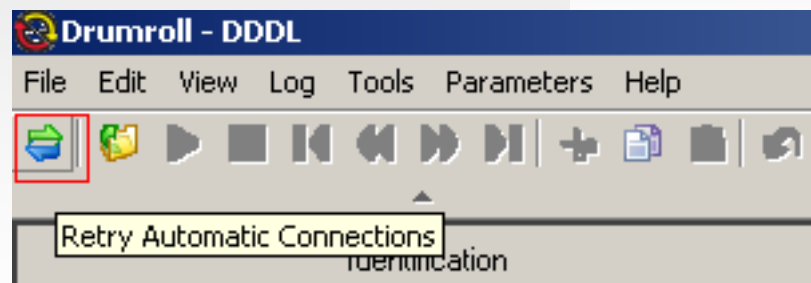
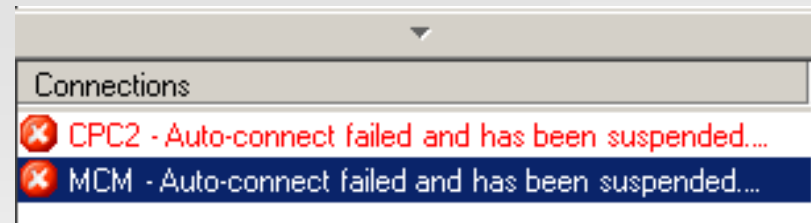
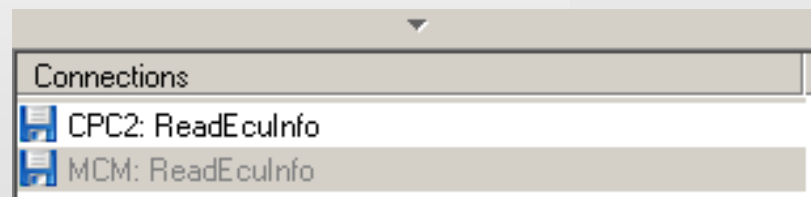
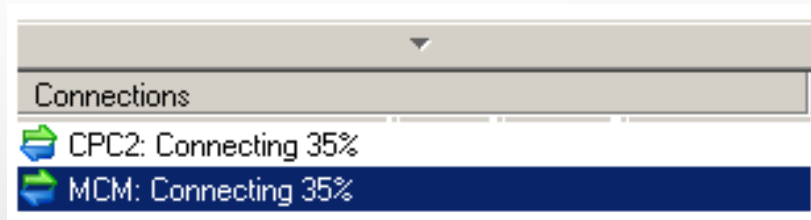
2007 Electronic Tools for DDEC VI

By default the electronic tools attempt to connect automatically to the CPC and MCM.

If the tool is connected to a live vehicle then the results of a successful connection are displayed in the status window in the lower left of your screen

If the initial detection period elapses without connecting to a module attempts to continue making a connection are suspended

You may retry the connection process anytime after the initial auto-connect phase by clicking on the connect button in the icon bar.

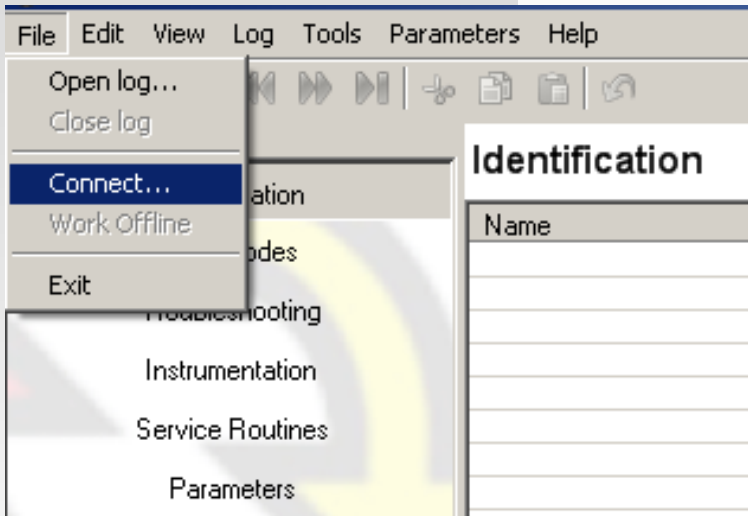


Making a Manual Connection with DDDL and Viewing the Main Screen Components

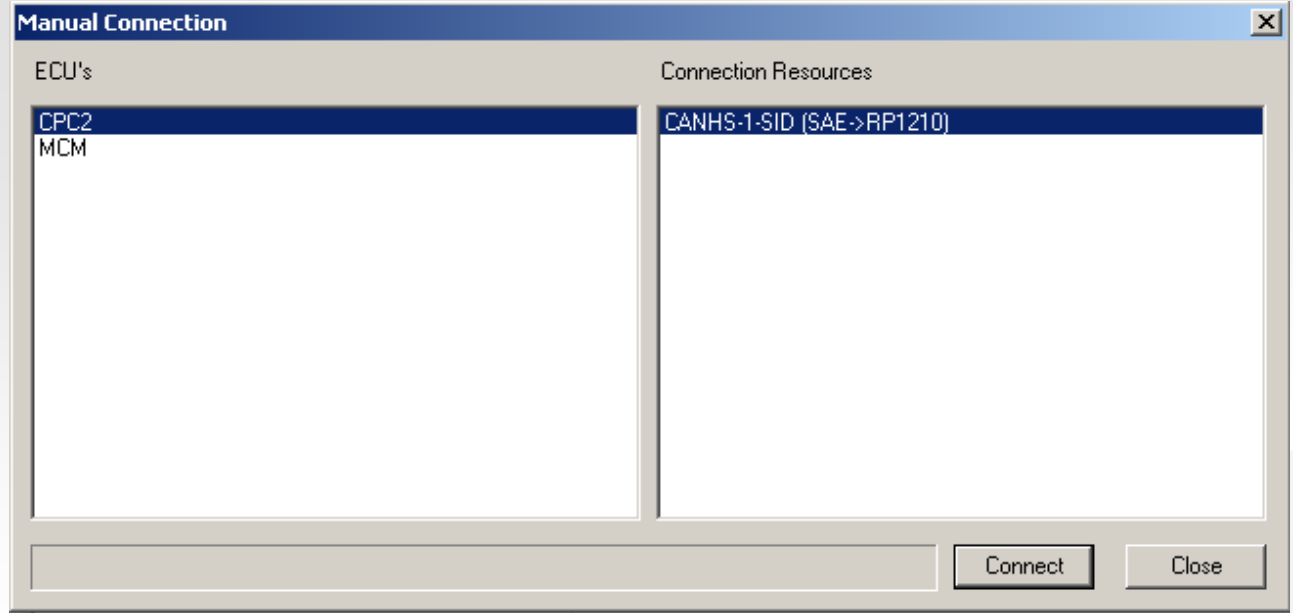


2007 Electronic Tools for DDEC VI

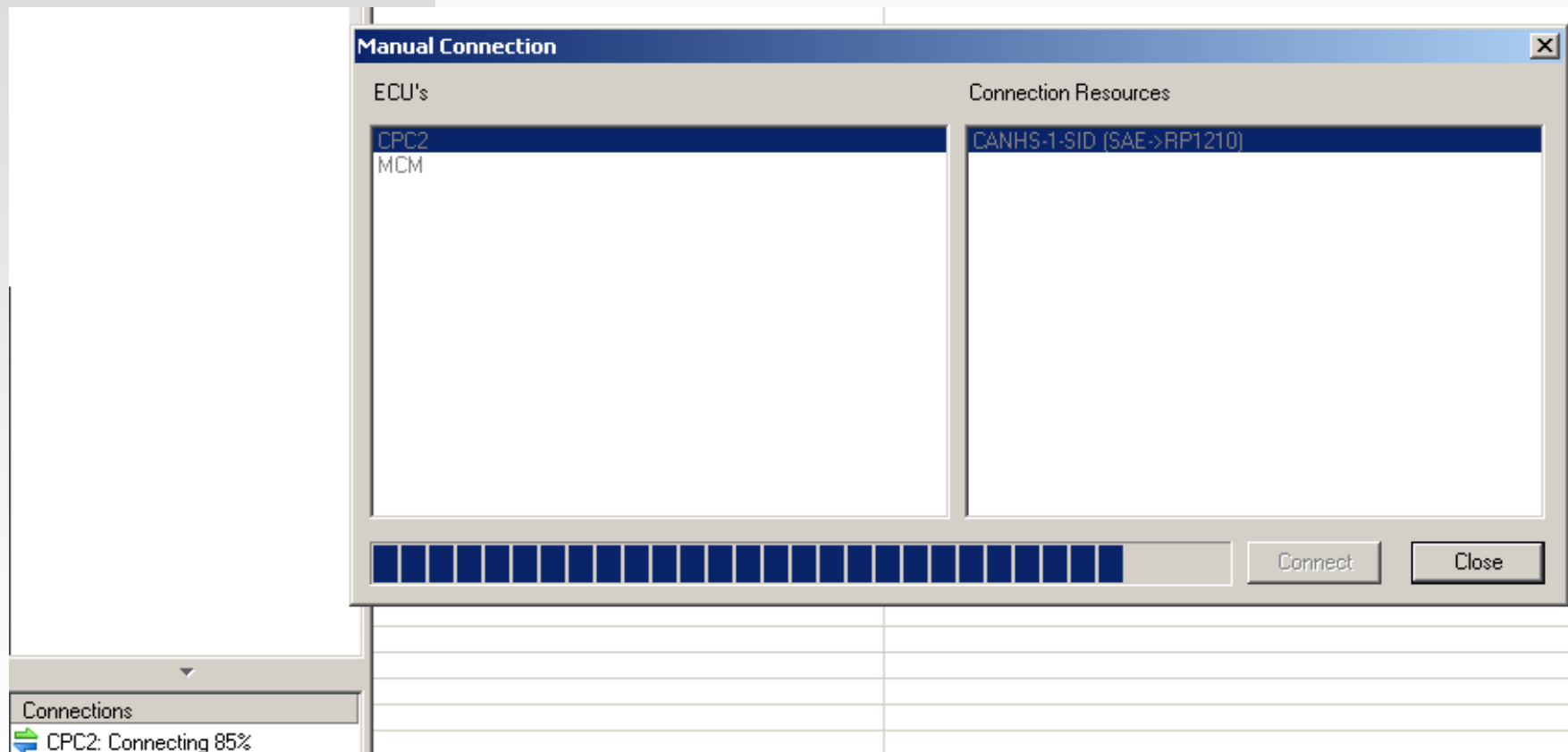
DDDL allows the user to make a manual connection to each controller by using the following procedure: From the “File” drop-down menu select the “Connect” option. A new box will appear showing a list of ECUs you may connect to. Highlight one of the choices and select “connect”



Special notes on making a connection: The user may connect to one or all of the modules listed in this window. There is no minimum number or combination of modules required. The user may re-enter the window and connect to other modules at any time.



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A progress bar will move quickly across the during the connection process. Once the process is complete the user may decide to establish another connection or work with connected



2007 Electronic Tools for DDEC VI

Identification

Common | Stored Data | Audit Trail

MCM

Device Configuration

Fuelmap Part Number	06N04DXXXX000
Certification Number	1400
Software Mode	Running in Application

Device Information

Software Version	7.3.3.5
Diagnosis Version	35
Engine Type	
ECU Serial Number	00000000
Hardware Part Number	
Software Part Number	0004487535001

Vehicle Identification

VIN	F1G674695A783458
Engine Serial Number	06R0926822

CPC2

Device Configuration

Software Mode	Running in Application
---------------	------------------------

Device Information

Software Version	R01_01_000a
Diagnosis Version	13
ECU Serial Number	00.0000.00000
ECU Part Number	0024464202001
Hardware Part Number	
Software Part Number	0104487002002
Software Date	2006/10/27 18:37 GMT
Real Time Clock	2006/November/06 13:25:13 GMT

Function Menu

Connection Status Window

Main Workspace Area

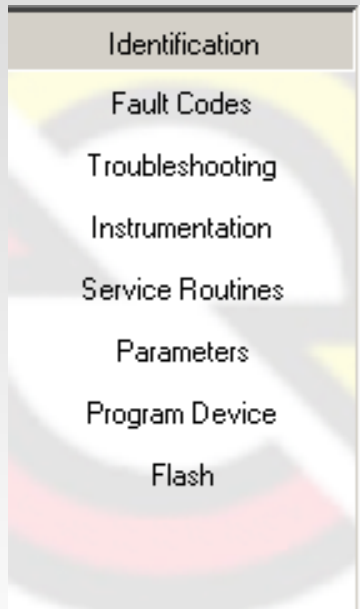
Connections

- CPC2: ReadEcuInfo
- MCM: Online (no activ...)

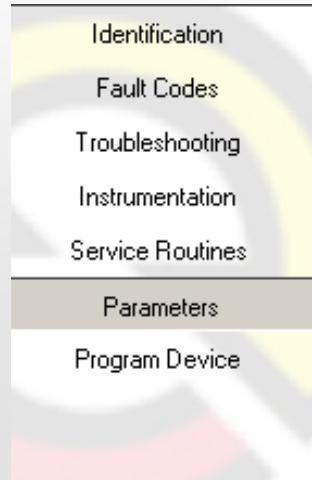
Once the connection process is complete the main window components are ready for use.



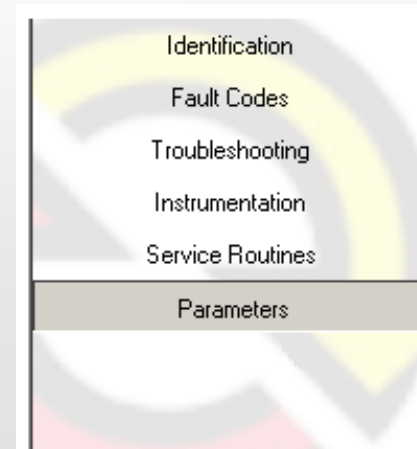
2007 Electronic Tools for DDEC VI



Drumroll



DDRS



DDDL 7.0

In the function menu the numbers of items will vary depending upon the access level of the tool.



IV. Identification



2007 Electronic Tools for DDEC VI

Identification

Common | Audit Trail | Stored Data

CPC2

Device Configuration

Software Mode Running in Application

Device Information

Software Version R01_01_000a
Diagnosis Version 13
ECU Serial Number 00.0000.00000
ECU Part Number 0024464202001
Hardware Part Number
Software Part Number 0104487002002
Software Date 2006/10/27 18:37 GMT
Real Time Clock 2006/November/04 12:05:52 GMT

Vehicle Identification

VIN F1G674695A783458
Engine Serial Number 06R0926822
Odometer 0 km

MCM

Device Configuration

Fuelmap Part Number 06N04DXXXX000
Certification Number 1400
Software Mode Running in Application

Device Information

Software Version 7.3.3.5
Diagnosis Version 35
Engine Type
ECU Serial Number 00000000
Hardware Part Number

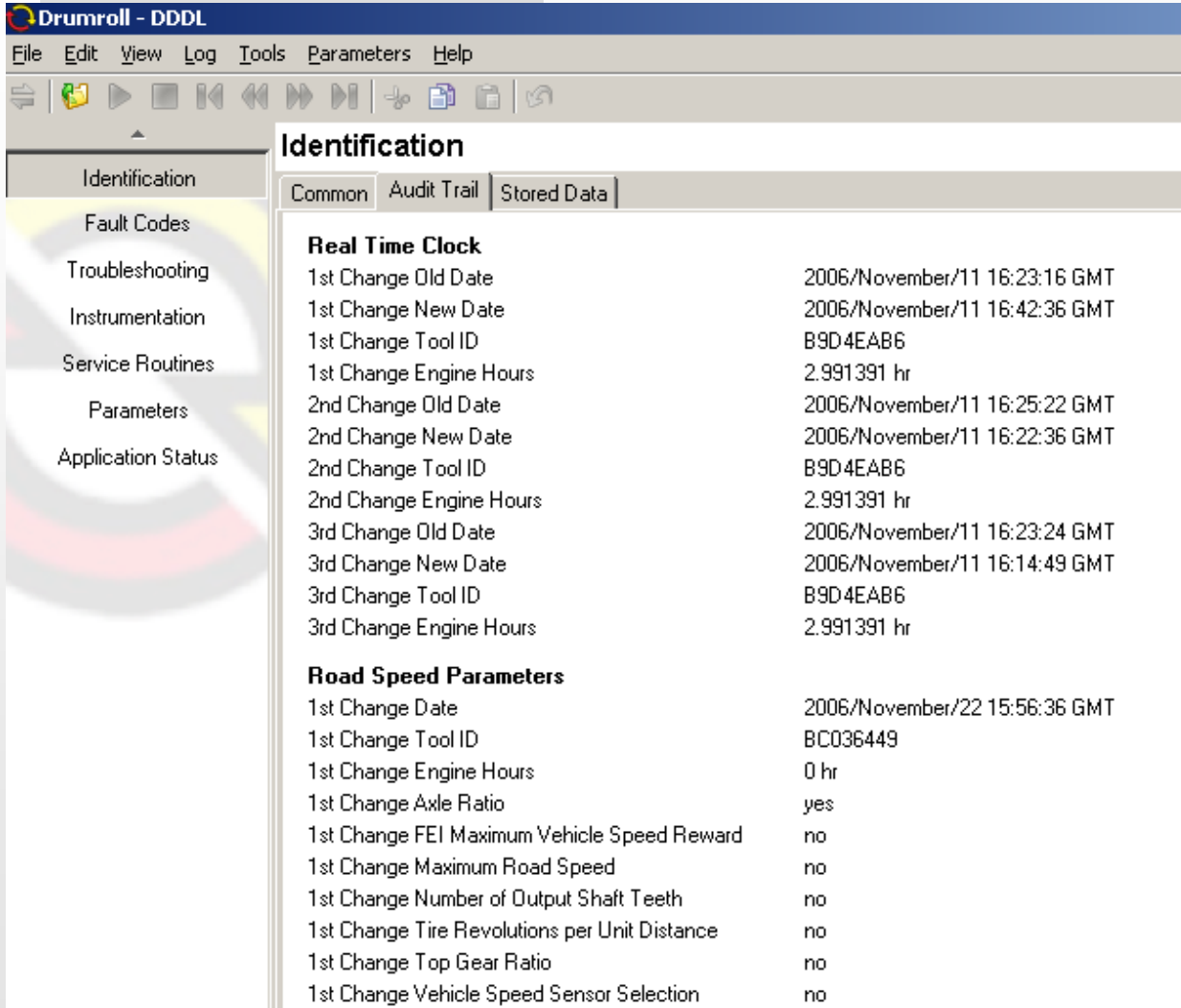
Complete information on all connected modules appears in this section.

CPC and MCM information appear in clearly marked, separate sections throughout the application.

The other components of the the Identification window are the “Stored Data” tab and the Audit Trail” tab.



2007 Electronic Tools for DDEC VI



The screenshot shows the Drumroll - DDDL software interface. The main window is titled "Identification" and has three tabs: "Common", "Audit Trail", and "Stored Data". The "Audit Trail" tab is selected. The interface displays a list of changes under two categories: "Real Time Clock" and "Road Speed Parameters".

Real Time Clock	
1st Change Old Date	2006/November/11 16:23:16 GMT
1st Change New Date	2006/November/11 16:42:36 GMT
1st Change Tool ID	B9D4EAB6
1st Change Engine Hours	2.991391 hr
2nd Change Old Date	2006/November/11 16:25:22 GMT
2nd Change New Date	2006/November/11 16:22:36 GMT
2nd Change Tool ID	B9D4EAB6
2nd Change Engine Hours	2.991391 hr
3rd Change Old Date	2006/November/11 16:23:24 GMT
3rd Change New Date	2006/November/11 16:14:49 GMT
3rd Change Tool ID	B9D4EAB6
3rd Change Engine Hours	2.991391 hr

Road Speed Parameters	
1st Change Date	2006/November/22 15:56:36 GMT
1st Change Tool ID	BC036449
1st Change Engine Hours	0 hr
1st Change Axle Ratio	yes
1st Change FEI Maximum Vehicle Speed Reward	no
1st Change Maximum Road Speed	no
1st Change Number of Output Shaft Teeth	no
1st Change Tire Revolutions per Unit Distance	no
1st Change Top Gear Ratio	no
1st Change Vehicle Speed Sensor Selection	no

In Audit Trail tab allows the user to track information on the 3 most recent changes made in the following areas:

- General “Customer Parameter” changes
- Changes made to the “Password Groups”
- Changes made to the “Engine Rating”
- Changes made to the “Real Time Clock”
- Specific changes made that effect the “Vehicle Road Speed”

The tracking of changes made to the passwords is new to DDDL. All the other groups were tracked in earlier versions of DDDL.



2007 Electronic Tools for DDEC VI

Identification

Common | Audit Trail | **Stored Data**

MCM

Stored Data

Active Diagnostic Information: Gateway	false
Active Diagnostic Information: Session Type	Extended
Active Diagnostic Information: Variant	1
DDC Fuelmap Part Number: DDC Fuel Map Part Number	06N04D7534002
Fuelmap Description: MCM Fuel Map Description	MY2007 EGR ONHWY TRUCK 490 1550
Governed engine speed: Governed engine speed	8400
Governed power for rat 0: Governed power for rat 0	236
Governed power for rat 1: Governed power for rat 1	220
Hardware Supplier production date: cal_week	57
Hardware Supplier production date: cal_year	6
Hardware Supplier: Information	Conti Temic
Hardware Version: Hardware Type	0
Hardware Version: Patch Level	3
Hardware Version: Sample Number	2
Maximum Engine Torque: Maximum Engine Torque	1450
Maximum Torque Speed: Maximum Torque Speed	365
Mercedes Truck Software: Part Number Flash Boot Loader	0004487635001
Mercedes Truck Software: Part Number Original Firmware	0000000000000
OBD/EMD CAL ID: cal_id	06N04D7534002
Rated brake power for rat 0: Rated brake power for rat 0	365
Rated brake power for rat 1: Rated brake power for rat 1	339
Rated engine speed for rat 0: Rated engine speed for rat 0	7200
Rated engine speed for rat 1: Rated engine speed for rat 1	7200
Rating Code: Rating Code	1543

The “Stored Data” tab contains detailed information on the module hardware and software versions for both the MCM and CPC.

The fuel map part number is on this screen as well as rating information on the engine.



V. Using the Fault Code Window



2007 Electronic Tools for DDEC VI

The screenshot shows the 'Fault Codes' window in the software. The left sidebar has 'Fault Codes' selected (2). The main window displays a table of fault codes. The 'Connections' window at the bottom shows 'CPC2: Online (3 active faults)...' and 'MCM: Online (1 active faults)...' (1). The table lists three fault codes with their descriptions, numbers, modes, and storage status. The 'Number' column is highlighted in red (3), and the 'Mode' column is highlighted in red (3). The 'Description' column is highlighted in red (4).

Description	Number	Mode	Stored
+ Vehicle Speed Sensor Open Circuit or Shorted to Battery Voltage	84	3	NotStored
+ Analog Accelerator Pedal Circuit Failed Low	91	4	NotStored
+ Coolant Level Circuit Failed High	111	3	NotStored

Fault codes appear for each module appear in the main window when the you select the “Fault Code” function (2)

The “Number” refers to the J1939 SPN and the “Mode” refers to the J1939 FMI (3)

The “+” signs to the left of the fault codes indicate additional information on this code is available (4)

The connection status window displays the a summary of active faults (1). The status message is displayed in red if faults are active, black in all other cases.



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Fault Codes

Description	Number	Mode
MCM		
+ No Data Received from Engine CAN Link	625	9
+ Engine Coolant Outlet Temperature Circuit Failed High	110	3
+ Intake Air Throttle Circuit Failed Low	51	4
+ DPF Outlet Temperature Circuit Failed High	3246	3
+ DOC Outlet Temperature Circuit Failed High	3250	3
- DOC Inlet Temperature High	3242	3
UDS Code	870F00	
First Occurrence	2006/11/03 15:33.53 GMT	
Last Occurrence	2006/11/03 15:33.53 GMT	
J1587	PID 318 FMI 3	
+ Extended Data Record #1 "Counter"	0	
+ Extended Data Record #2 "Time Stamp"	1	
- Extended Data Record #3 "Physical Data"	2	
Engine Speed	0	rpm
Engine Torque	0	ft-lb
Engine Coolant Temperature	100	°F
Boost Pressure	4000	mbar
Calculated Load Value	0	%
Vehicle Speed	0	mph
Reserved for Number of Engine Overrides	255	
Reserved for Extreme Parameter	65535	
+ Extended Data Record #4 "Fault Code Data"	3	
+ Extended Data Record Number 5th Data Record "Enhanced Environmental Data"	4	
+ Extended Data Record Number [0x06], "DPF Data"	12	

A sample of the extended fault code information available for 2007 fault codes. The 2007 codes contain much more information on each code than previous versions of DDEC.

To view the extended data click on the "+" plus sign in front of the fault in the main fault code menu. To view the contents of the data in each of the records click on the "+" sign in front of each section. Extended records 1 through 3 contain information that will be of use to all technicians. Data in Extended Records 4 and 5 will be of interest to technical support and engineering.



2007 Electronic Tools for DDEC VI

The screenshot shows a software application window with a menu bar (File, Edit, View, Log, Tools, Parameters, Help) and a toolbar. The 'Edit' menu is open, showing options: Undo (Ctrl+Z), Cut (Ctrl+X), Copy (Ctrl+C), Paste (Ctrl+V), Delete (Del), and Select All (Ctrl+A). The 'Copy' option is highlighted. Below the menu, there are buttons for 'Instrumentation', 'Service Routines', 'Parameters', and 'Application Status'. The main window displays a 'Fault Codes' table with the following data:

Description	Number	Mode	Stored
CPC2			
+ Vehicle Speed Sensor Open Circuit or Shorted to Battery Voltage	84	3	NotStored
+ Analog Accelerator Pedal Circuit Failed Low	91	4	NotStored
+ Coolant Level Circuit Failed High	111	3	NotStored

The screenshot shows a Microsoft Word document titled 'Document1 - Microsoft Word'. The text in the document is as follows:

Description	Number	Mode	Stored	Active
CPC2				
High Coolant Temperature	110	16	NotStored	Active
UDS Code 091000				
First Occurrence	2000/03/28 19:05:00			
Last Occurrence	2000/n/a/n/a 00:00:00			
J1587 PID110 FMI16				
DTC Data Record 0	0			
Total Count	5			
Healing Timer	255	hr		
DTC Data Record 1	1			
Total Time Active	0	sec		
Total Time Inactive	0	sec		
First Occurrence Engine Hours	7196	sec		
Last Occurrence Engine Hours	0	sec		

You may copy the entire contents of the fault window and paste it to a different application, by going to “Edit” and choosing “Copy”. This function is available in other windows, as well.



VI. Interactive Troubleshooting Material



In the 2007 electronic tools users will be able to access 2 types of troubleshooting material.

1- The first is the traditional troubleshooting material that has been an important part of DDDL since its initial release.

2- The Advanced Diagnostics material is being introduced for the first time for DDEC VI. Advanced Diagnostics will guide the user through troubleshooting complex systems (ATS, EGR, etc.) by evaluating sensor data from the engine running under specific conditions and running diagnostic routines. Cases for Advanced Diagnostics will be created based on the latest engineering and information from the field.

3- Both types of troubleshooting information will be updated via Internet downloads.



Using Traditional Troubleshooting Information in Diagnostic Link

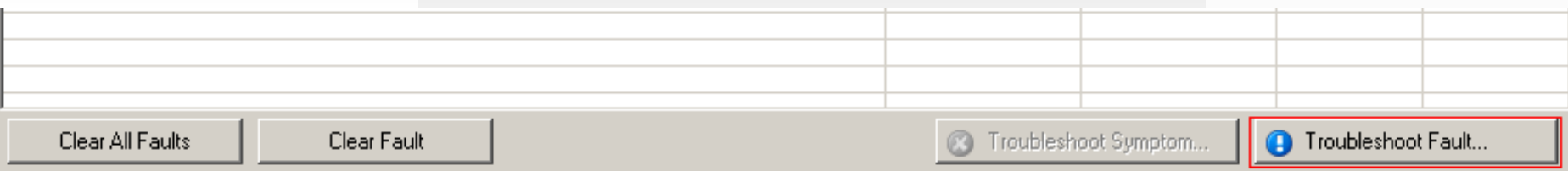


2007 Electronic Tools for DDEC VI

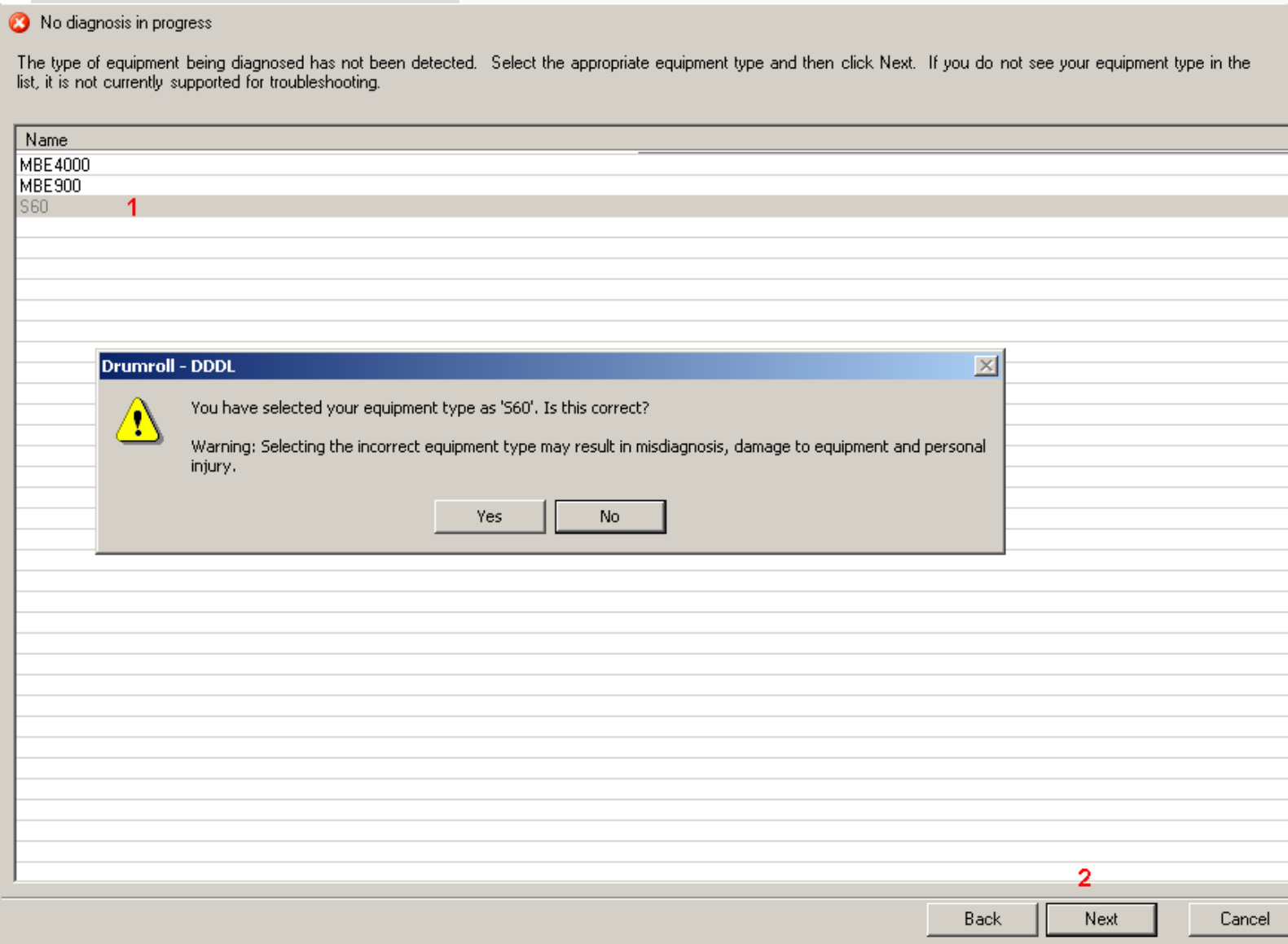
Description	Number	Mode	Stored
- CPC2			
+ Vehicle Speed Sensor Open Circuit or Shorted to Battery Voltage	84	3	NotStored
+ Analog Accelerator Pedal Circuit Failed Low	91	4	NotStored
+ Coolant Level Circuit Failed High	111	3	NotStored
+ MCM			

To access the standard troubleshooting material highlight the fault code you wish to work on.

Move to the lower right of the fault code window and select the “Troubleshooting Fault” box.



2007 Electronic Tools for DDEC VI



A screen will appear asking the user to select the engine type being worked on. It is critical to select the correct engine type. Once the choice is made go to the “Next” box in the lower right of the window.



SPN 84/FMI 3

This diagnostic condition is typically VSS open circuit.

Open Circuit Check

Check as follows:

1. Disconnect the Vehicle Speed Sensor (VSS).
2. Measure the resistance between pin 13 of the CPC connector #3 (21-pin) and pin 1 of the VSS.
 - i. If the resistance is greater than $3\ \Omega$, repair the open between pin 13 of the CPC connector #3 (21-pin) and pin 1 of the VSS. Refer to "Verify Repairs" .
 - ii. If the resistance is less than $3\ \Omega$, go to step 3 .
3. Measure the resistance between pin 14 of the CPC connector #3 (21-pin) and pin 2 of the VSS sensor.
 - i. If the resistance is greater than $3\ \Omega$, repair the open wire between pin 14 of the CPC #3 connector (21-pin) and pin 2 of the VSS. Refer to "Verify Repairs" .
 - ii. If the resistance is less than $3\ \Omega$, go to step 4 .
4. Measure the resistance between pin 13 of the CPC connector #3 (21-pin) and pin 1 of the VSS sensor.
 - i. If the resistance greater than $3\ \Omega$, replace the VSS. Refer to "Verify Repairs" .
 - ii. If the resistance is less than $3\ \Omega$, repair the short in the harness between pins 13 and 14 of the CPC connector #3 (21-pin). Refer to "Verify Repairs" .

The troubleshooting material for the selected fault will appear on the screen. Follow the steps in the guide using the hyperlinks until the repair is completed.

The troubleshooting guide may also be accessed when not connected to the vehicle by choosing the "Troubleshooting" item from the main function menu.



Using Advanced Diagnostics Troubleshooting Information in Diagnostic Link



The Advanced Diagnostics material is being introduced for the first time for DDEC VI. Advanced Diagnostics will guide the user through troubleshooting complex systems (ATS, EGR, etc.) by evaluating sensor data from the engine running under specific conditions and running diagnostic routines. Cases for Advanced Diagnostics will be created based on the latest engineering and information from the field.



Troubleshoot Fault...

Indicates traditional troubleshooting information is available for the fault



Troubleshoot Fault...

Indicates advanced diagnostics troubleshooting information is available for the fault

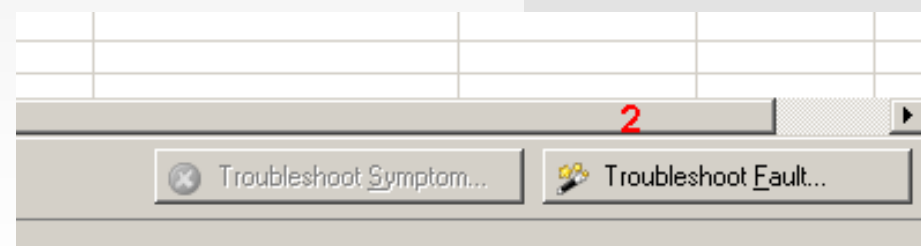
The user will begin the advanced diagnostics troubleshooting process in the same manner as the traditional troubleshooting guide material. Select a fault code from the list in the fault code window and then go to the “Troubleshoot Fault” box in the lower right of the window.



2007 Electronic Tools for DDEC VI

Fault Codes

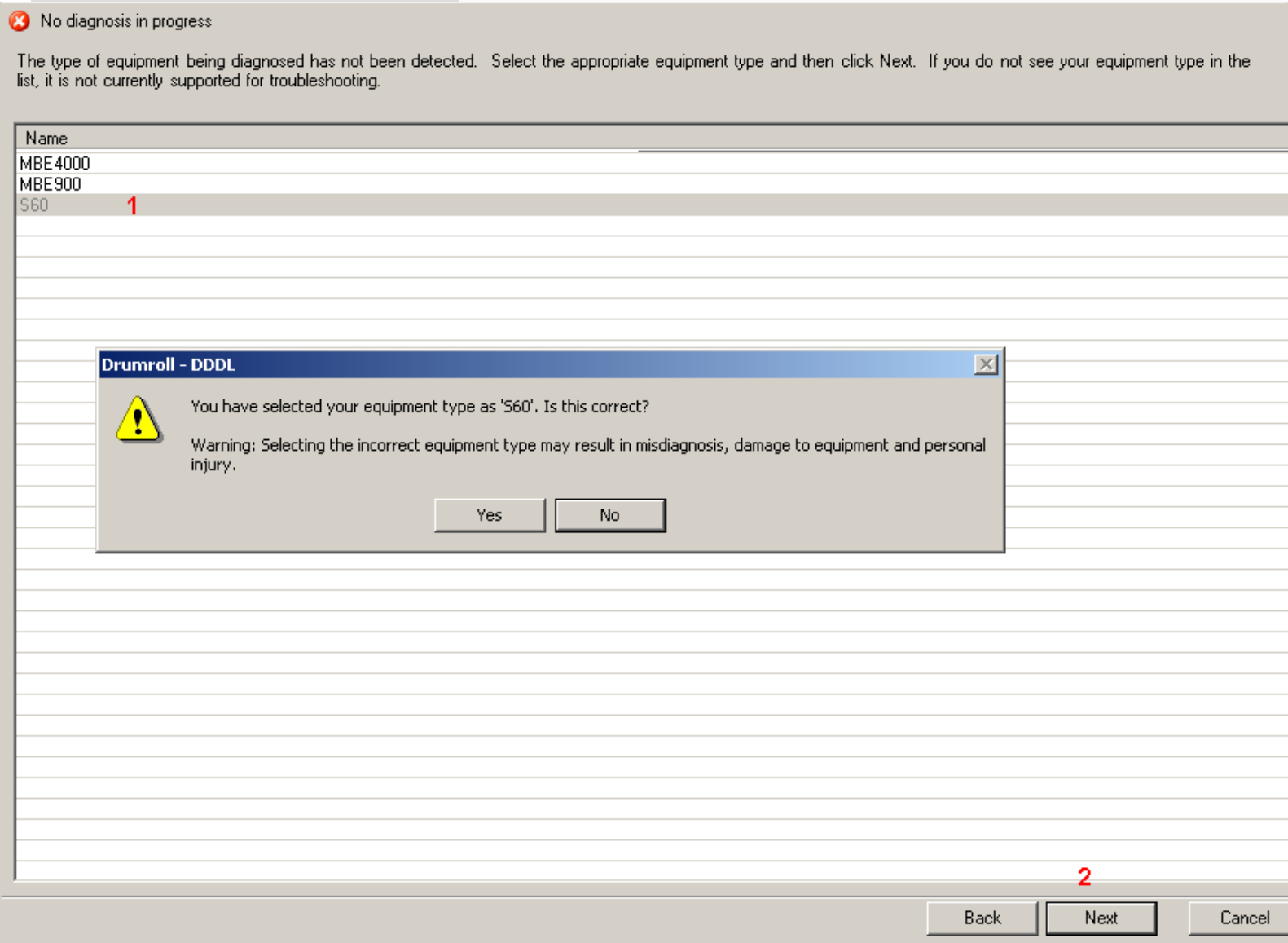
Description	Number	Mode
MCM		
Actuator Manager Position EGR Deviation	2791	7
CPC2		



The fault code SPN 2791 FMI 7 is displayed in the MCM fault code list. When the code is highlighted (1) you'll note that this fault has an Advanced Diagnostics troubleshooting procedure. To proceed with the advanced procedure click on the "Troubleshoot Fault" box..



2007 Electronic Tools for DDEC VI



A screen will appear asking the user to select the engine type being worked on. It is critical to select the correct engine type. Once the choice is made go to the “Next” box in the lower right of the window.

NOTE: With later versions of MCM software this window will no longer appear because the program will auto-detect the engine type.



2007 Electronic Tools for DDEC VI

Troubleshooting



Diagnosing problem

PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY

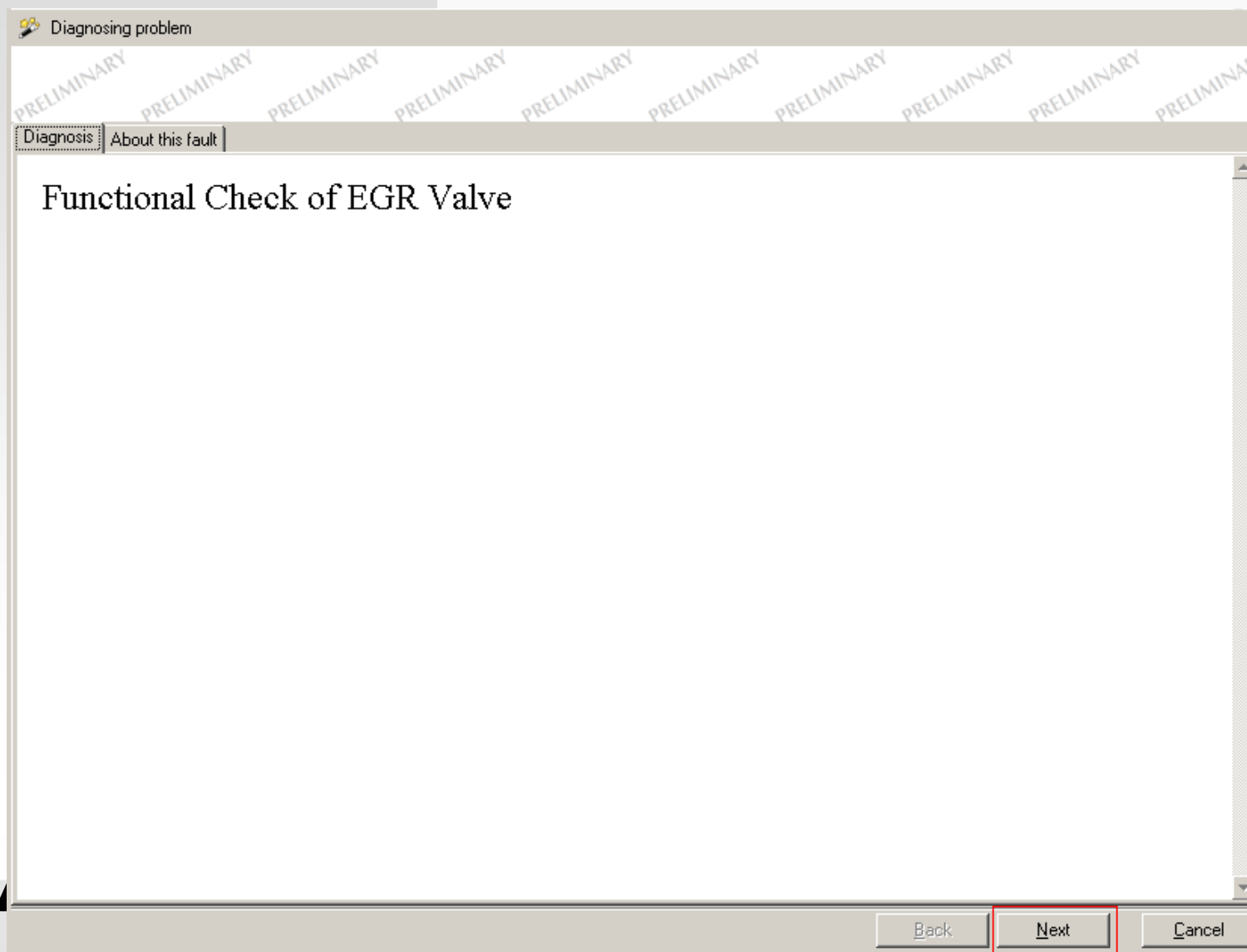
About this fault

Normally a brief overview of the fault code will appear in this window. To proceed with the troubleshooting process click on the "Next" box in the lower right.

Back Next Cancel



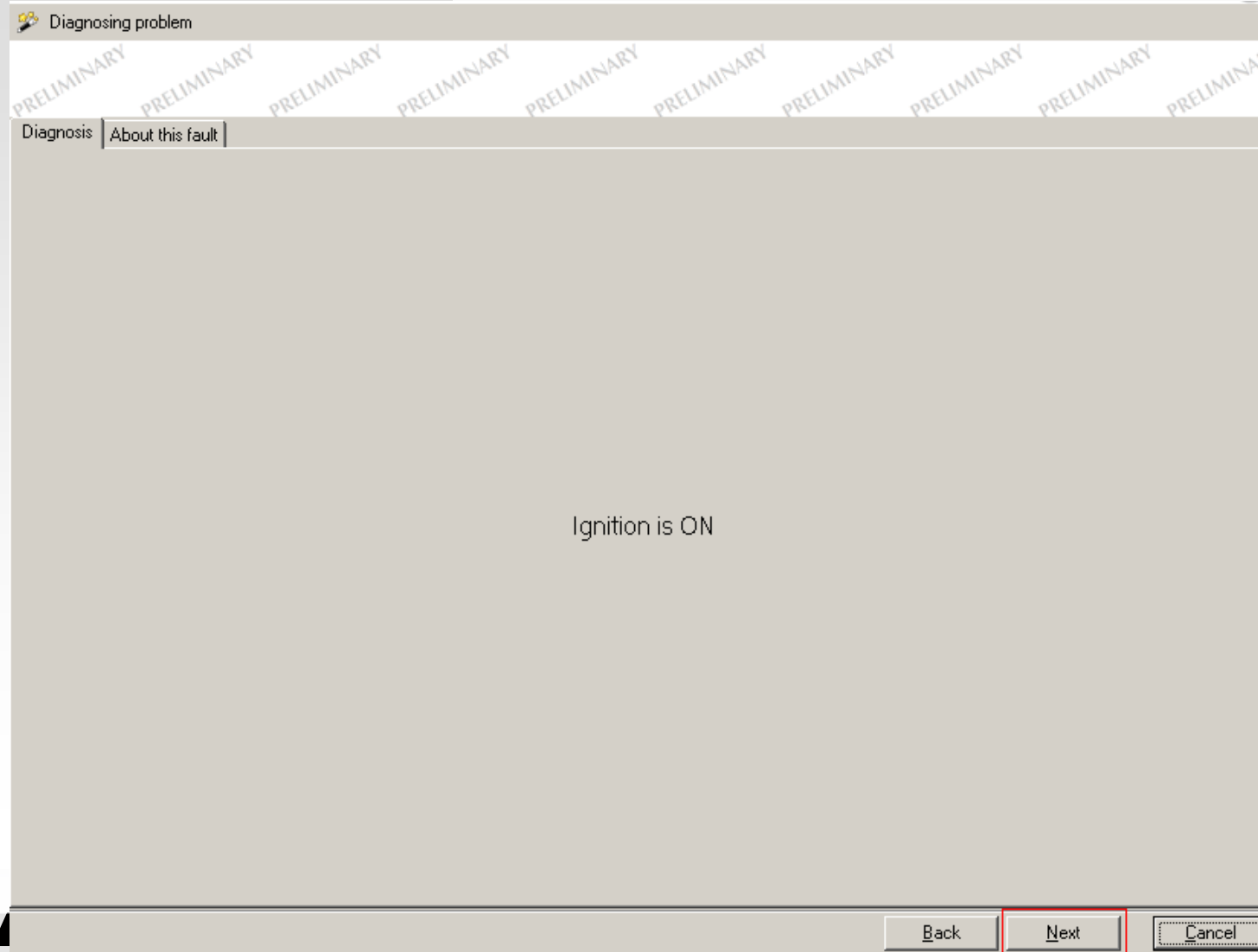
2007 Electronic Tools for DDEC VI



The next screen informs the user of how the diagnostic process will proceed. In this case the tool will perform a functional check of the EGR valve. To proceed click on the “Next” box in the lower right.



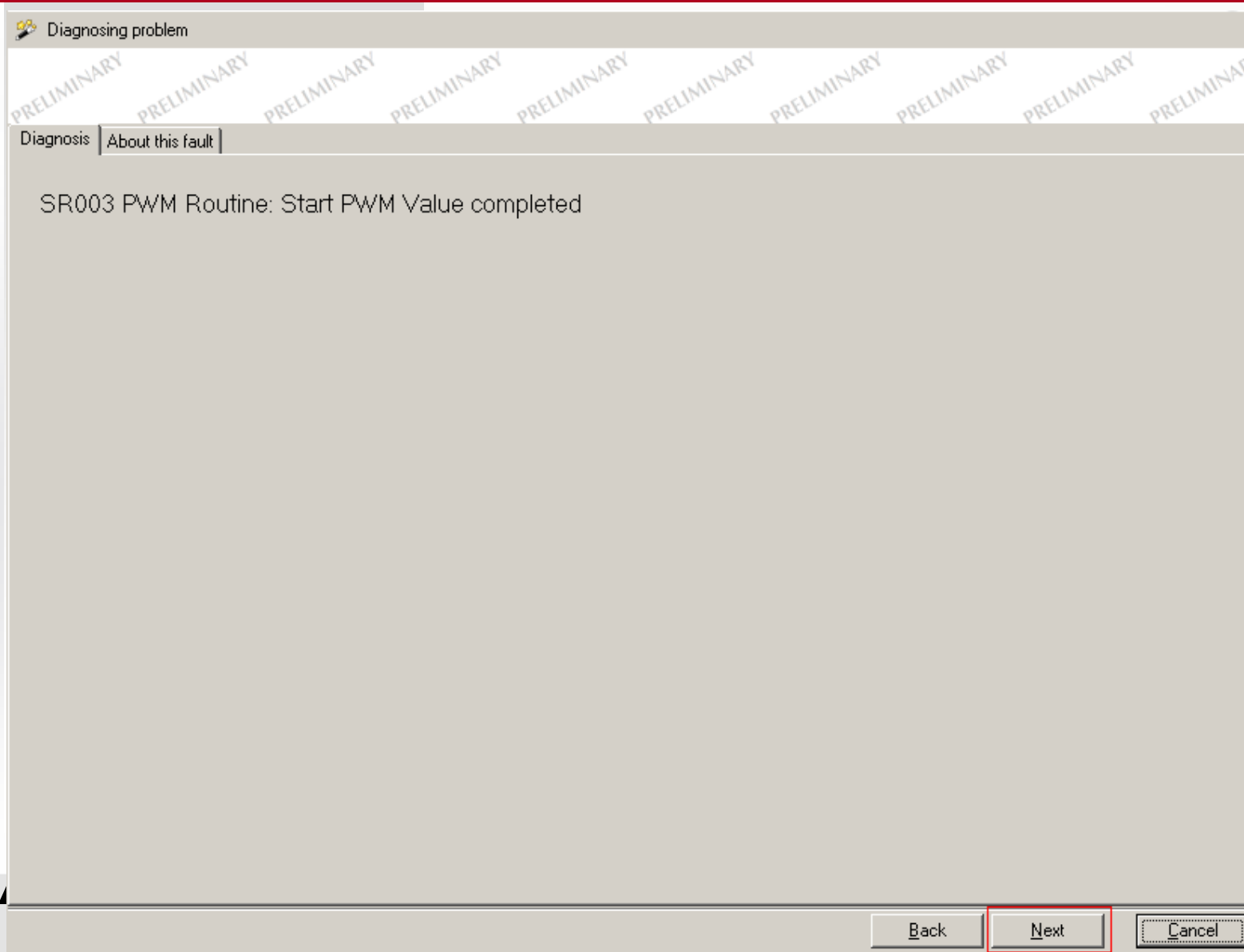
2007 Electronic Tools for DDEC VI



The next screen informs the user that the ignition is "ON". To proceed click on the "Next" box in the lower right.



2007 Electronic Tools for DDEC VI



On the next screen the user sees that the application has run the MCM service routine to activate PWM outputs. The values are pre-set for the routine and the results will be analyzed on the next screens. To proceed click on the “Next” box in the lower right.



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Diagnosing problem

PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY

Diagnosis About this fault

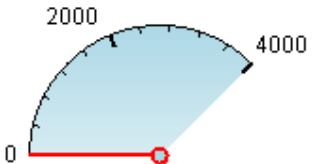
Monitoring following instruments

DT_AS032_EGR_Actual_Valve_Position



Name	Value	Unit
AS032: EGR Actual Valve Position	49.61	%

Engine Speed



Back Next Cancel

On the next 2 screens we receive more information on what was just done. The routine requested that the valve be opened to a value of 50%.

For further analysis the user should move to the next screen by clicking on the "Next" box.



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Diagnosing problem

PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY

Diagnosis | About this fault

Following Instrument are within 15 % tolerance of each other

Name	Value	MinValue	MaxValue	Unit	
AS032: EGR Actual Valve Positi...	49.6	49.6	49.6	%	

Back | **Next** | Cancel

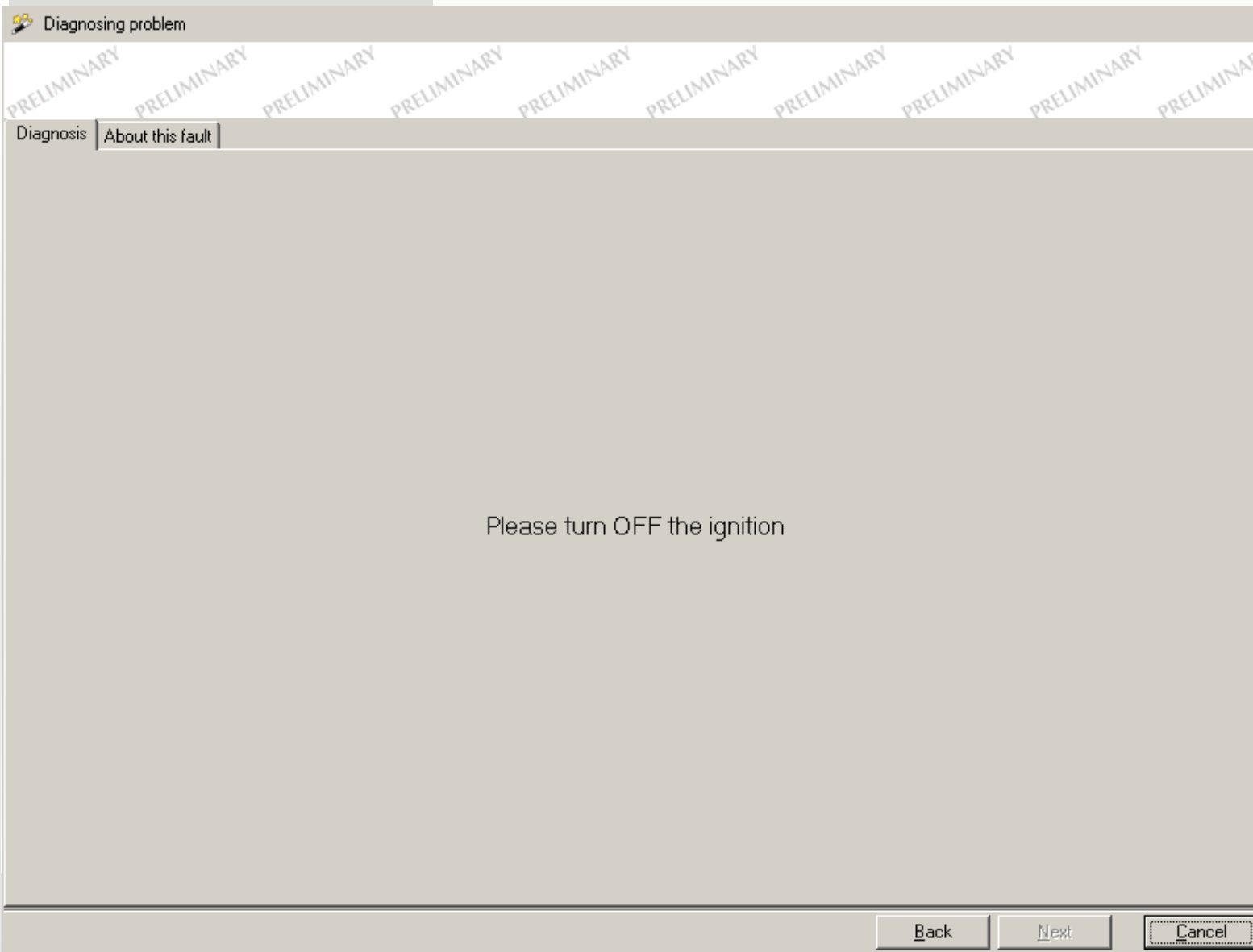
The next screen tells us that the valve opened to a position within the tolerance of the value requested. .

Based on this feedback from the tool we are prepared to proceed with the process by selecting the “Next” box.

If the value fell outside the accepted tolerance of the test the diagnostic process would proceed in a different direction.



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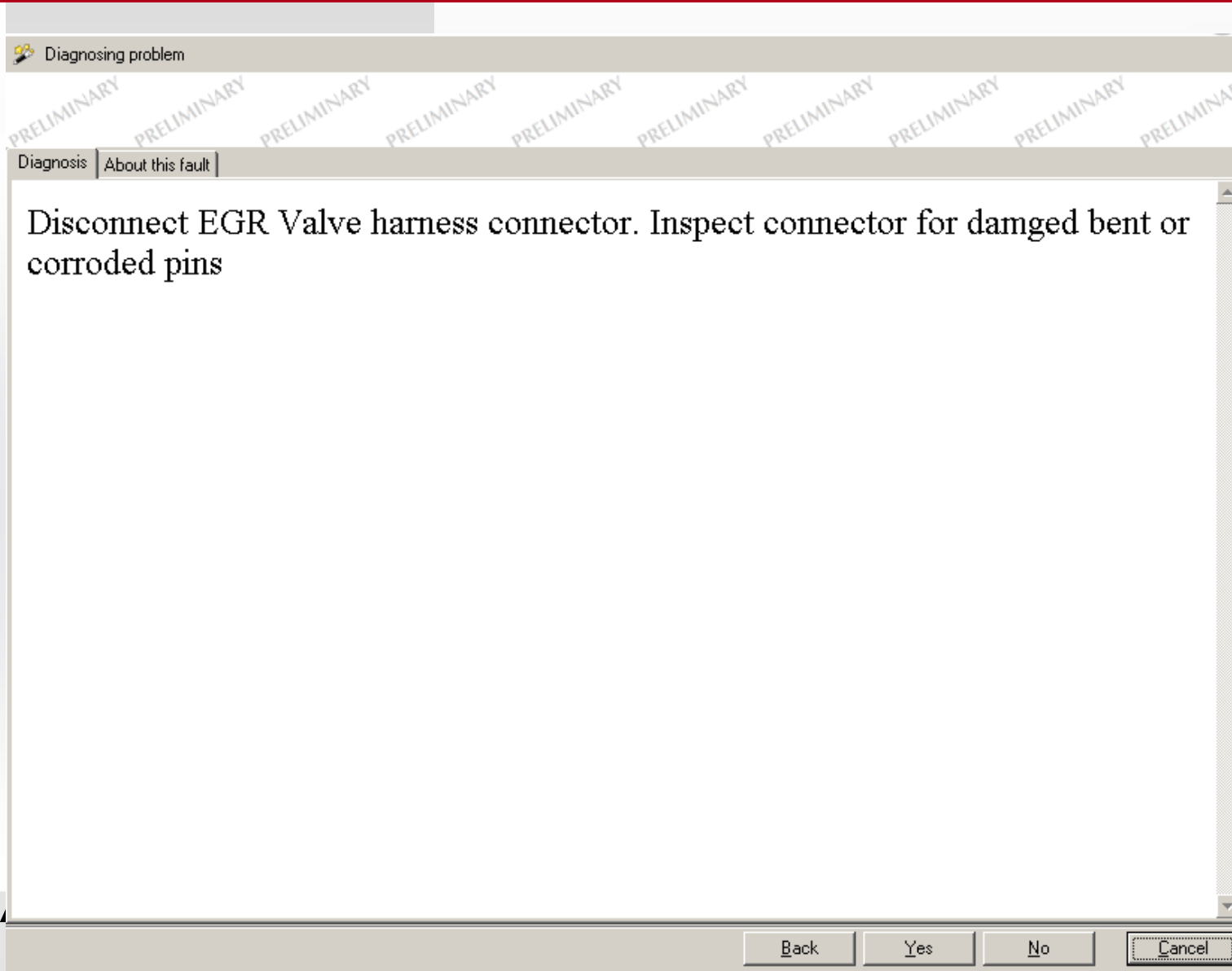


In the next screen the user is requested to turn off the ignition.

The tool will automatically detect when the ignition is shut off and will automatically switch to the next screen in the process.



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Once the ignition has been shut off the user is directed to perform specific physical checks on the EGR valve. When the checks have been completed one of the answers at the bottom of the screen should be selected to proceed.



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Diagnosing problem

PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY

Diagnosis | About this fault |

Repair damaged electrical connector, clear codes

Diagnosing problem

PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY

Diagnosis | About this fault |

Contact DDC Customer Support Center for further instruction

Back

Next

Cancel

If the user answers “Yes” he’ll be instructed to repair the damage he’s observed and clear the fault.

If the answer is “No” then the user should contact technical support for further information.

In either case, to proceed the user should click on the “Next” box in the lower right of the screen.



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Finishing troubleshooting session

PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY PRELIMINARY

Diagnosis | About this fault

Please enter your comments regarding the troubleshooting process.

G2 Membership ID

Comments:

Back Next Cancel

In closing out the Advanced Diagnostics procedure, the user is asked to fill in comments on the troubleshooting process.

After this section is completed the user should click on the "Next" box to see a complete report on the steps taken.



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Advanced Diagnostics Report

Date: Tuesday, December 12, 2006

- Job Information

Serial Number

VIN

Address

G2 Membership ID

- Procedure

- Stage 1

Turned the ignition on

Ran a service routine

SR003 PWM Routine: Start PWM Value

Monitored instrument

DT_AS032_EGR_Actual_Valve_Position

Checked that values were within expected range

- Stage 2

Turned the ignition
off

Back

Finish

Cancel

A final summary will appear with details of the case. Click on the “Finish” to close out the procedure.



VII. Understanding the Instrumentation Windows



The Instrumentation Window

1- There are 3 main functions to this section

Instrumentation

1 All Instruments Chart 3 ATD Cruise Control Cylinder Cutout EGR Mechanical Pressure and Temperature Status Switches

Instrument	Value	Units	Min	Max
AS034: Throttle Valve Actual Position	0	%		
AS033: Throttle Valve Commanded Value	0	%		
<input type="checkbox"/> *KW				
AS005: Main Injection Start (Average)	12	*KW		
<input type="checkbox"/> Angular Speed				
AS006: Requested Engine Speed	630	rpm		
AS028: Turbo Speed 2	-5	rpm		
AS027: Turbo Speed 1	6035	rpm		
AS026: Fan Speed	0	rpm		
AS010: Engine Speed	630	rpm		
AS011: Engine Speed Acceleration Limitation	0	rpm		
AS009: Redundant Engine Speed	0	rpm		
AS007: Maximum Engine Speed	2100	rpm		
AS008: PTO Set Speed	0	rpm		
<input type="checkbox"/> bar				
AS020: Oil Pressure	3.46	bar		
<input type="checkbox"/> h				
AS045: Engine Operating Hours	0	h		
<input type="checkbox"/> kg/sec				
AS066: EGR Mass Flow Rate	0	kg/sec		
AS065: Engine Inlet Air Mass Flow Rate	0	kg/sec		

2- All Instruments (1) / The Chart (2) / Individual Panels (3)

3- The CPC and MCM values are listed by module in the “All Instruments” list

The values may be from either module in the “Individual Panels”

Units may be viewed in English or Metric



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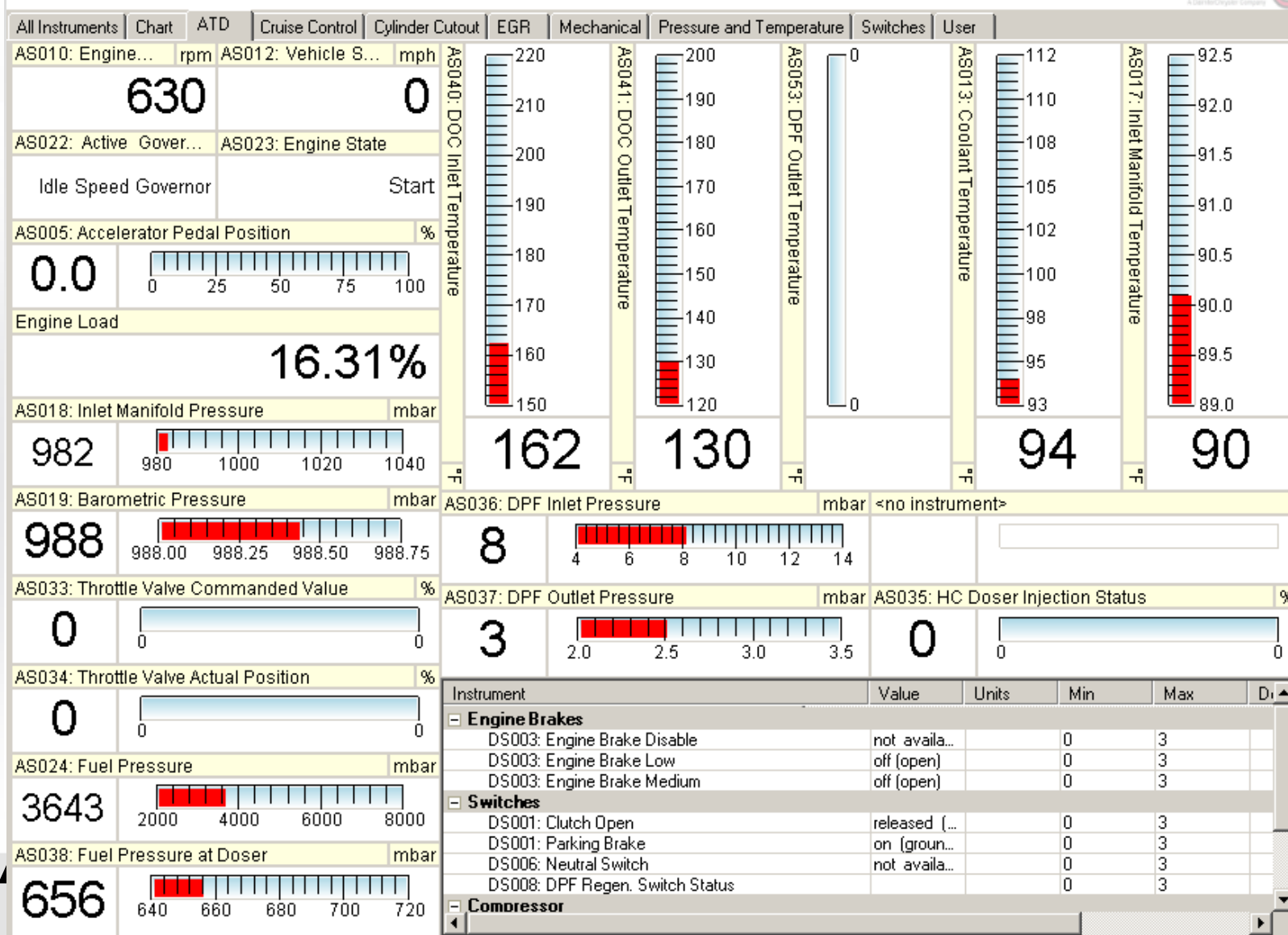
Instrumentation								
All Instruments	Chart	ATD	Cruise Control	Cylinder Cutout	EGR	Mechanical	Pressure and Temperature	Switches
Instrument	Value	Units						
AS033: Throttle Valve Commanded Value	0	%						
AS044: APCRS Rail Pressure Valve Position	0	%						
<input type="checkbox"/> Pressure								
AS020: Oil Pressure	3.45	bar						
AS036: DPF Inlet Pressure	8	mbar						
AS037: DPF Outlet Pressure	3	mbar						
AS038: Fuel Pressure at Doser	656	mbar						
AS018: Inlet Manifold Pressure	982	mbar						
AS019: Barometric Pressure	988	mbar						
AS024: Fuel Pressure	3643	mbar						
AS025: EGR Delta Pressure	12	mbar						
AS062: Exhaust Manifold Pressure	893	mbar						
AS061: Pressure EGR	0	mbar						
AS059: Pressure ICooler Out	0	mbar						
AS054: Differential Pressure Compressor In	0	mbar						
AS057: Differential Pressure Compressor Out	0	mbar						
AS056: Pressure Compressor Out	0	mbar						
<input type="checkbox"/> Speed								
AS012: Vehicle Speed	0	mph						
<input type="checkbox"/> Temperature								
AS016: Oil Temperature	92	°F						
AS017: Inlet Manifold Temperature	90	°F						
AS063: Exhaust Manifold Temperature	238	°F						
AS042: EGR Temperature after Cooler	32	°F						
AS055: Temperature Compressor In	83	°F						
AS053: DPF Outlet Temperature		°F						
AS041: DOC Outlet Temperature	130	°F						
AS060: Temperature ICooler Out	32	°F						
AS058: Temperature Compressor Out	75	°F						
AS040: DOC Inlet Temperature	162	°F						
AS067: Coolant Temperatures 2	203	°F						
AS013: Coolant Temperature	94	°F						
AS014: Fuel Temperature	104	°F						

A sample shot of MCM values from the “All Instruments” tab. Data values in the all instruments tab are arranged by the type of value being displayed (temperatures, pressures, etc.)



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Instrumentation



A sample shot of the After Treatment Device (ATD) tab



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Instrumentation

All Instruments Chart ATD Cruise Control Cylinder Cutout EGR Mechanical Pressure and Temperature Switches User			
Instrument	Value	Units	Min
Switches			
DS001: Clutch Open	released (ground...		0
DS001: Ignition Switch	on (grounded)		0
DS001: Parking Brake	on (grounded)		0
DS001: Service Brake	released (ground...		0
DS002: Cruise Control Enable	off (open)		0
DS002: Cruise Control Pause	not available		0
DS002: Cruise Control Resume/Accel	off (open)		0
DS002: Cruise Control Set/Coast	off (open)		0
DS003: Engine Brake Disable	not available		0
DS003: Engine Brake Low	off (open)		0
DS003: Engine Brake Medium	off (open)		0
DS004: Limiter 0 Set Switch	off (open)		0
DS004: Limiter 1 Set Switch	off (open)		0
DS005: Hood Tilt Switch	not available		0
DS005: Fan Control Override	off (open)		0
DS005: Shutdown Override	off (open)		0
DS006: Idle Validation Switch 1	on (grounded)		0
DS006: Idle Validation Switch 2	off (open)		0
DS006: Neutral Switch	not available		0
DS006: Two Speed Axle Switch	not available		0
DS007: ABS System Active	not available		0
DS007: External Engine Shutdown Switch	not available		0
DS007: External Engine Shutdown via J1939	not available		0
DS008: DPF Regen. Switch Status			0
DS008: Starter Signal	off (open)		0

A sample shot of the “Switches” tab



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The screenshot shows the 'Instrumentation' software interface. At the top, there are tabs for 'All Instruments', 'Chart', 'ATD', 'Cruise Control', 'Cylinder Cutout', 'EGR', 'Mechanical', 'Pressure and Temperature', 'Switches', and 'User'. The 'User' tab is selected. On the left, a list of instruments is shown with checkboxes. The 'Pressure' category is expanded, and 'AS020: Oil Pressure' is checked. The 'Speed' category is also expanded, and 'AS012: Vehicle Speed' is checked. The 'Temperature' category is expanded, and 'AS017: Inlet Manifold Temperature' is checked. On the right, three instrument displays are shown. The top display shows 'AS017: Inlet Manifold... °F' with a value of 30 and a scale from 0 to 100. The middle display shows 'AS020: Oil Pressure bar' with a value of 3.45 and a scale from 0.0 to 4.0. The bottom display shows 'AS012: Vehicle Speed' with a value of 90 and a scale from 0 to 100. A search bar is located at the bottom left of the instrument list.

The “User” tab allows the user to configure his own selection of instruments from any module he is connected to.

The selection may also be saved for future use by clicking the disk icon (1) and providing a file name.

Stored selections may be opened by clicking on the folder icon (2).

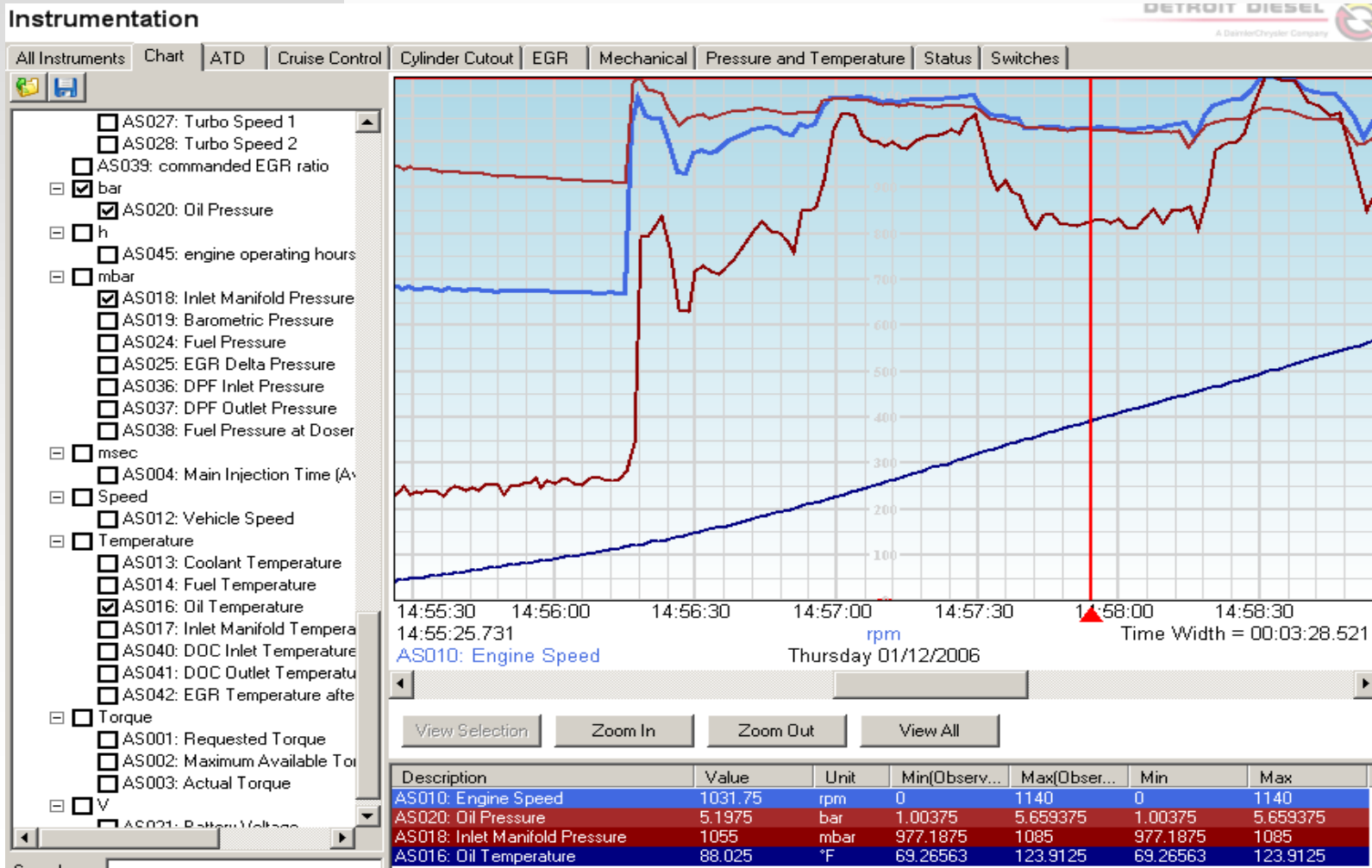


Chart Features

- **Parameter list always “on-top” to select new items.**
- **All chart related windows are completely re-sizeable.**
- **Gives the user the ability to check on the scale being used for each parameter.**
- **Gives the user the ability to pinpoint a value at any point on the chart.**
- **Gives the user the ability to zoom in on a certain section of data**



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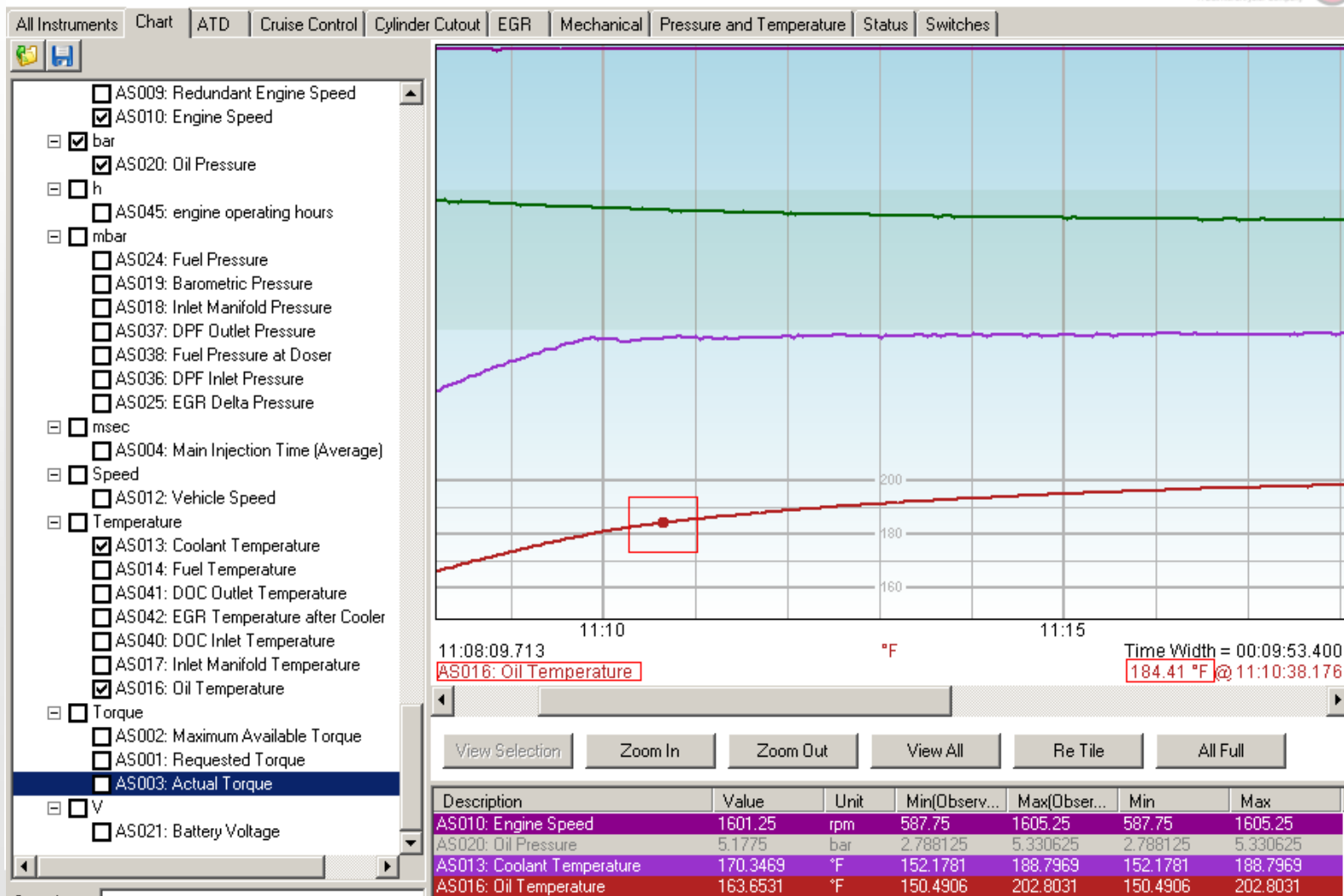


A sample shot of the “Chart” function



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Instrumentation

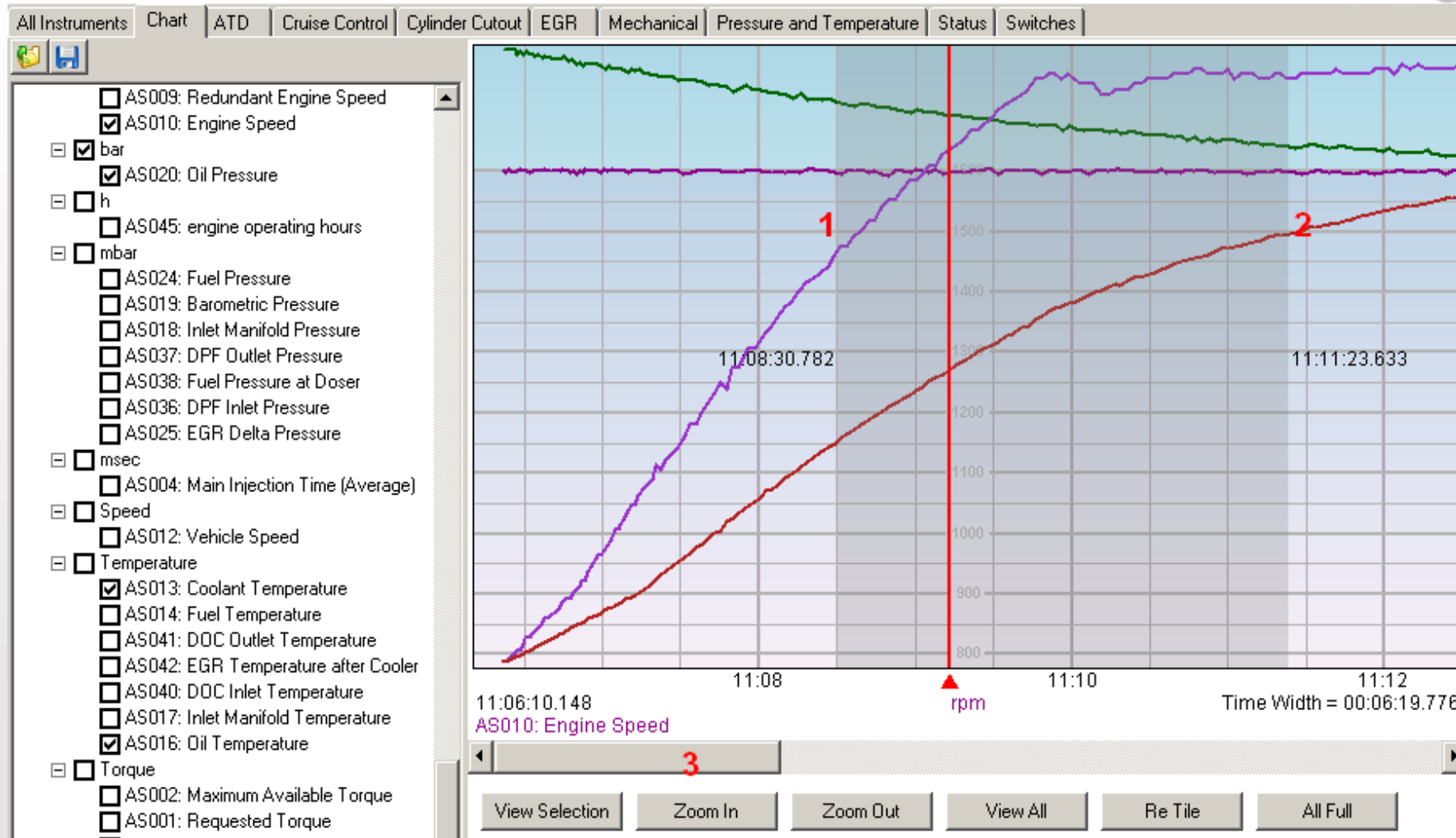


A sample shot of reading a specific value in the “Chart” function



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Instrumentation



To use the “Zoom In” function, mark each boundary of the zoomed area by dragging your mouse (1 & 2) across the area desired and then select the “Zoom In” box (3).



VIII. Understanding the Logging Function



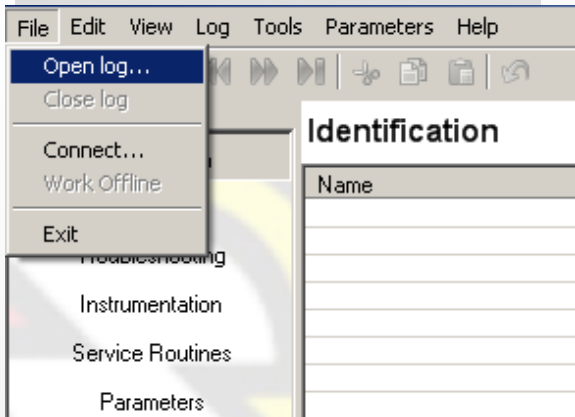
The Logging Function

- DDDL keeps a running log of all the activity that occurs during a connection with an ECU.
- The logs are stored as files on the hard drive and are available for playback.
- Once a log file is opened the playback buttons in the toolbar become activated.
- Many DDDL functions can be used when playing back the log file without needing to be connected to an ECU.
- Log files may not be played if the user is connected to an ECU
- Please note that only data from connected modules will be stored in the log files. For example, if you have only connected to the CPC your log will not contain MCM data even though the engine is running.

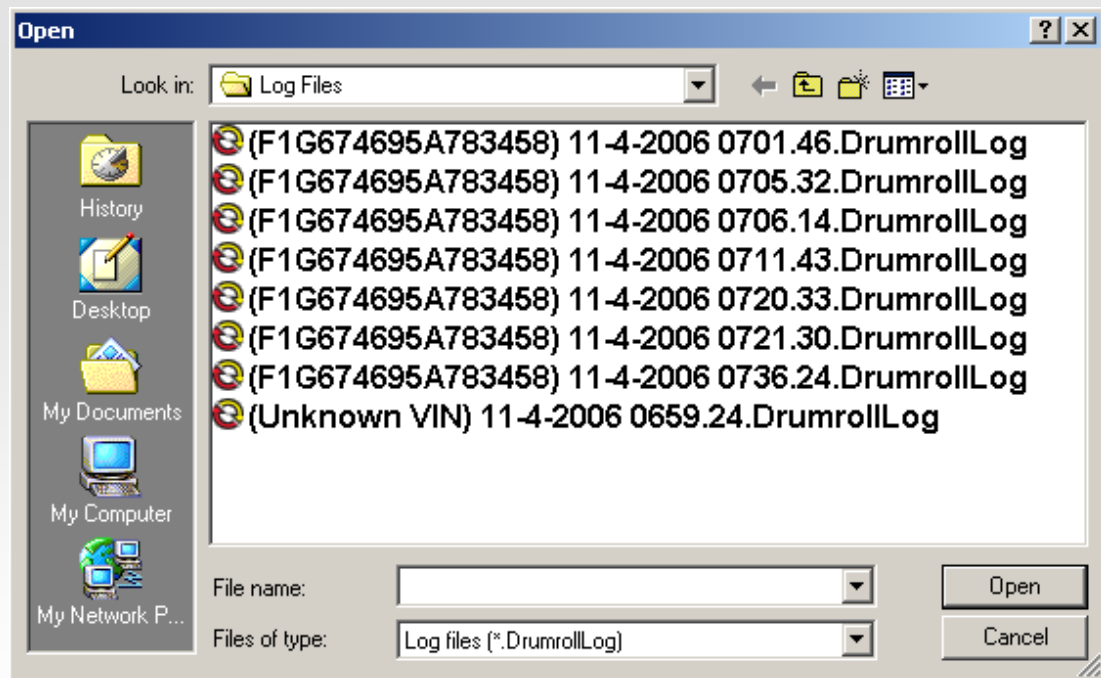


2007 Electronic Tools for DDEC VI

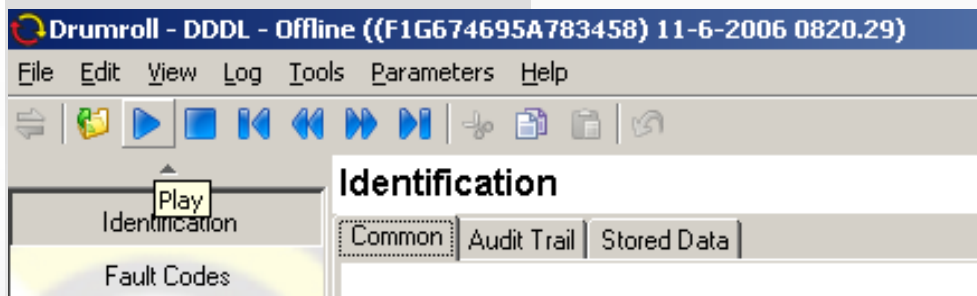
To play a log file choose the “File” drop-down menu and choose the “Open log” option.



A dialog box will appear with all the log files. It will open to a default folder but you may move to any folder containing logs. They are identified by a specific date / time stamp and VIN (when available). Highlight the file you wish to open and click on the “Open” box.



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Once a log file has been loaded the playback controls in the application toolbar will become active and ready to use. The user may identify the function of each control by running their mouse across the top of the control.

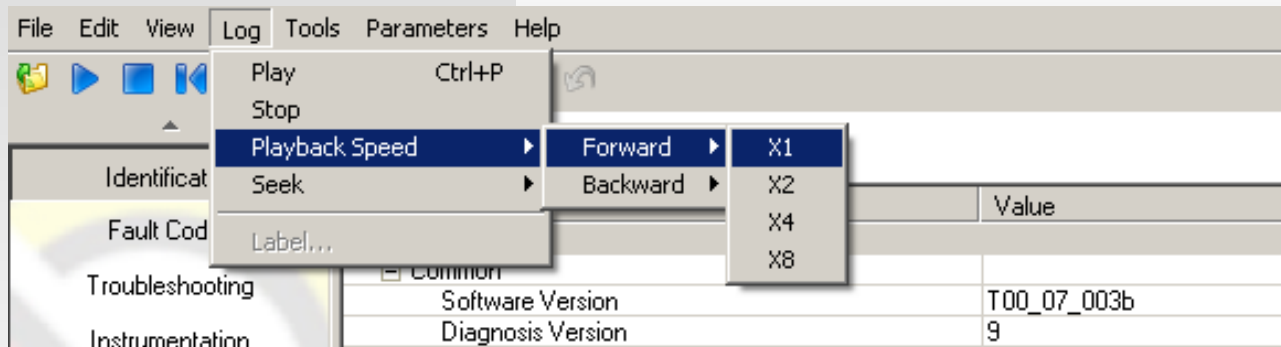
Instrumentation

Instrument	Value	Units	Min
AS034: Throttle Valve Actual Position	0	%	
AS033: Throttle Valve Commanded Value	0	%	
<input type="checkbox"/> *KW			
AS005: Main Injection Start (Average)	12	*KW	
<input type="checkbox"/> Angular Speed			
AS006: Requested Engine Speed	630	rpm	
AS028: Turbo Speed 2	-5	rpm	
AS027: Turbo Speed 1	6035	rpm	
AS026: Fan Speed	0	rpm	
AS010: Engine Speed	630	rpm	
AS011: Engine Speed Acceleration Limitation	0	rpm	
AS009: Redundant Engine Speed	0	rpm	
AS007: Maximum Engine Speed	2100	rpm	
AS008: PTO Set Speed	0	rpm	

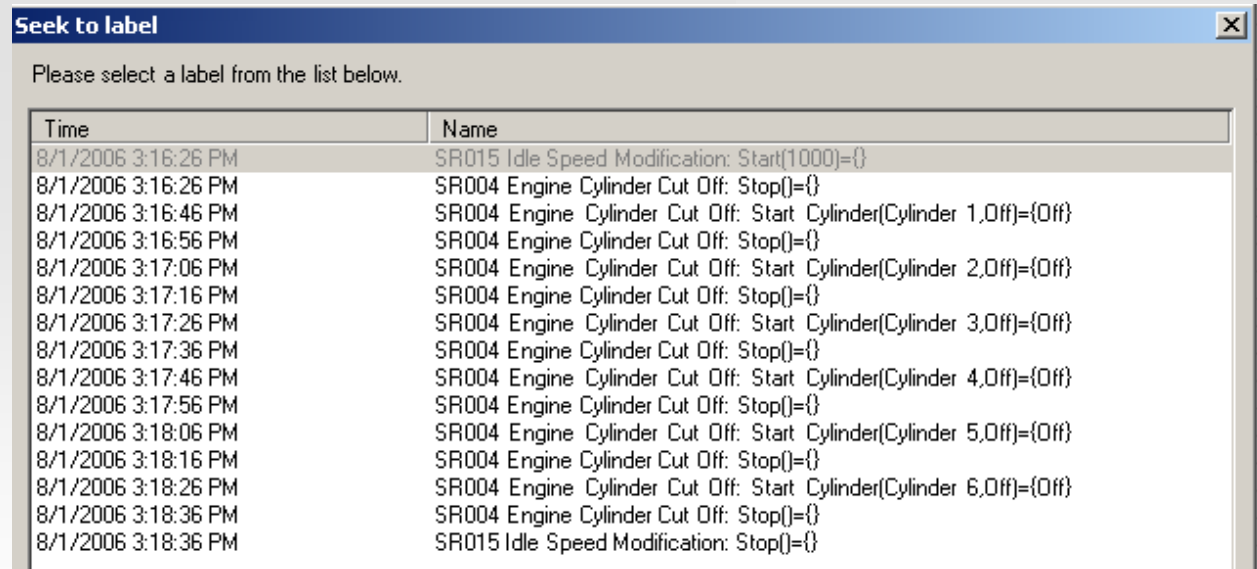
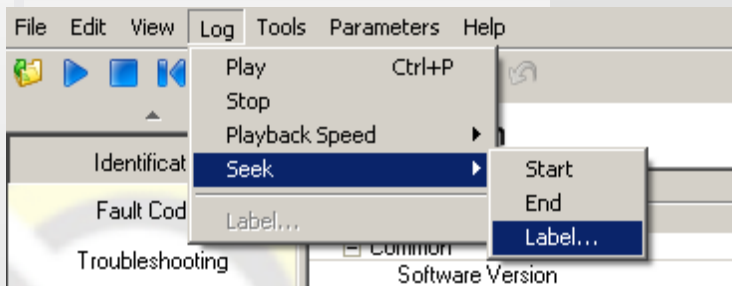
Once the "Play" button becomes active the panels will fill up with data that was collected during the log session.



Additional playback control features



You may alter the playback speed of the log file



Service routines are marked for easy identification in playback mode

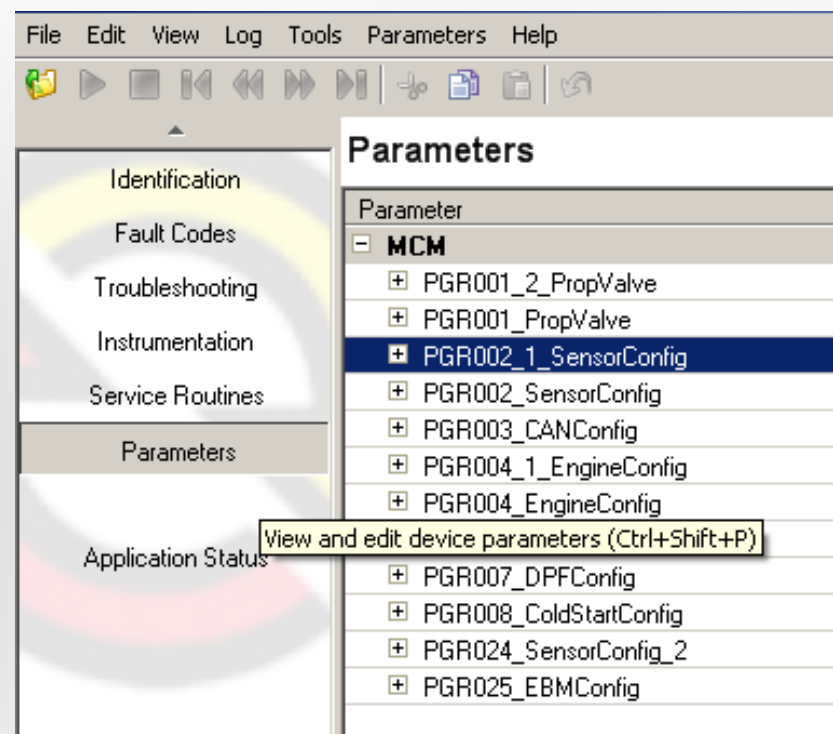


IX. Configuring Parameters for 2007 Engines



Important Notes on the Parameters Function

- The layout of the parameters is similar to the current MBE system
- Values may be displayed in Metric or English units (units of distance, temperature, and volume change; pressure readings remain in bar units)
- Parameter sets may be stored as files for printing or sending in e-mails using the “Export” function.
- Immediate recycling of the ignition to save settings should be done to save ECU changes.



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Parameters

Parameter	Value	Units
<input type="checkbox"/> CPC2		
<input type="checkbox"/> PGR001 Communication		
<input type="checkbox"/> PGR002 Vehicle Parameters I		
<input type="checkbox"/> PGR003 Common Limiters		
<input type="checkbox"/> PGR004 Surge Damp		
<input type="checkbox"/> PGR005 Limiters LIM0 and LIM1		
<input type="checkbox"/> PGR006 Limiters AC and LIM2		
<input type="checkbox"/> PGR007 PTO Control on PTO and CC pin		
<input type="checkbox"/> PGR008 Vehicle Speed Sensor		
<input type="checkbox"/> PGR009 Analog Outputs		
<input type="checkbox"/> PGR010 Engine Brake		
<input type="checkbox"/> PGR011 Accelerator Pedal		
<input type="checkbox"/> PGR012 Optimized Idle		
<input type="checkbox"/> PGR013 Inputs		
<input type="checkbox"/> PGR014 Relay 3 and 4		
<input type="checkbox"/> PGR015 Cruise Control		
<input type="checkbox"/> PGR016 Relay 1 and Starter Lockout		
<input type="checkbox"/> PGR017 Idle and PTO Shutdown		
<input type="checkbox"/> PGR018 Engine Protection Shutdown		
<input type="checkbox"/> PGR019 Automatic Fan Activation		
<input type="checkbox"/> PGR020 Remote Accelerator Pedal		
<input type="checkbox"/> PGR021 Droop Control Mode		
<input type="checkbox"/> PGR022 Limiter Governor		
<input type="checkbox"/> PGR023 Limiters II		
<input type="checkbox"/> PGR024 Vehicle Parameters II		
<input type="checkbox"/> PGR025 Transmission		
<input type="checkbox"/> PGR026 Vehicle Identification Number		
<input type="checkbox"/> PGR027 Fleet Management		
<input type="checkbox"/> PGR030 Engine Configuration		
<input type="checkbox"/> PGR031 Vehicle Parameters III		
<input type="checkbox"/> PGR034 SCR System		
<input type="checkbox"/> PGR035 Digital Outputs		

Connections

- CPC2: Reading (36.7%)
- MCM: Online (1 active...)

When entering the “Parameters” section all the values of the parameters from all connected modules will be read. Progress will be tracked on screen.



Viewing the individual values of parameters

- Parameters are placed in groups. To view the values of any parameter within the group the user opens and closes the folder by clicking on the “+” or “-” in front of the group name similar to the operation in Windows Explorer.

Parameter	Value	Units	Minimum	Maximum
- CPC2				
+ PGR001 Communication				
+ PGR002 Vehicle Parameters I				
+ PGR003 Common Limiters				
+ PGR005 Limiters LIM0 and LIM1				
+ PGR006 Limiters AC and LIM2				
+ PGR007 PTO Control on PTO and CC pin				
- PGR008 Vehicle Speed Sensor				
Vehicle Speed Sensor	magnetic pickup...			
Axle Ratio	5.29		1	20
Number of Output Shaft Teeth	16		0	250
Tire Revs per Unit Distance	319	1/km	160	1599
Top Gear Ratio	1		0.09900001	2.549
Second Highest Gear Ratio	2.55		0	5.75
Two Spd Axle Second Axle Ratio	5.29		1	20
Anti Tamper	disabled			
Vehicle Speed Filter Constant	0.016		0	1
+ PGR010 Engine Brake				
+ PGR012 Optimized Idle				
+ PGR013 Inputs				
+ PGR015 Cruise Control				



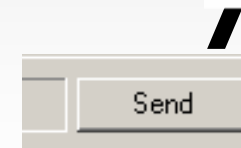
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To change a parameter simply click into the values column. For numerical values simply type in the desired value. For CPC parameters with more than one configurable selection (as seen below), a drop-down menu will appear.

Parameters DETROIT

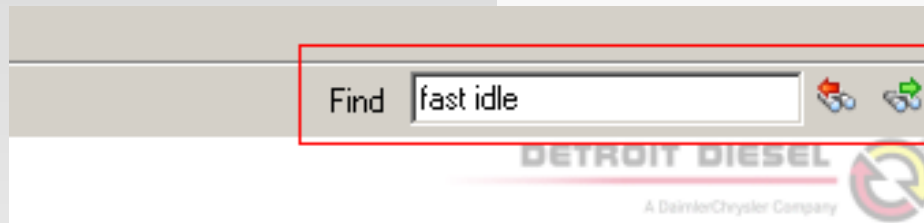
Parameter	Value	Units	Minimum	Maximum
CPC2				
+ PGR001 Communication				
+ PGR002 Vehicle Parameters I				
+ PGR003 Common Limiters				
+ PGR005 Limiters LIM0 and LIM1				
+ PGR006 Limiters AC and LIM2				
+ PGR007 PTO Control on PTO and CC pin				
- PGR008 Vehicle Speed Sensor				
Vehicle Speed Sensor	4 magnetic pick			
Axle Ratio	1 C3 sensor			20
Number of Output Shaft Teeth	2 square wave (hall sensor)			250
Tire Revs per Unit Distance	3 J1939 ETC1			
Top Gear Ratio	4 magnetic pickup vehicle speed sensor	60		1599
Second Highest Gear Ratio	5 J1939 TCO	09900001		2.549
Two Spd Axle Second Axle Ratio	6 J1939 CCVS Source1			5.75
Anti Tamper	7 J1939 CCVS Source2			
Vehicle Speed Filter Constant	8 J1939 CCVS Source3			20
	disabled			
	0.016		0	1

When all the changes are made click on the "Send" box in the lower left of the window.



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The “Find” function allows the user to search the entire parameter list for a key word(s). Type in the name of a parameter you wish to locate.



You'll be taken to the first location of that name in the parameter list

Parameter	Value	Units	Minimum	Maximum
CPC2				
⊕ PGR001 Communication				
⊕ PGR002 Vehicle Parameters I				
⊕ PGR003 Common Limiters				
⊕ PGR004 Surge Damp				
⊕ PGR005 Limiters LIM0 and LIM1				
⊖ PGR006 Limiters AC and LIM2				
Enable Fast Idle on AC Input	FTL AC neutral			
Fast Idle Spd Air Cond Input	600	rpm	500	3000
Limiter2 Min Eng Speed Enabled	500	rpm	0	4000
Limiter2 Max Eng Speed Enabled	4000	rpm	0	4000
Limiter2 Max Road Speed Enabled	94.44842	mph	0	94.44842
Limiter2 Max Eng Torque Enabled	3687.805	ft-lb	0	3687.805
Limiter2 Limit Governor Air Condition	Gov. in MR, w...			
limit / LIM 2 maximum acceleration	10	m/ss	-15.625	15.625



Import / Export Function

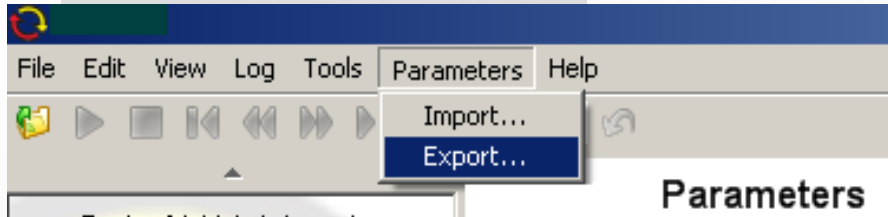


The Import / Export Function

- This function allows the user to work with parameter sets from both the CPC & MCM.
- Using the “Export” selection, parameter sets may be saved to the user’s hard drive, recalled, and printed out.
- The “Import” function allows the user to load a complete or partial parameter set to a module. The user must use a file with a .par extension for import purposes.
- Users may use the “Import” function to view and edit par files when not connected to a live CPC or MCM.



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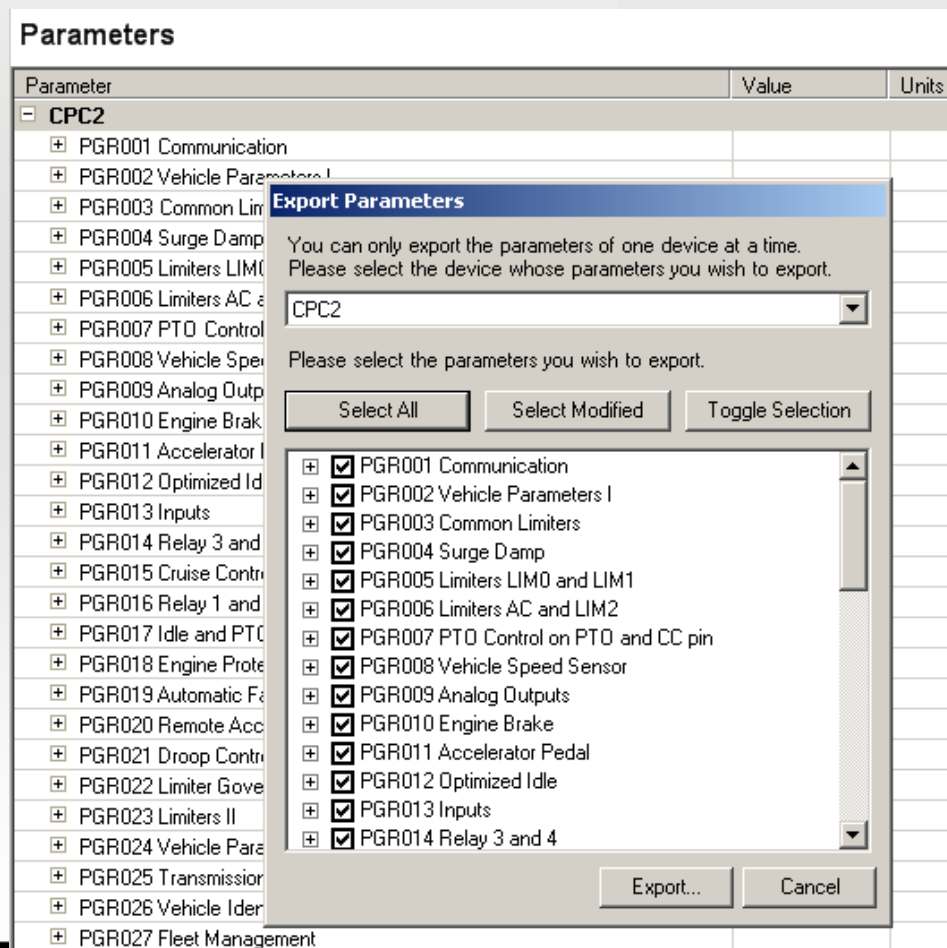


To begin the export process enter the “Configure Parameters” section. After retrieving the settings, choose the “Export” selection from the “Parameters” drop-down menu.

A dialog box will appear that allows the user to decide what groups of parameters should be exported. By default the parameters checked are those that have settings that are different from those loaded at the time the CPC was built.

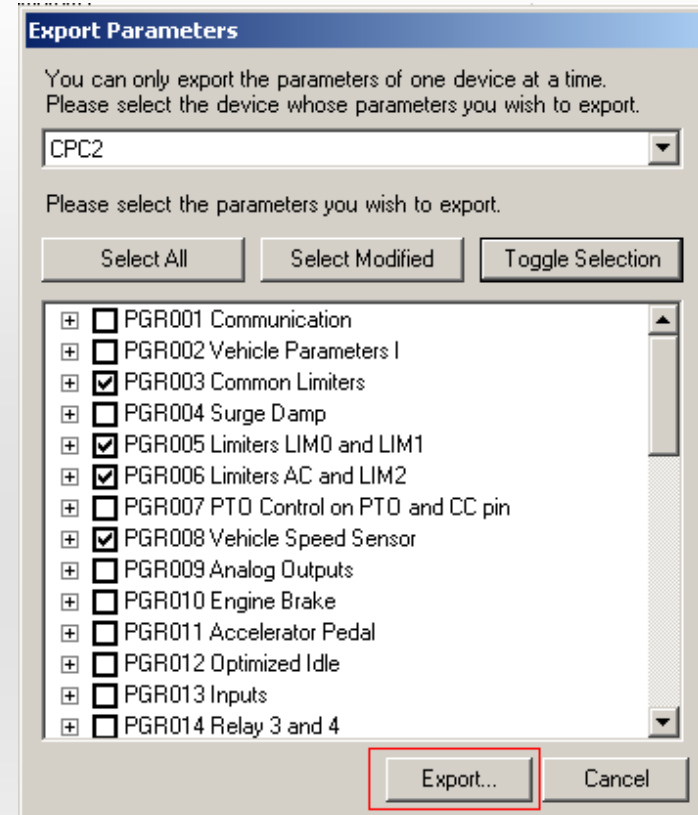
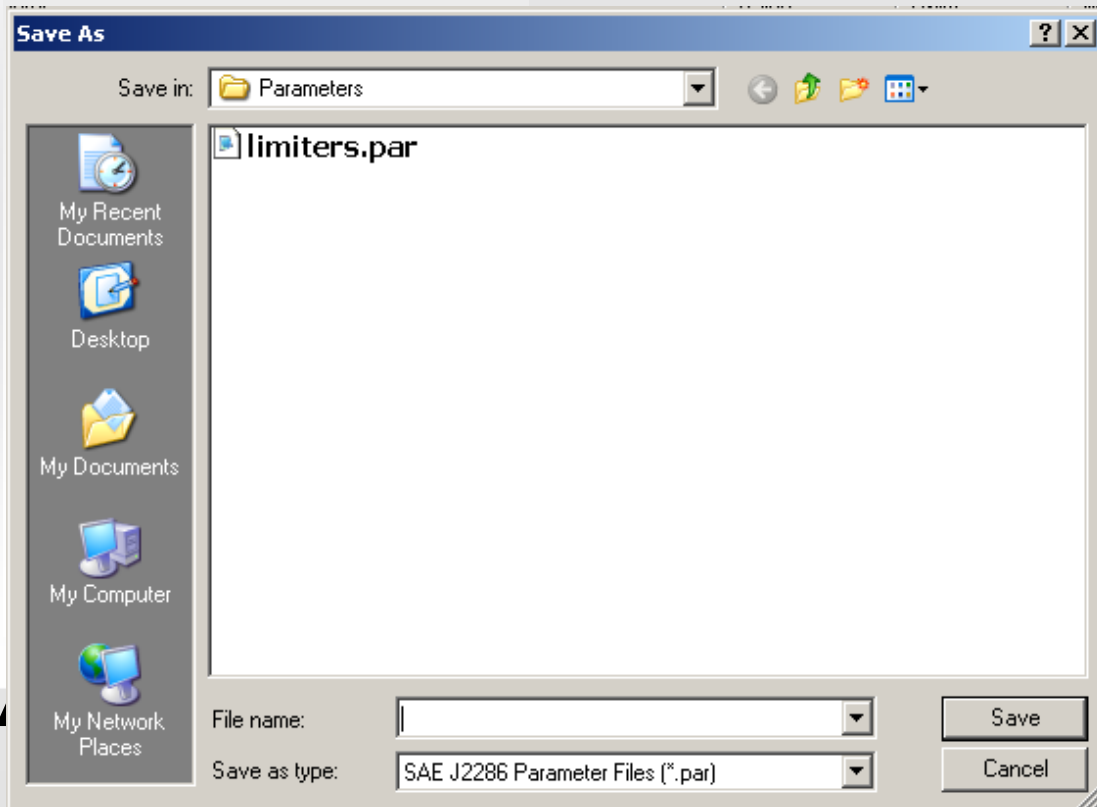
You may use the “Select Modified” box to clear the settings and only mark certain groups for export.

To undo changes that you’ve made you may use the “Toggle” box.



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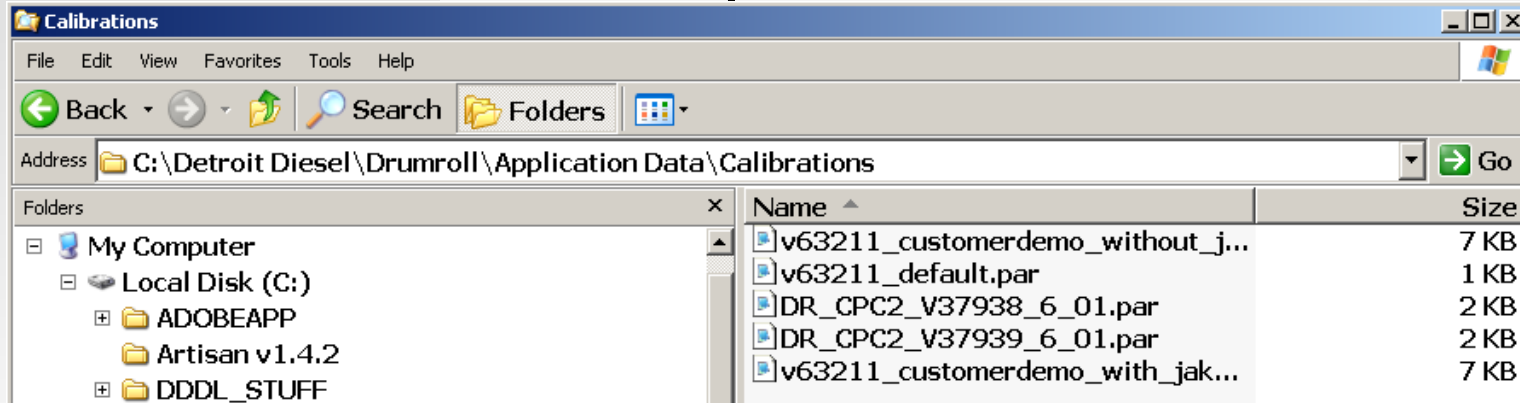
Once you've completed making your selections click on the "Export" box to continue



A new dialog box will appear asking for a file name. Give the file a name and then click on the "Save" box to complete the process



To open a previously saved exported file for review or printing, locate the file in Windows Explorer.



Click twice on the file and it will open in Notepad.

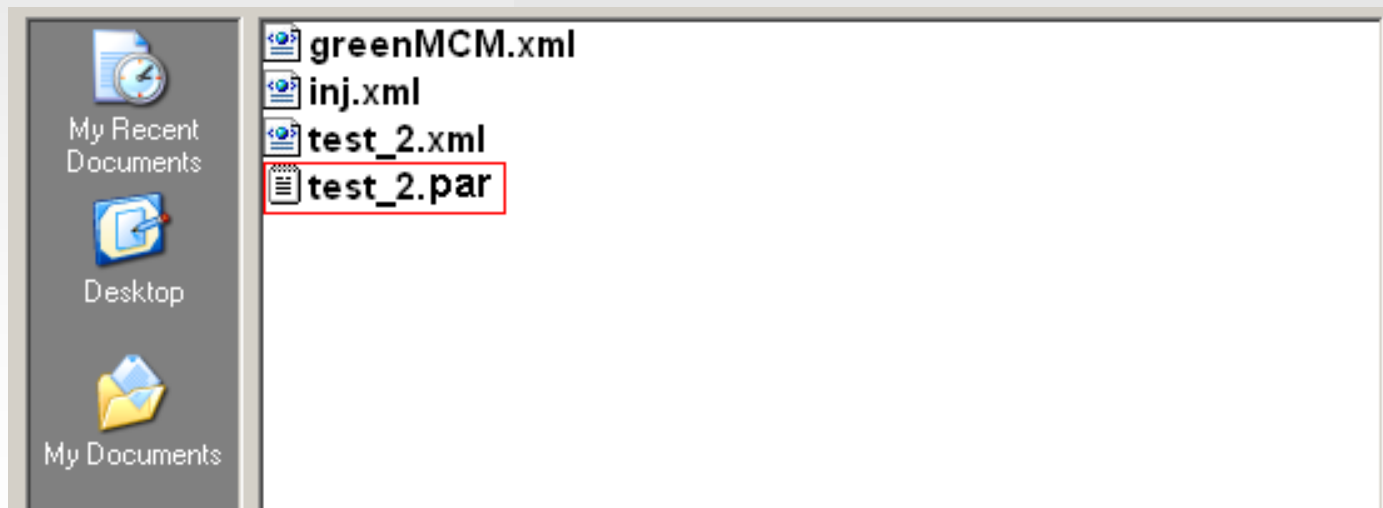
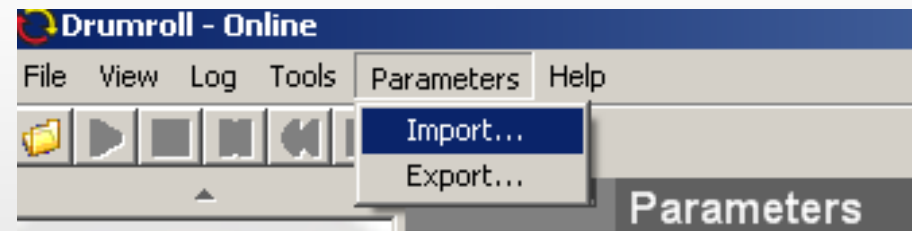
A screenshot of a Notepad window titled "DR_CPC2_V37938_6_01.par - Notepad". The text content is as follows:

```
S, ECU, CPC2, V37938
P, Anti_Tamper, B, 0
P, Axle_Ratio, B, 3.7
P, Config_PTO_Speed_Control, B, 4
P, Cruise_Control_Enable_Eng_Brk, B, 1
P, Enable_Cruise_Auto_Resume, B, 2
P, Enable_Idle_PTO_Shtdn_Override, B, 0
P, Enable_Idle_Shutdown, B, 1
P, Engine_Brake_Configuration, B, 3
P, Gear_Ratio_Gear_Down_Protect, B, 0.7
P, Idle_Shutdown_Time, B, 300
P, J1939_Engine_Retarder_Config, B, 3
P, Limiter1_Max_Eng_Trq_Enabled, B, 2101
P, Max_Cruise_Set_Speed, B, 113
P, Max_PTO_Spd_Resume_Accel_Sw, B, 1000
P, Max_Road_Speed, B, 113
P, Min_Cruise_Set_Speed, B, 40
P, Min_PTO_Spd_Set_Coast_Sw, B, 600
```



2007 Electronic Tools for DDEC VI

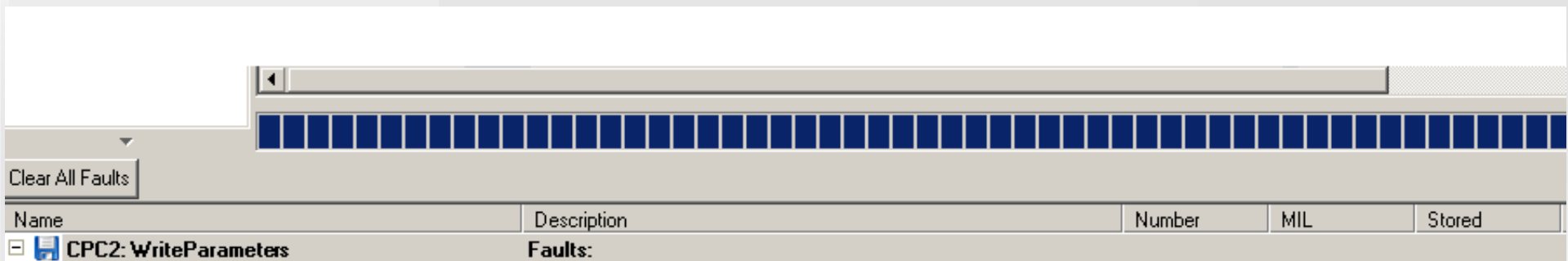
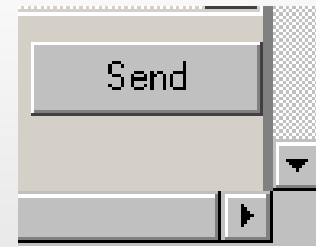
To load a previously created file you must first enter into the “Parameters” window. After the parameters are read out, choose the “Import “ function form the “Parameters” drop-down menu.



When the dialog box of previously stored files appears, choose the one you wish to import into the module and select “Open”.



After choosing the file it will need to be sent to the module. Choose the send button just as if you've made a parameter change.



You will see the progress bar moving across the screen as the parameters are written back to the module.

When the process is complete you will need to re-cycle the ignition to store the changes.



Understanding Security Levels for the Import / Export Functions



The feature “Access Levels Considered with Import/Export of Parameter Data” allows for more security on PAR files. It is not possible for DDC Engineers to provide a PAR file containing Level 3 parameters to a user with Level 1 or Level 2 tools, and expect all parameters to be sent to a device. An error message will be provided to the lower level users when this is attempted. The error will list which parameters were not sent because of insufficient access .

Parameters will be sent to the device in this manner:

- Level 1 Tool (DDDL): only Level 1 parameters are sent to the device without generating an error message.
- Level 2 Tool (DDRS): Level 1 and Level 2 parameters are sent to the device. without generating an error message.
- Level 3 Tool (Drumroll): All parameters (Level 1, Level 2 and Level 3) are sent to the device without generating an error message.



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The screenshot displays a software interface with a table of parameters and an overlaid error dialog box. The table has columns for Parameter, Value, Units, Minimum, Maximum, and D. The parameters listed include CPC2, PGR001 Communication, PGR002 Vehicle Parameters I, PGR003 Common Limiters, and various PGR0 parameters. The error dialog box, titled "Drumroll - DDDL", contains the following text:

Failed to import parameters from C:\Detroit Diesel\Drumroll\User Data\Parameters\test export.par.

PGR010 Engine Brake/Engine Brake Configuration: 06056:Access denied, authorization level too low
PGR010 Engine Brake/Trans Mask Engine Brake: 06056:Access denied, authorization level too low
PGR013 Inputs/Trans Neutral Input Config: 06056:Access denied, authorization level too low
PGR013 Inputs/Clutch Switch Config: 06056:Access denied, authorization level too low
PGR013 Inputs/1 10 DI Selection: 06056:Access denied, authorization level too low

The dialog box has an "OK" button. At the bottom of the main window, there is a status bar with a red "x" icon and the text "Failed to import parameters from C:\Detroit Diesel\Drumroll\User Data\Parameters\test export.par. ..." and a "Send" button.

This screen shot illustrates an error message generated by the tool when a DDDL user (level 1) attempts to import a PAR file which was exported from a DDRS application.

Please note the import process successfully sent all the parameters which only needed level 1 access. Only the items listed in the box were not sent. The message at the bottom of the screen will be modified.



Understanding Password Protection

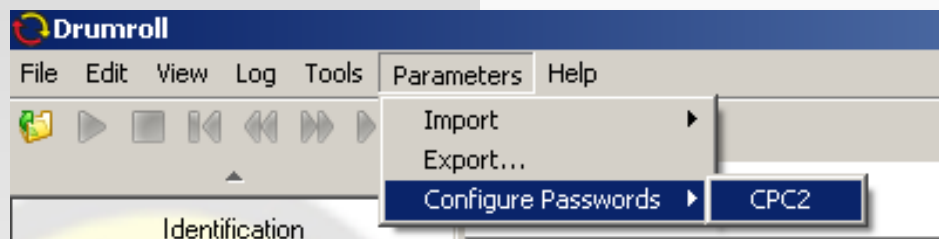


CPC Password Protection

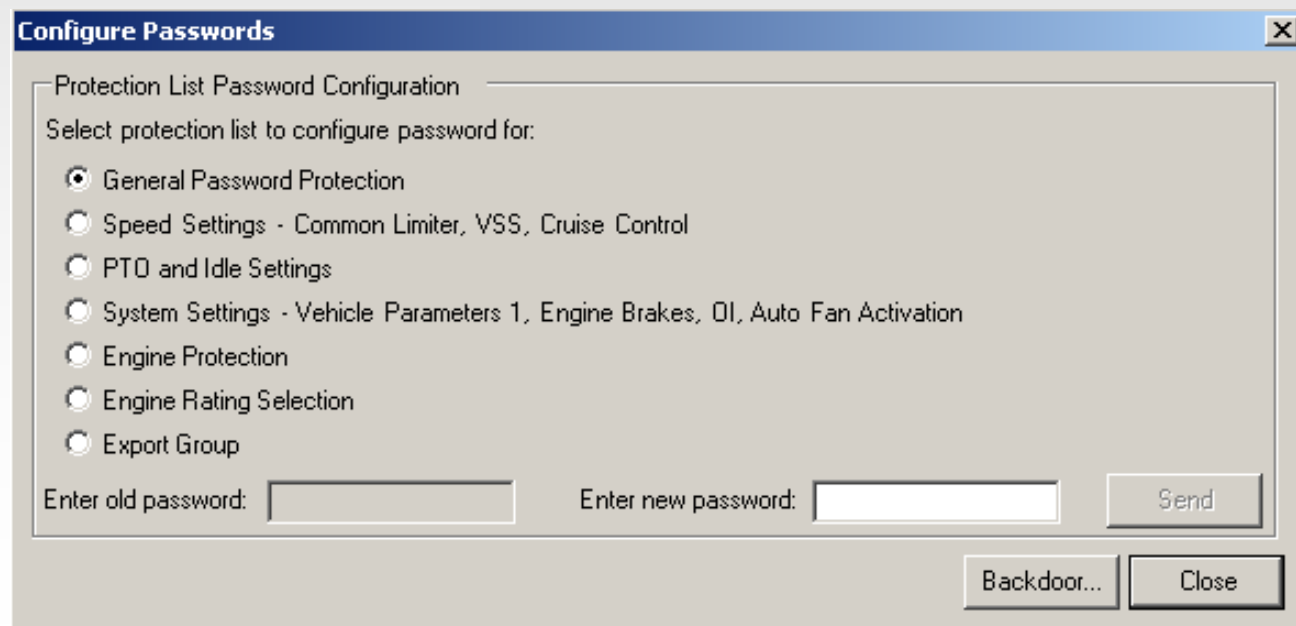
- CPC modules containing R1 software have the ability to password protect their settings.
- Users may protect all their CPC settings with one general password.
- A secondary level of protection for certain parameter groups is also available.
- Password are 4 characters long and may consist of numbers or letters.
- 2007 Detroit Diesel electronic tools contain complete support for CPC password functions.
- The 2007 CPC password protection system has many similarities to the current MBE system.



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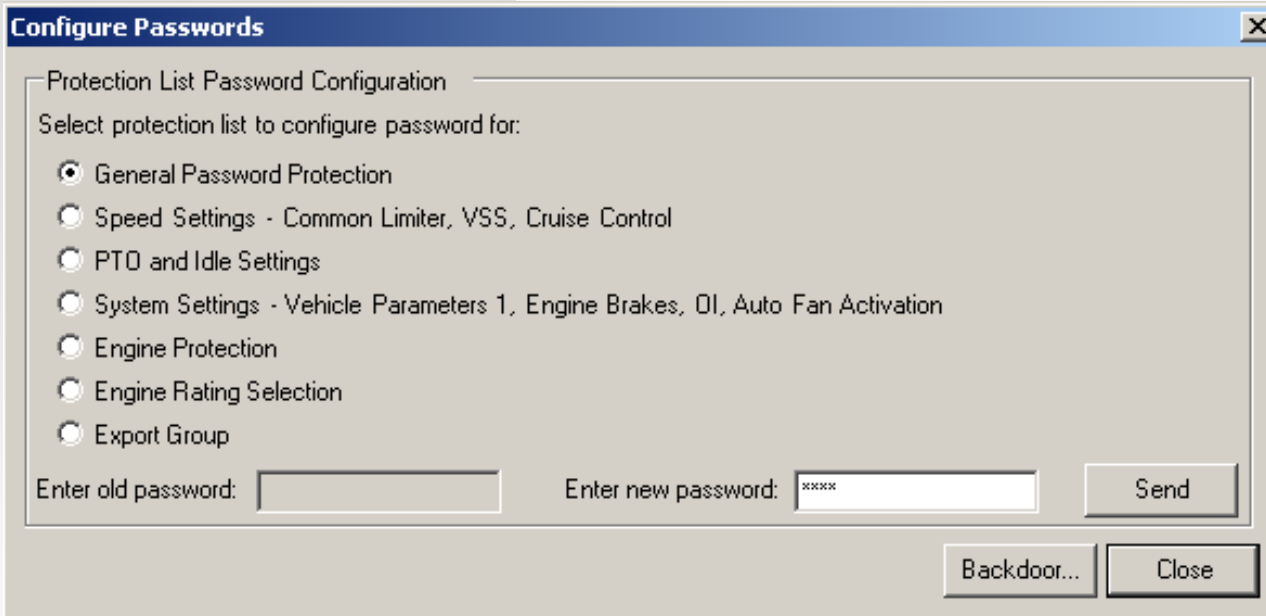
To access the password functions, go to the “Parameters” drop-down menu and choose “Configure Passwords”.



The main screen for setting and changing passwords will appear. You will also see the various groupings available for secondary password protection on this screen.

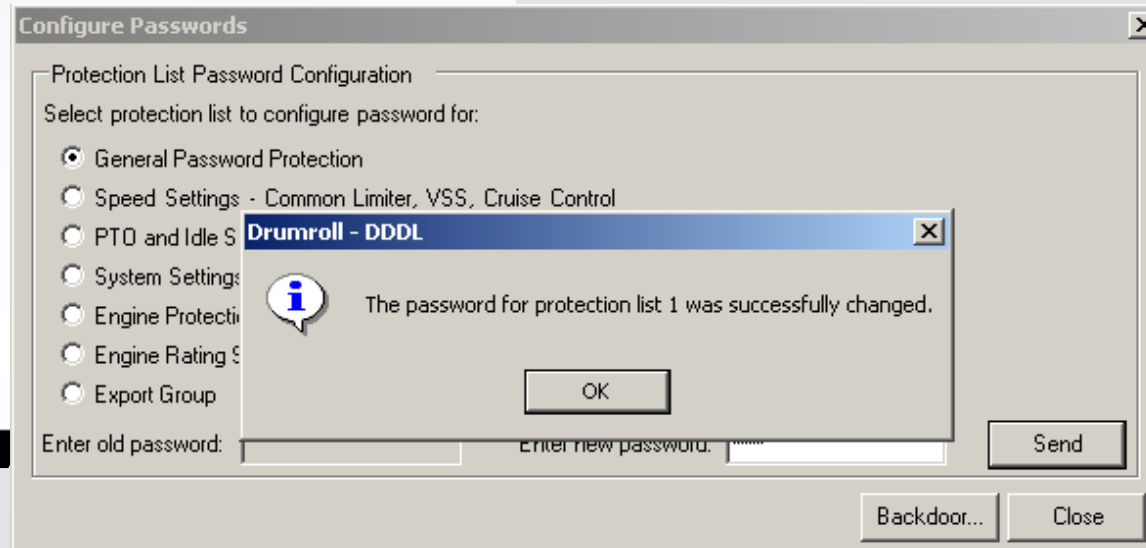


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To enter a new password simply enter the desired password and choose the “Send” box. When the operation is successfully completed you’ll get a message confirming the operation. .

To change a password already in place you would go to the same screen but enter the old password first.



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The screenshot shows the 'Parameters' section of the software. The left sidebar has 'Parameters' selected. The main area displays a tree view under 'CPC2' with various sub-items like 'PGR001 Communication', 'PGR002 Vehicle Parameters I', etc. Below this is a table of parameters with columns for name, units, and values.

Enable Idle Shutdown	enable idle shutd..			
Idle Shutdown Time	300	s	1	5000
Enable PTO Shutdown	enable PTO shut...			
PTO Shutdown Time	300	s	1	5000
	73.7561033	ft-lb	0	3687.805165
	50	*F	-40	392
	disabled			
	24.8	*F	-40	167
	89.6	*F	-40	167
	no automatic ove...			

The 'Enter Password' dialog box is open, showing a list of protection lists and a password field. The lists include: General Password Protection, Speed Settings - Common Limiter, VSS, Cruise Control, PTO and Idle Settings, System Settings - Vehicle Parameters 1, Engine Brakes, OI, Auto Fan Activation, Engine Protection, Engine Rating Selection, and Export Group.

This screen illustrates what the user will observe when he attempts to change a parameter in a CPC that is currently password protected.

The user will make any changes as described previously but the protection screen will appear after the "Send" button is clicked.

and click on "OK" to finish sending the change.



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Identification

Common | Audit Trail | Stored Data

CPC2

Device Configuration
Software Mode Running in Application

Device Information

Configure Passwords

- Protection List Password
- Select protection list to configure
- General Password Protection
- Speed Settings - Configuration
- PTD and Idle Settings - Configuration
- System Settings - Configuration
- Engine Protection
- Engine Rating Selection
- Export Group

Enter old password:

Backdoor Password

This screen allows you to reset the password information. To continue, you must call the Detroit Diesel support center at +1 (313) 592 5505 and provide the following information.

Item	Value
Device	CPC2
VIN	000000000000000000
Seed	3CF8CAB328D57FA3

You will be provided with a backdoor password to enter below. After entering this password you will be able to change or reset your passwords without entering the previous passwords.

Enter backdoor password:

OK Cancel

For instances of lost or forgotten passwords there is a backdoor function which may be accessed through from the main password configuration screen.

To begin the process of unlocking a CPC with with an unknown password copy the "Seed" value and call the Customer Support Center (CSC) at 313-592-5800.

Note: DO NOT close the original window where the seed value appears. If you close the window the seed will change.

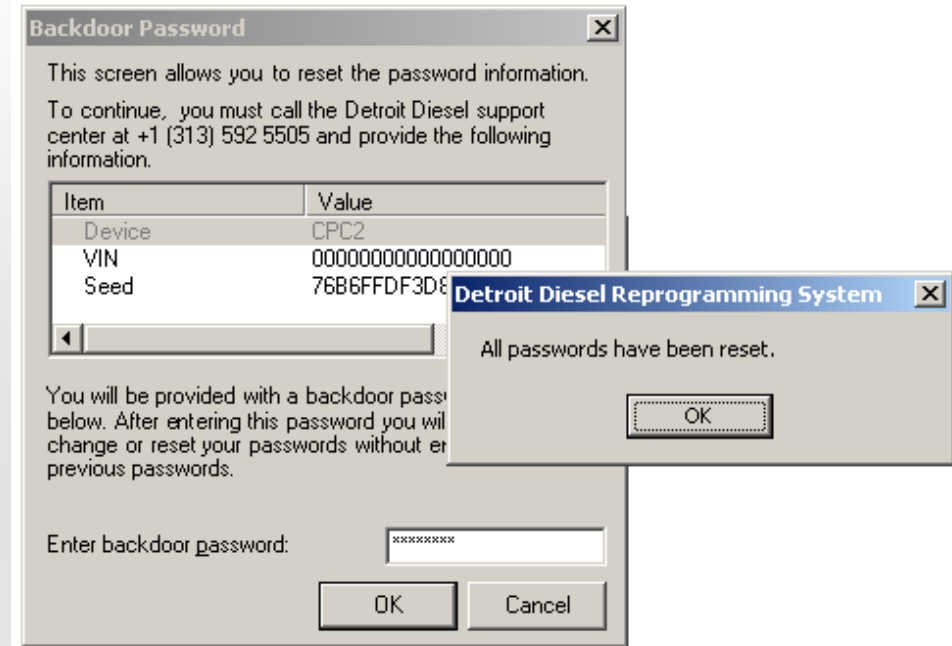


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The CSC will require that you provide specific information on the particular circumstances of the backdoor request prior to releasing a backdoor password. This is for security and tracking purposes.

When you have received the backdoor password enter it in the proper box and select the "OK" box



When the correct password has been entered you will receive message telling you that all the passwords have been reset.

Note: The 2007 backdoor function permanently clears all set passwords in the CPC. You will need to reset your chosen password levels to resume CPC password protection.



X. Using the Service Routine Window



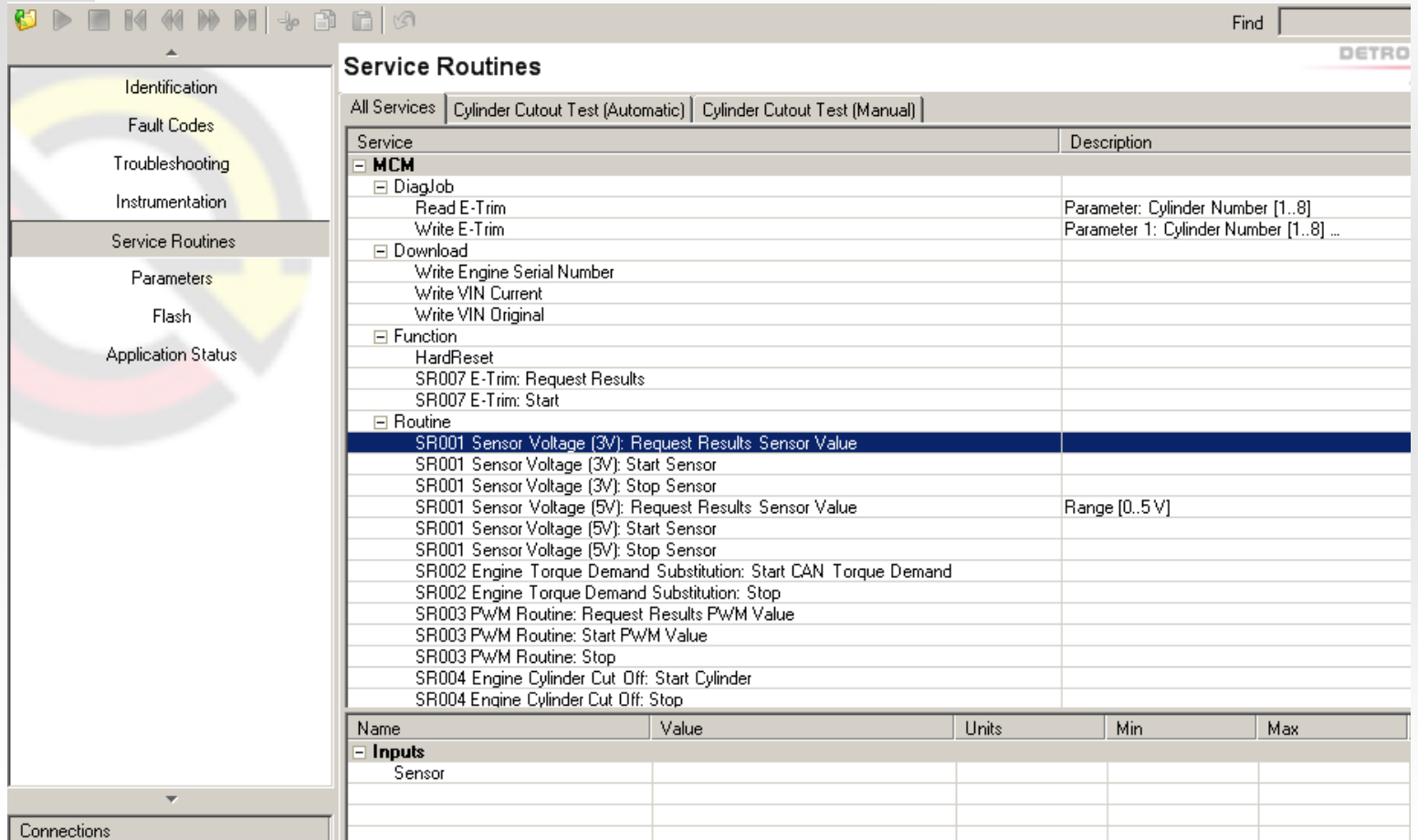
2007 Electronic Tools for DDEC VI

Service Routines

- Service routines are located in both the MCM and CPC modules and cover a wide variety of functionality

- Routines may appear differently depending upon the level of software in the modules and the type of tool being used.

- Some routines have automatic implementation, others require manual implementation by the user.



The screenshot shows the 'Service Routines' window in a software application. The window has a menu bar with 'All Services', 'Cylinder Cutout Test (Automatic)', and 'Cylinder Cutout Test (Manual)'. Below the menu bar is a table with columns for 'Service' and 'Description'. The table is expanded to show a list of routines under the 'MCM' category. The routines include 'DiagJob', 'Download', 'Function', and 'Routine'. The 'Routine' category is expanded to show a list of routines with their names and descriptions. The 'Inputs' section is also visible at the bottom of the window.

Service	Description
MCM	
DiagJob	
Read E-Trim	Parameter: Cylinder Number [1..8]
Write E-Trim	Parameter 1: Cylinder Number [1..8] ...
Download	
Write Engine Serial Number	
Write VIN Current	
Write VIN Original	
Function	
HardReset	
SR007 E-Trim: Request Results	
SR007 E-Trim: Start	
Routine	
SR001 Sensor Voltage (3V): Request Results: Sensor Value	
SR001 Sensor Voltage (3V): Start Sensor	
SR001 Sensor Voltage (3V): Stop Sensor	
SR001 Sensor Voltage (5V): Request Results: Sensor Value	Range [0..5 V]
SR001 Sensor Voltage (5V): Start Sensor	
SR001 Sensor Voltage (5V): Stop Sensor	
SR002 Engine Torque Demand Substitution: Start CAN Torque Demand	
SR002 Engine Torque Demand Substitution: Stop	
SR003 PWM Routine: Request Results PWM Value	
SR003 PWM Routine: Start PWM Value	
SR003 PWM Routine: Stop	
SR004 Engine Cylinder Cut Off: Start Cylinder	
SR004 Engine Cylinder Cut Off: Stop	

Name	Value	Units	Min	Max
Inputs				
Sensor				



2007 Electronic Tools for DDEC VI

A cross section of service routines available in the MCM software.

All Services | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual)

Service	Description
+ CPC2	
- MCM	
- DiagJob	
E-Trim	
- Download	
Write Engine Serial Number	
Write VIN Current	
Write VIN Original	
- Function	
SR007 E-Trim: Request Results	
SR007 E-Trim: Start	
SR007 E-Trim: Stop	result status of ACD Start
- Routine	
SR001 Sensor Voltage (3V): Start Sensor Value	
SR001 Sensor Voltage (5V): Start Sensor Value	
SR004 Engine Cylinder Cut Off: Start Cylinder	
SR004 Engine Cylinder Cut Off: Stop	
SR006 Automatic Compression Test: Request Results acd_activate_status_bit_0	result status of ACD Start
SR006 Automatic Compression Test: Request Results acd_cyl_1_compression_value	relative compression value for cylinder 1
SR006 Automatic Compression Test: Request Results acd_cyl_2_compression_value	relative compression value for cylinder 1
SR006 Automatic Compression Test: Request Results acd_cyl_3_compression_value	relative compression value for cylinder 1
SR006 Automatic Compression Test: Request Results acd_cyl_4_compression_value	relative compression value for cylinder 1
SR006 Automatic Compression Test: Request Results acd_cyl_5_compression_value	relative compression value for cylinder 1
SR006 Automatic Compression Test: Request Results acd_cyl_6_compression_value	relative compression value for cylinder 1
SR006 Automatic Compression Test: Request Results not used_1	not used in NAFTA
SR006 Automatic Compression Test: Request Results not used_2	not used in NAFTA
SR006 Automatic Compression Test: Start	
SR006 Automatic Compression Test: Stop acd_activate_status_bit_0	result status of ACD Start

Name	Value	Units	Min	Max	Description
- Inputs					
VIN	<input type="text"/>				

Execute Service



2007 Electronic Tools for DDEC VI

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | DPF Regeneration | Voltages

In addition to the “All Services Tab”, The most frequently used service routines appear on user-friendly tabs:.

- The Injector Codes Tab
- The Rating Tab
- The Real-time Clock Tab
- The Turbo Actuator Tab
- The Activate Outputs (for both MCM & CPC) Tab
- The Compression Test Tab
- The Automatic & Manual Cylinder Cutout Test Tab
- The DPF Regeneration Tab
- The Voltage Tab (for all 3 & 5 volt sensors).



2007 Electronic Tools for DDEC VI

Service Routines



All Services | **Injector Codes** | Real-time Clock | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | Voltages

Use this panel to set injector codes.



Code for cylinder in position 1:

Code for cylinder in position 2:

Code for cylinder in position 3:

Code for cylinder in position 4:

Code for cylinder in position 5:

Code for cylinder in position 6:

Display Current

Send Codes

Injector Codes Panel / Production DDEC VI engine injectors will contain injector codes for optimal performance. This panel will allow the user to read the current values of the injectors and also allow the entry of new values when the injector is replaced in the shop. The user will enter the value on the of the new injector (highlighted in red in picture above) and then send the value to the MCM. There is built in error checking procedure to prevent entry errors.



2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | **Rating** | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Use this panel to set the rating.

High Power

Power: 490 BHP @ 1800 rpm / Torque: 1550 ft-lb @ 1100 rpm

Select

Low Power

Power: 455 BHP @ 1800 rpm / Torque: 1550 ft-lb @ 1100 rpm

Select

Cruise Power

Power: 455 BHP / 490 BHP @ 1800 rpm / Torque: 1550 ft-lb @ 1100 rpm

Select

Selection:

Read Rating

Send Rating

The Rating Panel allows the user to easily manage the horsepower choices available in a particular fuel map. To see which of the ratings is currently selected click on the “Read Rating” box. The rating currently selected will remain grayed out while the other two choices will be darkened in indicating they are available for making change. To make a change the user selects the new rating he wants and then clicks on the “Send Rating” box.

Note: If the CPC password protection feature is being used, the user will be asked to enter the proper password (or passwords) before this change will be sent to the module.



2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | Real-time Clock | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | Voltages

Use this panel to set the real-time clock.

Warning: Ensure that the PC time zone is correct before setting the real-time clock.

Time Zone: Eastern Standard Time

Set the real-time clock to match the PC time...

PC Time: 2006/11/04 08:12:22 Set

...or set the real-time clock to a specific time.

Custom Time: 2006/11/04 08:12:12 Set

Note that the real-time clock value shown under Identification is represented in GMT, not your local time zone.

Real-time Clock Panel – In early CPC hardware the real time clock was not set at the factory but could be changed manually. CPC production intent hardware has the time set to GMT as part of production process. Production electronic tools will display the time and date stamp data based on the local PC time zone.



2007 Electronic Tools for DDEC VI

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | **Activate Outputs** | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | DPF Regeneration | Voltages

ID Item	Received	Commanded	Units	Status
CPC2 Analog by Pin				
FPD_01				
FPD_02				
AQ_01				
AQ_02				
CPC2 Analogs by Function				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Oil Pressure Gage				
Coolant Temperature Gage				
I/WA (current value comparator)				
Speedometer				
CPC2 Digitals by Function				
Stop Engine Lamp	on	off		Succeeded
Check Engine Lamp				
Wait To Start Lamp				
Malfunction Indicator Lamp				
Optimized Idle Active Lamp				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Air Filter Lamp				
Transmission Temperature Lamp				
Oil Level Lamp				
Accelerator Pedal Lamp				
DPF Regeneration Lamp				
High Exhaust Temperature Lamp				
AGS2 Back Lamp				
AGS2 Transmission Temperature Lamp				
AGS2 Check Transmission Lamp				
Accelerator Pedal Kick Down				
TOP2 Lockout				
TOP2 Shift				
Optimized Idle Alarm				
Vehicle Power Shutdown / Ignition Relay				
Relay 2 Pin 3/9				
Relay 3 Pin 4/9				
Relay 4 Pin 4/7				
Gear 1 Pin 4/10				
Gear 2 Pin 3/8				
Starter Lockout				
CPC2 Digitals by Pin				
DO_LP_FLEX_01				
DO_LP_FLEX_02				
DO_LP_FLEX_03				
DO_LP_FLEX_04				
DO_LP_FLEX_05				
DO_LP_FLEX_06				
DO_LP_FLEX_07				

Use Slider or Text Box to set the Percent Activation, Then Press Button

0% 100%

Set

Duration seconds Stop

The “Activate Outputs” Service Tab works with outputs from both the MCM and CPC.

The appearance in the main workspace will change depending upon which group of outputs you are working in.

In the example of the CPC analog gauge outputs the user may set a desired output percentage, and initiate start / stop commands, but not set a duration for the commands.



2007 Electronic Tools for DDEC VI

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | DPF Regeneration | Voltages

ID Item	Received	Commanded	Units	Status
CPC2 Analog by Pin				
FP0_01				
FP0_02				
AO_01				
AO_02				
CPC2 Analogs by Function				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Oil Pressure Gage				
Coolant Temperature Gage				
I/WA (current value comparator)				
Speedometer				
CPC2 Digitals by Function				
Stop Engine Lamp	on	off		Succeeded
Check Engine Lamp				
Wait To Start Lamp				
Malfunction Indicator Lamp				
Optimized Idle Active Lamp				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Air Filter Lamp				
Transmission Temperature Lamp				
Oil Level Lamp				
Accelerator Pedal Lamp				
DPF Regeneration Lamp				
High Exhaust Temperature Lamp				
AGS2 Back Lamp				
AGS2 Transmission Temperature Lamp				
AGS2 Check Transmission Lamp				
Accelerator Pedal Kick Down				
TOP2 Lockout				
TOP2 Shift				
Optimized Idle Alarm				
Vehicle Power Shutdown / Ignition Relay				
Relay 2 Pin 3/9				
Relay 3 Pin 4/9				
Relay 4 Pin 4/7				
Gear 1 Pin 4/10				
Gear 2 Pin 3/8				
Starter Lockout				
CPC2 Digitals by Pin				
DO_LP_FLEX_01				
DO_LP_FLEX_02				
DO_LP_FLEX_03				
DO_LP_FLEX_04				
DO_LP_FLEX_05				
DO_LP_FLEX_06				
DO_LP_FLEX_07				

Press Button to set to Desired State

on

Duration seconds

In the example of the CPC digital outputs by function, the inputs may only be turned on or off. There are no percentages or duration settings available.



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IO Item	Received	Commanded	Units	Status
MCM Analogs				
PWM 1				
PWM 2				
PWM 3				
PWM 4				
PWM 5				
PWM 6				
PWM 7				
PWM 8				
PWM 9				
PWM 10				
PWM 12				
PWM 13				
MCM Digitals				
SW 1				
SW 2				
SW 3				
SW 4				
SW 5				
SW 6				
SW 7				
SW 8				
CPC2 Analog by Pin				
FPD_01				
FPD_02				
AD_01				
AD_02				
CPC2 Analogs by Function				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Oil Pressure Gage				
Coolant Temperature Gage				
IWA (current value comparator)				
Speedometer				
CPC2 Digitals by Function				
Stop Engine Lamp	on	off		Succeeded
Check Engine Lamp				
Wait To Start Lamp				
Malfunction Indicator Lamp				
Optimized Idle Active Lamp				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Air Filter Lamp				
Transmission Temperature Lamp				
Oil Level Lamp				
Accelerator Pedal Lamp				
DPF Regeneration Lamp				
High Exhaust Temperature Lamp				

Press Button to set to Desired State

On

Duration seconds

The MCM digital outputs section (to control engine SW functions) allows the user to:

- Turn the switch function on or off
- Set the duration of time the desired switch is on

Note: At this time the user needs to go view the MCM par file to properly identify the PWM and Switch settings for the specific engine being worked with.



2007 Electronic Tools for DDEC VI

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | DPF Regeneration | Voltages

ID Item	Received	Commanded	Units	Status
MCM Analogs				
PwM 1				
PwM 2				
PwM 3				
PwM 4				
PwM 5				
PwM 6				
PwM 7				
PwM 8				
PwM 9				
PwM 10				
PwM 12				
PwM 13				
MCM Digitals				
SW 1				
SW 2				
SW 3				
SW 4				
SW 5				
SW 6				
SW 7				
SW 8				
CPC2 Analog by Pin				
FPO_01				
FPO_02				
AO_01				
AO_02				
CPC2 Analogs by Function				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Oil Pressure Gage				
Coolant Temperature Gage				
IWA (current value comparator)				
Speedometer				
CPC2 Digitals by Function				
Stop Engine Lamp	on	off		Succeeded
Check Engine Lamp				
Wait To Start Lamp				
Malfunction Indicator Lamp				
Optimized Idle Active Lamp				
Oil Pressure Lamp				
Coolant Temperature Lamp				
Air Filter Lamp				
Transmission Temperature Lamp				
Oil Level Lamp				
Accelerator Pedal Lamp				
DPF Regeneration Lamp				
High Exhaust Temperature Lamp				

Use Slider or Text Box to set the Percent Activation, Then Press Button

0% 100%

Set

Duration seconds

The MCM analog outputs section (to control engine PWM functions) allows the user to:


- Set a percentage of the PWM output.
- Set the duration of time the percentage is desired.
- Start and Stop the function

Note: At this time the user needs to go view the MCM par file to properly identify the PWM and Switch settings for the specific engine being worked with.



2007 Electronic Tools for DDEC VI

Service Routines

DETROIT DIESEL 
A DaimlerChrysler Company

All Services | Injector Codes | Real-time Clock | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | Voltages

Cylinder Position 1	Cylinder Position 2	Cylinder Position 3
Cylinder Position 4	Cylinder Position 5	Cylinder Position 6

Start the test with the engine off and the ignition on.

1
Run Test

C1 – Compression Test
- For all engine types from 7.3.3.5 and higher levels of software with the proper fuel map configuration. This will vary with wide variety of test software currently in the field but will be available for production vehicles.

The test measures relative compression of all cylinders based on cylinder with the “best” compression.

To begin the test click on the “Run Test” box (1) in the lower right and follow the instructions that follow.



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The DPF Regeneration tab allows the user to start a manual regeneration of the after treatment device, monitor the values of key after treatment system components while the test is in progress without leaving the service routine screen, and stop the process for any reason once it has begun by selecting the “Stop Request” box.

To initiate the command to start the Regen process the user must complete all the necessary safety checks (see the After Treatment Technician's Guide for details). The “Start Request” box will become active and the process may be started..

Note: A regen process begun by the DDDL 7.0 tool will be terminated if the tool is removed from the vehicle diagnostic connector.



2007 Electronic Tools for DDEC VI

Service Routines

All Services	Injector Codes	Real-time Clock	Activate Outputs	Compression Test	Cylinder Cutout Test (Automatic)	Cylinder Cutout Test (Manual)	Voltages
A19 (Pin 119) - T_ICOOLER_OUT	V	A1 (Pin 30) - P_DPF_OUT	V	A10 (Pin 84) P_Fuel	V		
A21 (Pin 86) - T_COMP_IN	V	A2 (Pin 60) - POS_EGR	V	A12 (Pin 111) - P_HCD	V		
A24 (Pin 83) - T_EGR	V	A2 (Pin 60) - POS_IAT	V	A13 (Pin 81) - Pos_VNT	V		
A25 (Pin 112) - T_COMP_OUT	V	A4 (Pin 120) - P_EGR OR P_COMP_IN OR P...	V	A14 (Pin 109) - DP_EGR OR DP_COMP_IN O...	V		
A26 (Pin 110) - T_COOLANT_OUT	V	A5 (Pin 57) - L_Water (MBE900/HDEP) OR T...	V	A16 (Pin 29) - T_DOC_OUT	V		
A27 (Pin 80) - T_COOLANT_IN	V	A6 (Pin 87) - P_ICOOLER_OUT (MBE900/MBE...	V	A18 (Pin 89) - T_DOC_IN	V		
A28 (Pin 108) - T_ENGINE_OIL	V	A7 (Pin 118) - P_DPF_IN	V	A22 (Pin 115) - T_DPF_OUT	V		
A29 (Pin 77) - T_FUEL	V	A8 (Pin 116) - L_ENGINE_OIL (MBE900/MBE...	V				
A30 (Pin 106) - T_INTAKE	V	A9 (Pin 54) - P_Engine_Oil	V				

Start Acquiring

Stop Acquiring

3 and 5 Sensor Voltage Routines

To begin monitoring the sensor voltage values, click on the “Start Acquiring” box.

At this time you must use the pin chart to clearly identify the values displayed.

Please note not all values on the tab will be configured on every vehicle.



The Turbo Actuator Service Tab



The S-60 production turbocharger has an electronic actuator controlled by the MCM via CAN communications. There are 3 service routines that are used for installing and diagnosing the electronic actuator.

- 1) The Pre-Alignment test – rotates the output gear to coincide with the nozzle position **Note: This test must never be run with the actuator mounted on the turbo.**
- 2) The Self Calibration test – enables the actuator to memorize the turbo end stops
- 3) The Scan test – checks for free nozzle movement



Running the Pre-Installation Routine



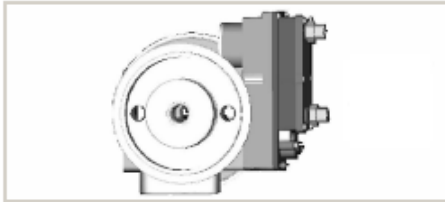
2007 Electronic Tools for DDEC VI

Service Routines

DETROIT DIESEL
A DaimlerChrysler Company

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:



MCM Connected

Status:

Ecu Connected.

Pre-Installation

Self-Calibration

The pre-installation routine is run on the actuator prior to installation on the turbo.

Connect the actuator to vehicle harness.

With DDDL connected through the vehicle's diagnostic connector, go to the "Turbo Actuator" tab of the "Service Routines" section.

Select the "Pre-Installation" box in the lower left of the screen.



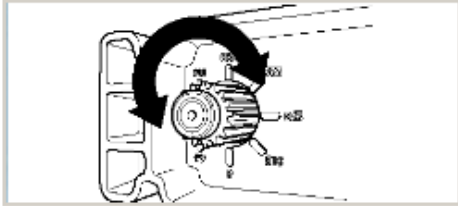
2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout

Instructions:



Ensure the output gear is unimpeded.
Click <Next> to proceed.

Status:

Pre-Installation Operation.

Pre-Installation

Self-Calibration

Stop

Previous

Next

Start

Follow the instructions in the upper half of the screen. Click on the "Next" box in the lower right to proceed.



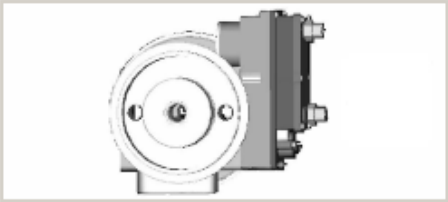
2007 Electronic Tools for DDEC VI

Service Routines

DETROIT DIESEL
A DaimlerChrysler Company

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:



Click <Start> to move the gear into initial position or <Previous> to go back.

Status:

Pre-Installation Operation.

Pre-Installation | Self-Calibration | Stop | Previous | Next | **Start**

To begin the routine click on the “Start” box in the lower right of the screen.



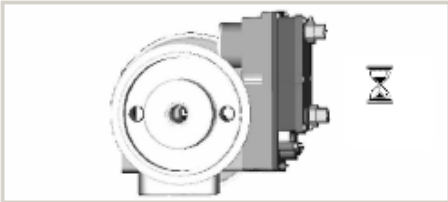
2007 Electronic Tools for DDEC VI

Service Routines

DETRUIT DIESEL
A DaimlerChrysler Company

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test

Instructions:



Pre-Installation Running...
Click <Stop> to abort operation.

Status:

Pre-Installation Operation.
Performing Pre-Installation...
Pre-Installation Started Successfully.
In Progress-Step Three

Pre-Installation | Self-Calibration | Stop | Previous | Next | Start

Once the routine is started the progress is tracked in the lower half of the screen. The movement of the gear will be audible as the function is completed. The function takes only a few seconds to run.



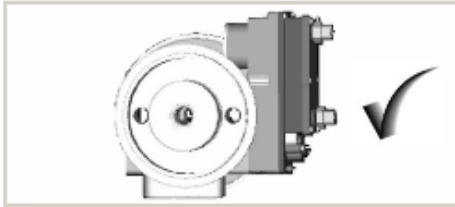
2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:



MCM Connected and Idle

Status:

Pre-Installation Operation.
Performing Pre-Installation...
Pre-Installation Started Successfully.
In Progress-Step Three
In Progress-Step Three
Pre-Installation Completed Successfully.

Pre-Installation

Self-Calibration

When the routine has finished the results will appear automatically. The user will see a check mark in the upper half of the screen and a message saying the test was successfully completed in the lower half of the screen.

To move on the next step select the “self Calibration” box in the lower left.



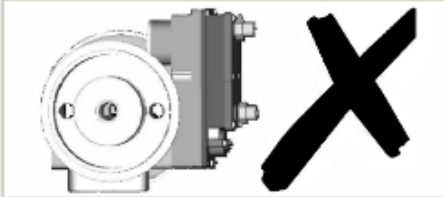
2007 Electronic Tools for DDEC VI

Service Routines

DETROIT DIESEL
A DaimlerChrysler Company

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:



MCM Connected and Idle

Status:

Self-Calibration Operation.
Performing Self-Calibration...
Self-Calibration Started Successfully.
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
Error: Self-Calibration Status aborted with the following message 'Aborted, Time Out-Step Three'.
SRA5 Status Code: 23
Error: Self-Calibration Stop encountered an invalid output qualifier.

Pre-Installation | Self-Calibration

If the test fails the top half of the screen will alert the user with an "X" in the graphic and the text at the bottom of the screen will give more details on the nature of the failure.



Running the Calibration Routine



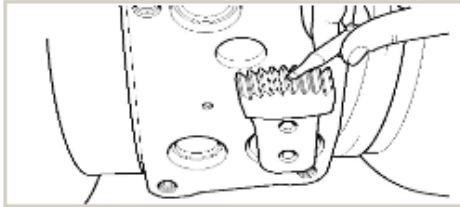
2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:



***Important: Pre-Installation must be performed before running a Self-Calibration.

Clean any debris from the sector gear and apply the correct grease.

Click <Next> to proceed.

Status:

Self-Calibration Operation.

Pre-Installation

Self-Calibration

Stop

Previous

Next

Start

Follow the on-screen instructions for installing the actuator properly on the turbo. Make sure you have all the correct pieces from the installation kit. The kit should contain mounting bolts, alignment pin, and grease.

Select “Next” when you are ready.



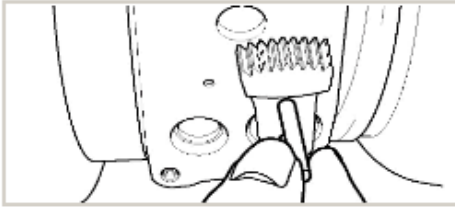
2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout

Instructions:



Position turbo sector gear to correspond with the actuator output gear by aligning the reference holes. Remove the pin before mounting.
Click <Next> to proceed or <Previous> to go back.

Status:

Self-Calibration Operation.

Pre-Installation

Self-Calibration

Stop

Previous

Next

Start

Follow the on-screen instructions to align the reference holes and select "Next" when finished



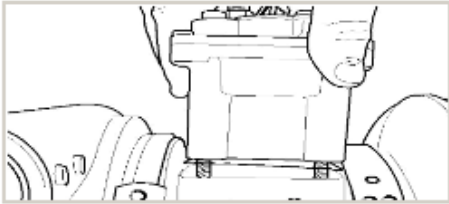
2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:



Mount the actuator securely onto the turbo, making sure the nozzle is in the recommended position.
Click <Next> to proceed or <Previous> to go back.

Status:

Self-Calibration Operation.

Pre-Installation

Self-Calibration

Stop

Previous

Next

Start

You may now mount the actuator. Make sure the new gasket is properly aligned during the installation and the mounting bolts torqued to proper specifications.

Once the actuator is securely installed select the "Next" box.



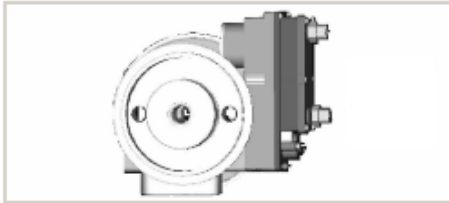
2007 Electronic Tools for DDEC VI

Service Routines



All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:



Click <Start> to execute the self-calibration process or <Previous> to go back.

Status:

Self-Calibration Operation.

Pre-Installation

Self-Calibration

Stop

Previous

Next

Start

To begin the routine click on the “Start” box in the lower right of the screen.



2007 Electronic Tools for DDEC VI

Service Routines

DETROIT DIESEL
A DaimlerChrysler Company

All Services | Injector Codes | Rating | Real-time Clock | Turbo Actuator | Activate Outputs | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout 1

Instructions:

MCM Connected and Idle

Status:

Self-Calibration Operation.
Performing Self-Calibration...
Self-Calibration Started Successfully.
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
In Progress-Step Three
Self-Calibration Completed Successfully.

Pre-Installation | Self-Calibration

When the routine is finished the results will appear automatically. The user will see a check mark in the upper half of the screen and a message saying the test was successfully completed in the lower half of the screen.

If the test fails there will be a black "X" displayed in the graphic in the upper portion of the screen and descriptive test in the lower half of the screen.



Note: The Scan test is still being implemented and will be documented at a later time



A Step by Step Look at the Cylinder Cutout Routine



The Cylinder Cut Out Routine

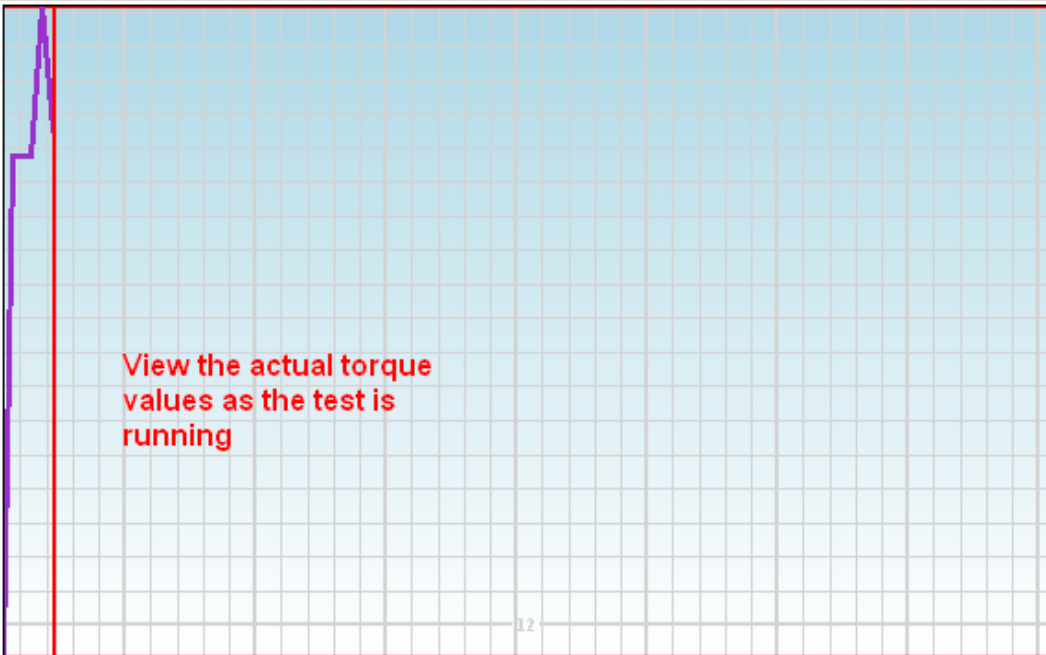
- This section will document the procedure using the cylinder cutout test to help diagnose a faulty cylinder with DDDL.
- DDDL offers users the choice of running the automated cylinder cutout test (running at 1000 RPM) or allows the user to manually run the test.
- The cylinder cutout test has special tabs in the “Service Routines” section.
- It is recommended that a new diagnostic session be initiated to begin a new log file.
- It should be noted that cylinders are identified by position within the 2007 electronic tools and not by firing order.



2007 Electronic Tools for DDEC VI

Service Routines

All Services **Cylinder Cutout Test (Automatic)** Cylinder Cutout Test (Manual)



View the actual torque values as the test is running

ASD13: Coolant Te... °F 101
ASD10: Engine S... rpm 613
ASD03: Actual Tor... ft-lb 15

09:24:45.906 09:25:00 09:25:15 09:25:30 09:25:45 09:26:00 09:26:15 09:26:30
ft-lb Time Width = 00:02:00.000
ASD03: Actual Torque Tuesday 04/11/2006

View Selection Zoom In Zoom Out View All

No test running. The test status panel will monitor the progress of the test

Start the test here

Run Test

We'll begin by reviewing the procedure for the automatic cylinder cutout test.

The automatic test currently cuts out one cylinder at a time in physical sequential order.

To begin the test click on the "Run Test" box.



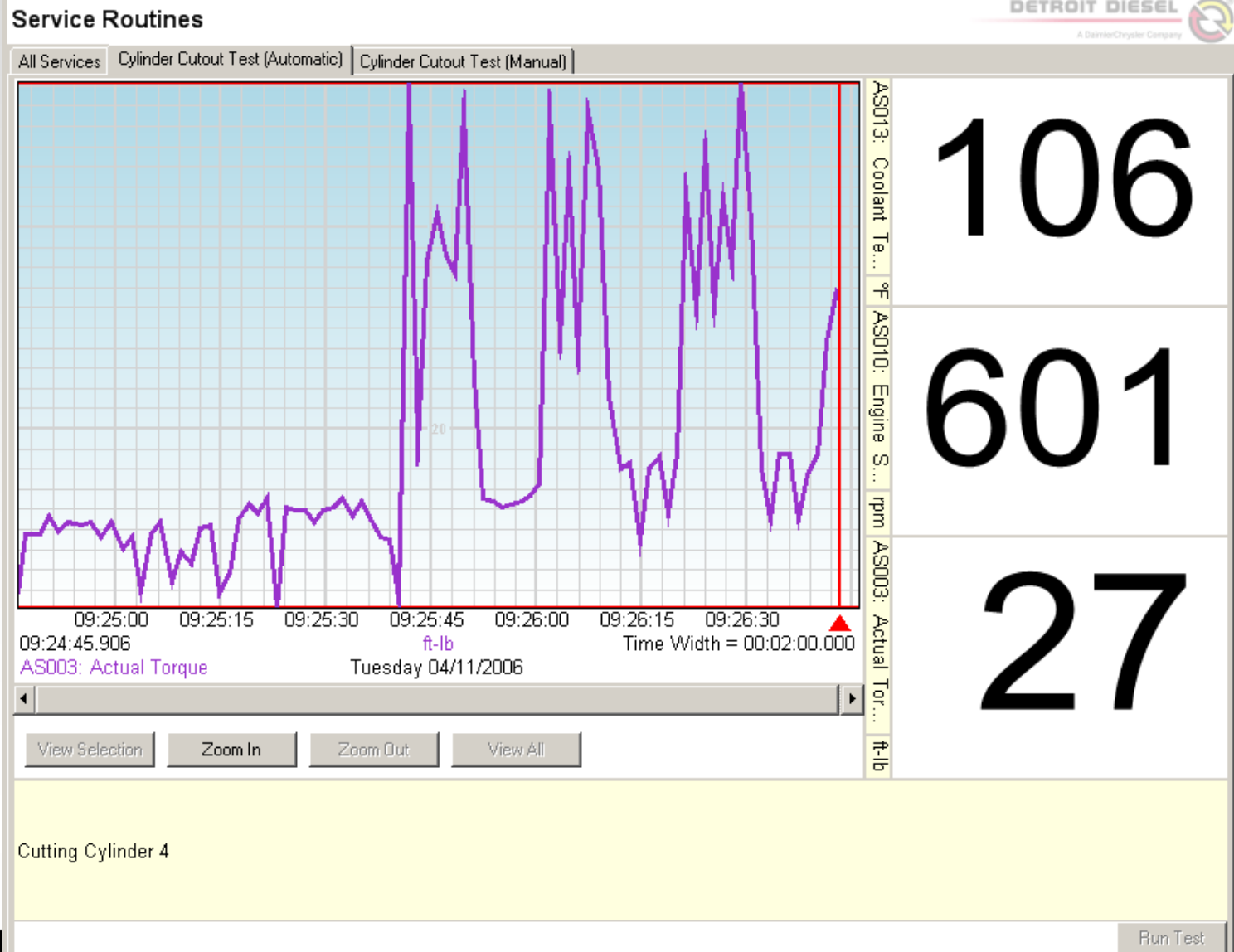
2007 Electronic Tools for DDEC VI

We are now viewing the screen as it will appear during an automatic cutout test.

The actual torque value rises each time a good cylinder is cut out to compensate for the torque loss.

Cutting a bad cylinder will not change the actual value.

The window below the chart gives the status of the test as it moves forward.



2007 Electronic Tools for DDEC VI

When the test is complete you'll be informed in the status window below.

Cylinder Cutout test complete.

The numerical results of the test are displayed completely at that time. The complete results may also be viewed graphically.

The screenshot shows a software window titled "Service Routines" with a menu bar (File, Edit, View, Log, Tools, Parameters, Help) and a toolbar. A left-hand navigation pane lists: Identification, Fault Codes, Troubleshooting, Instrumentation, Service Routines (highlighted), Parameters, Flash, and Application Status. The main display area shows the "Cylinder Cutout Test (Automatic)" results. It includes a text box stating "Below is the torque lost when cutting each cylinder" and a table of results.

Cylinder Position 1	Cylinder Position 4
143.97 Nm	24.70 Nm
Cylinder Position 2	Cylinder Position 5
145.72 Nm	142.75 Nm
Cylinder Position 3	Cylinder Position 6
125.92 Nm	146.30 Nm



2007 Electronic Tools for DDEC VI

You may also go the tab for performing a manual cylinder cutout and manually run the test. You need to go to the workspace in the lower level of the screen. You will be able to select the cylinder and issue the instructions in manual mode.

Service Routines

Real-time Clock | Turbo Actuator | Activate Outputs | Air Mass Adaptation | Compression Test | Cylinder Cutout Test (Automatic) | Cylinder Cutout Test (Manual) | Df

11:35:45.140 11:36:00 11:37:00 Time Width = 00:02:00.000

View Selection Zoom In Zoom Out View All Re-Tile All Full

ASL005: Coolant Temperature °F ASL002: Engine Speed rpm ASL002: Actual Torque ft-lb

Cylinder Control

Turn All Cylinders On

Cylinder1 On Off

Cylinder2 On Off

Cylinder3 On Off

Cylinder4 On Off

Cylinder5 On Off

Cylinder6 On Off

Set Idle Speed

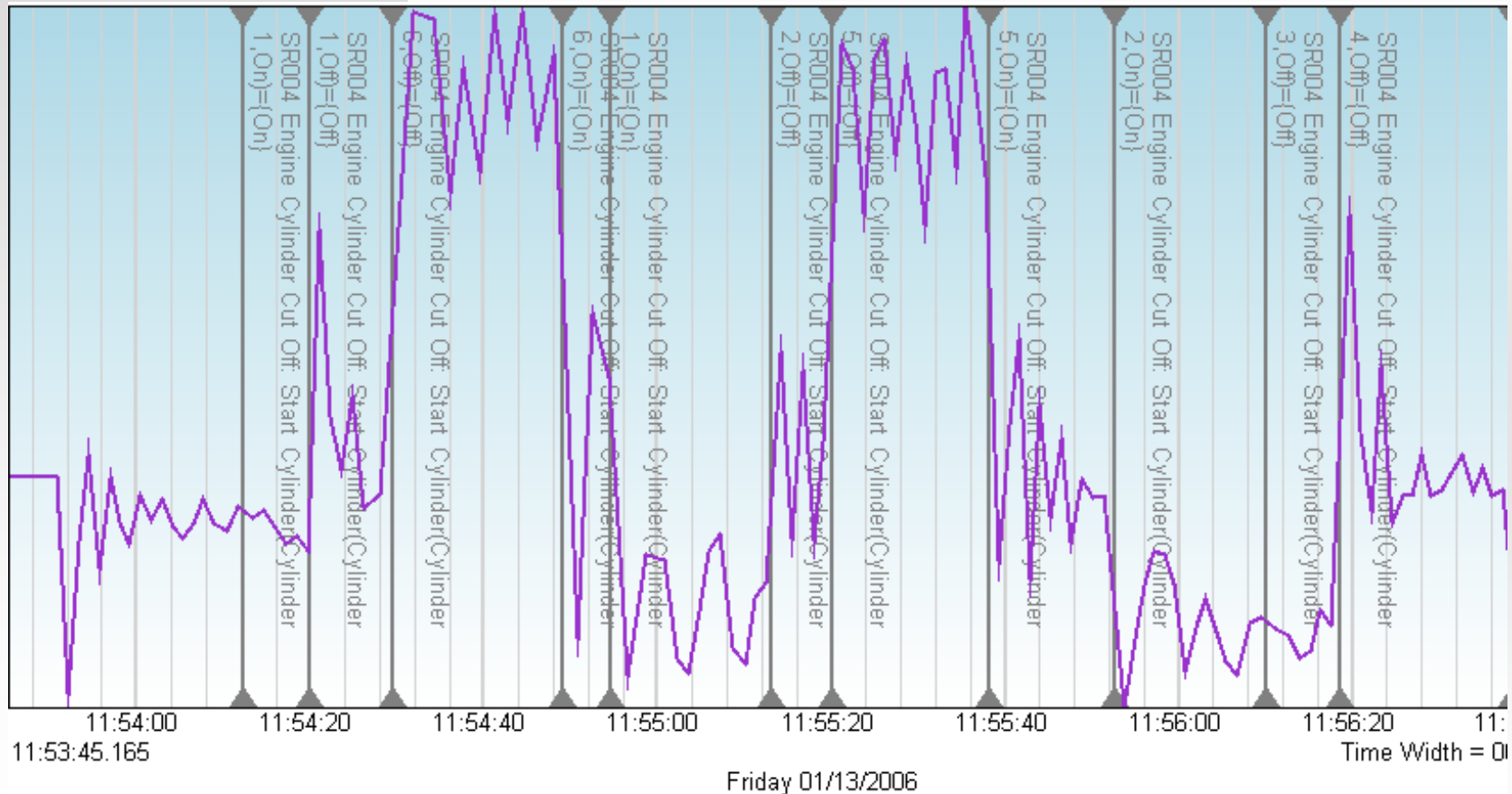
600 Apply Reset

Output

Ready.



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You must use the manual mode to cut out more than one cylinder at a time in Drumroll. You may cut out up to 3 cylinders at a time. It is recommended that mated pairs be cut out (1,6 / 2/5, 3/4) as a first step in the multiple cylinder testing. The shot above is from a test where pairs were cut out.



XI. Understanding Electronic Tools Configuration Settings



This section covers how to customize important settings in the 2007 electronic tools:

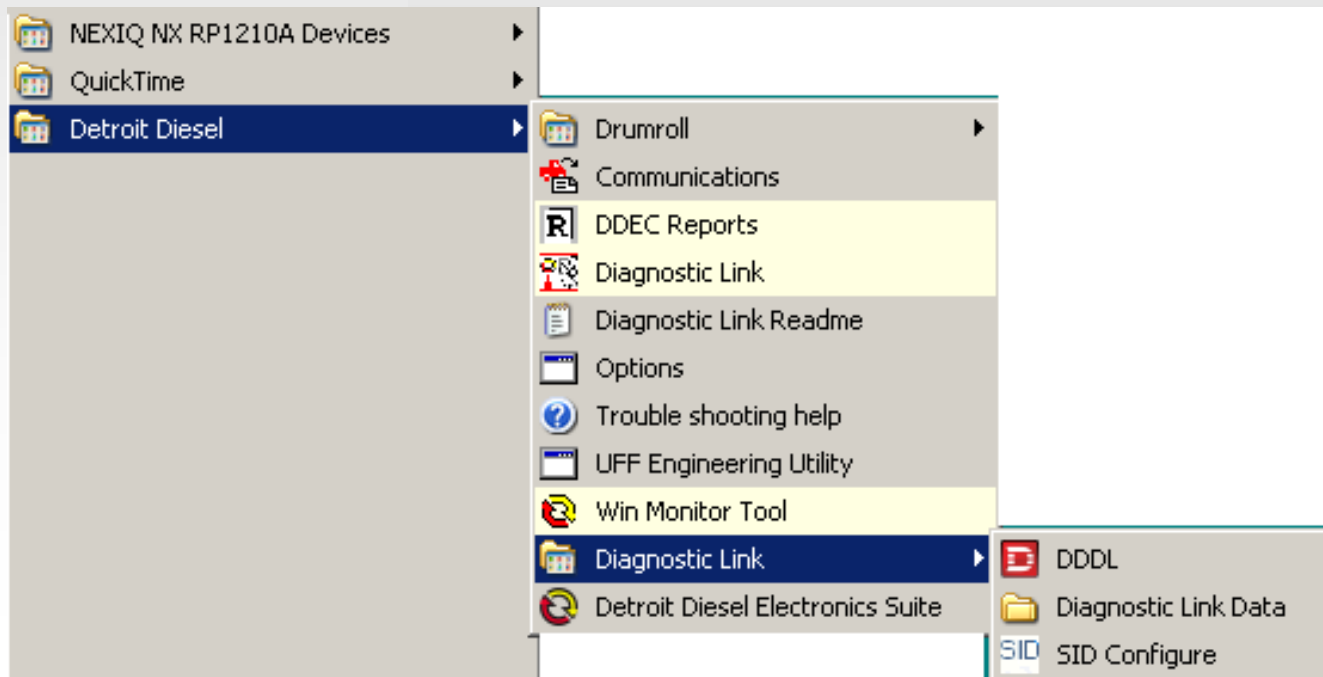
- 1- How to change from one translator box to another**
- 2- Users may now select between metric and English units of measure**
- 3- Customizing the display settings for the “Chart” feature**
- 4 – How to change the settings for the automatic or manual connection settings**
- 5 - How to set up a connection to the DDC reprogramming server for DDRS users**



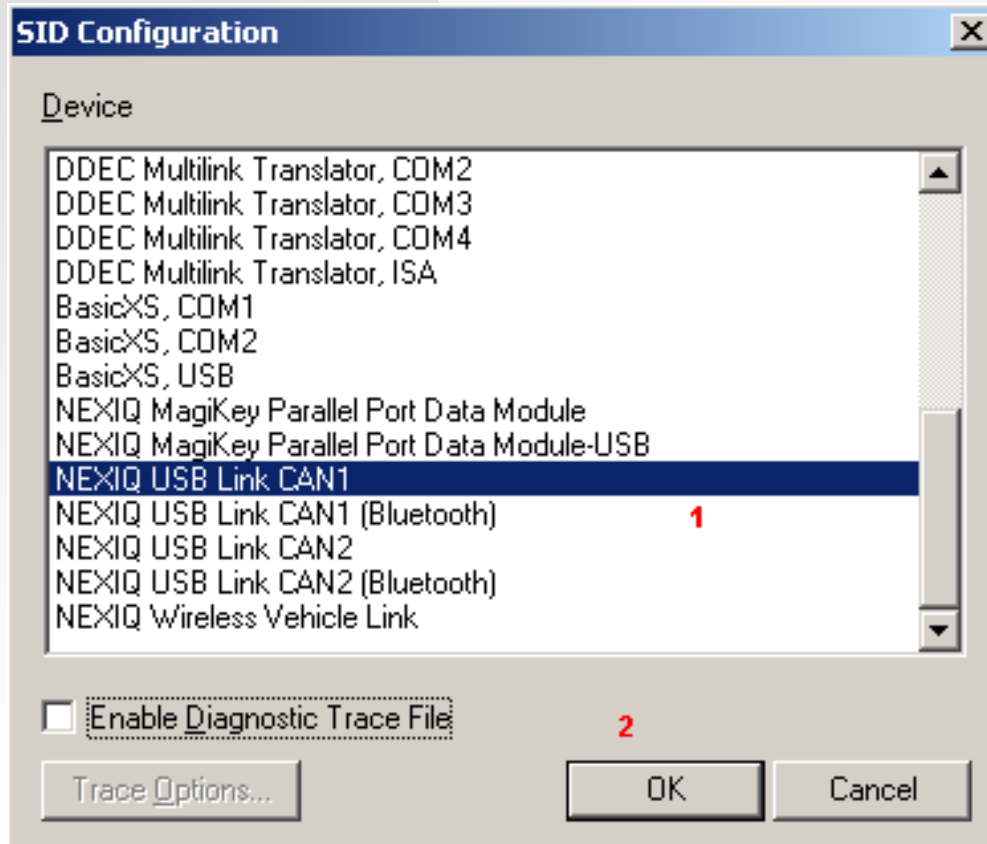
2007 Electronic Tools for DDEC VI

When changing from using one translator box to another you must change the translator type in DDDL.

From the main screen of Windows, go to “Start”, “Programs”, “Detroit Diesel”. Choose the “SID Configure” option.



2007 Electronic Tools for DDEC VI

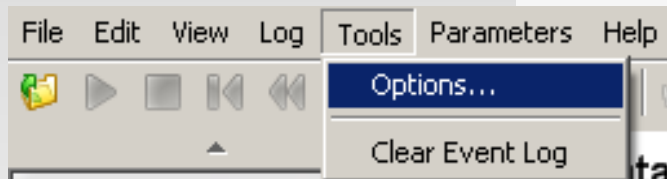


A new window will appear giving you a list of all the choices that you may pick from. Choose the translator box that you want (1) and then choose "OK" (2). Your new selection will work the next time you open the application.

Special Note: The number of devices that appear in this window will vary with the number of translator box software drivers you have loaded on your computer.

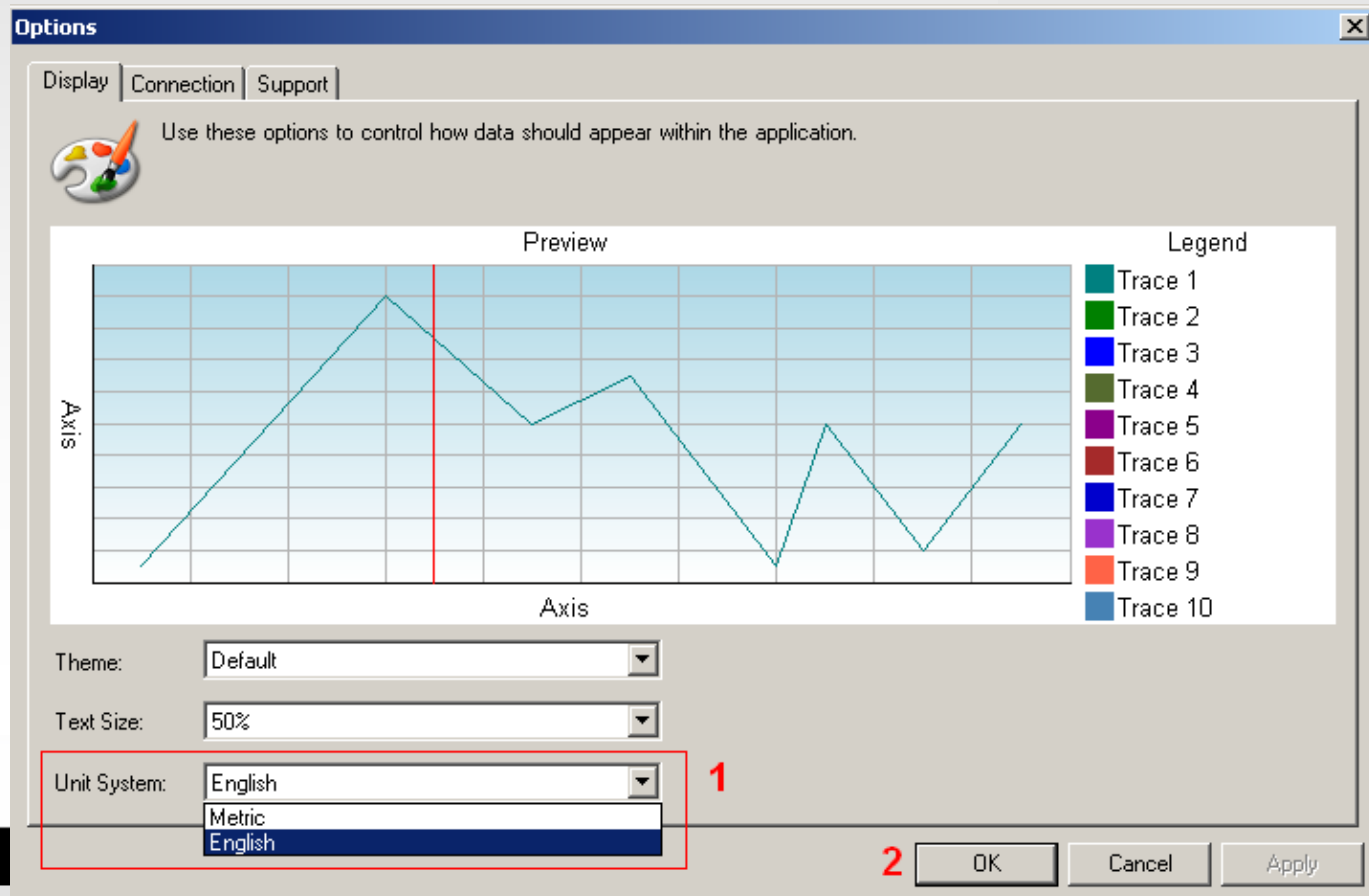


Selecting Units of Measure



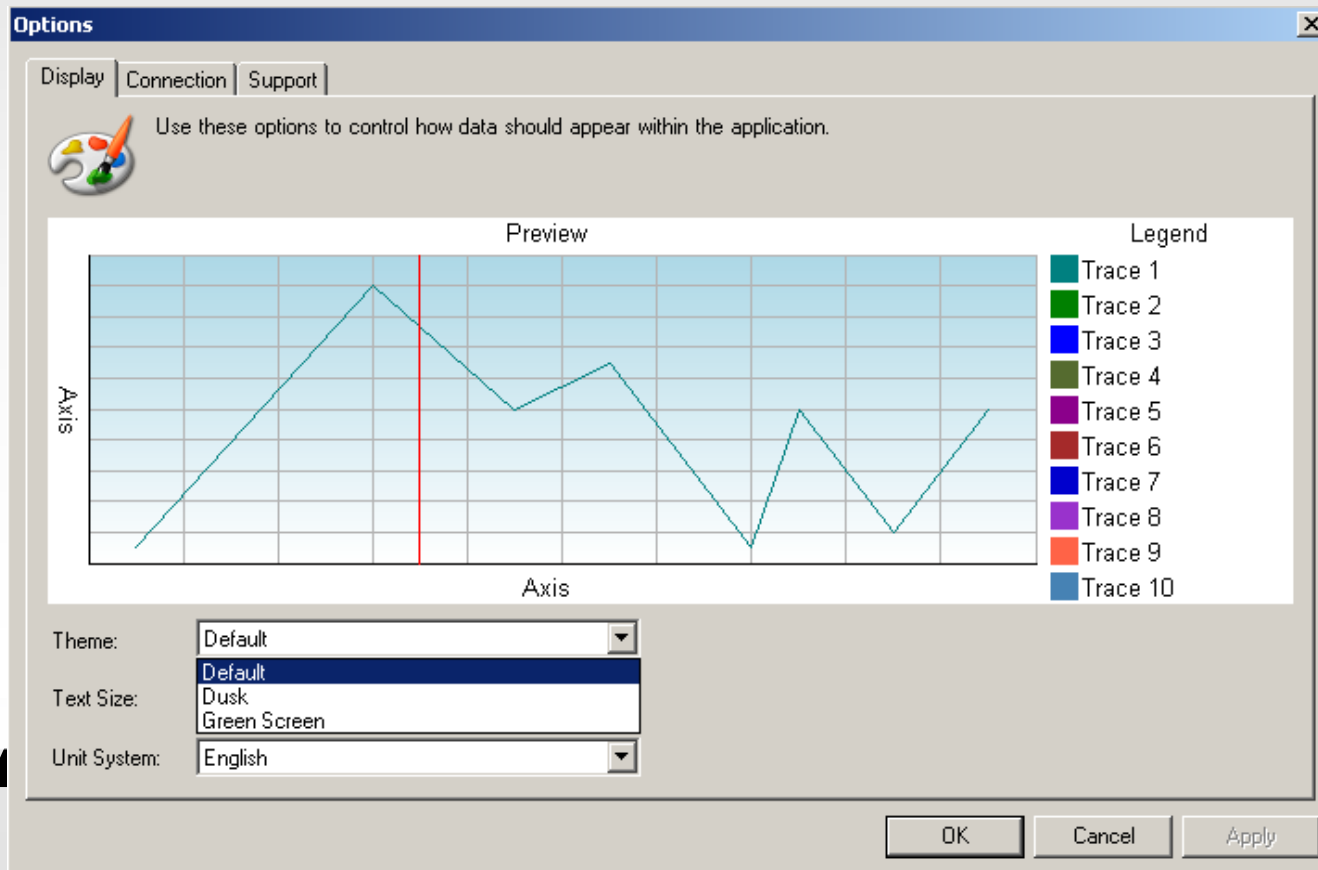
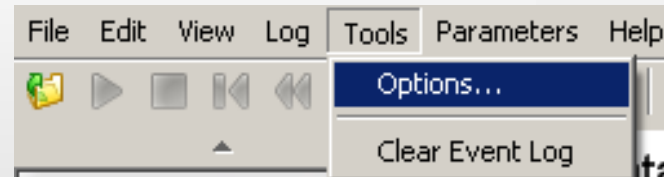
From the “Tools” drop-down menu select “Options”

Click on the “Units” selection in the options list and select the type of units you prefer (1), then select the “OK” box to save your choice.



A user may select different background color schemes and font sizes.

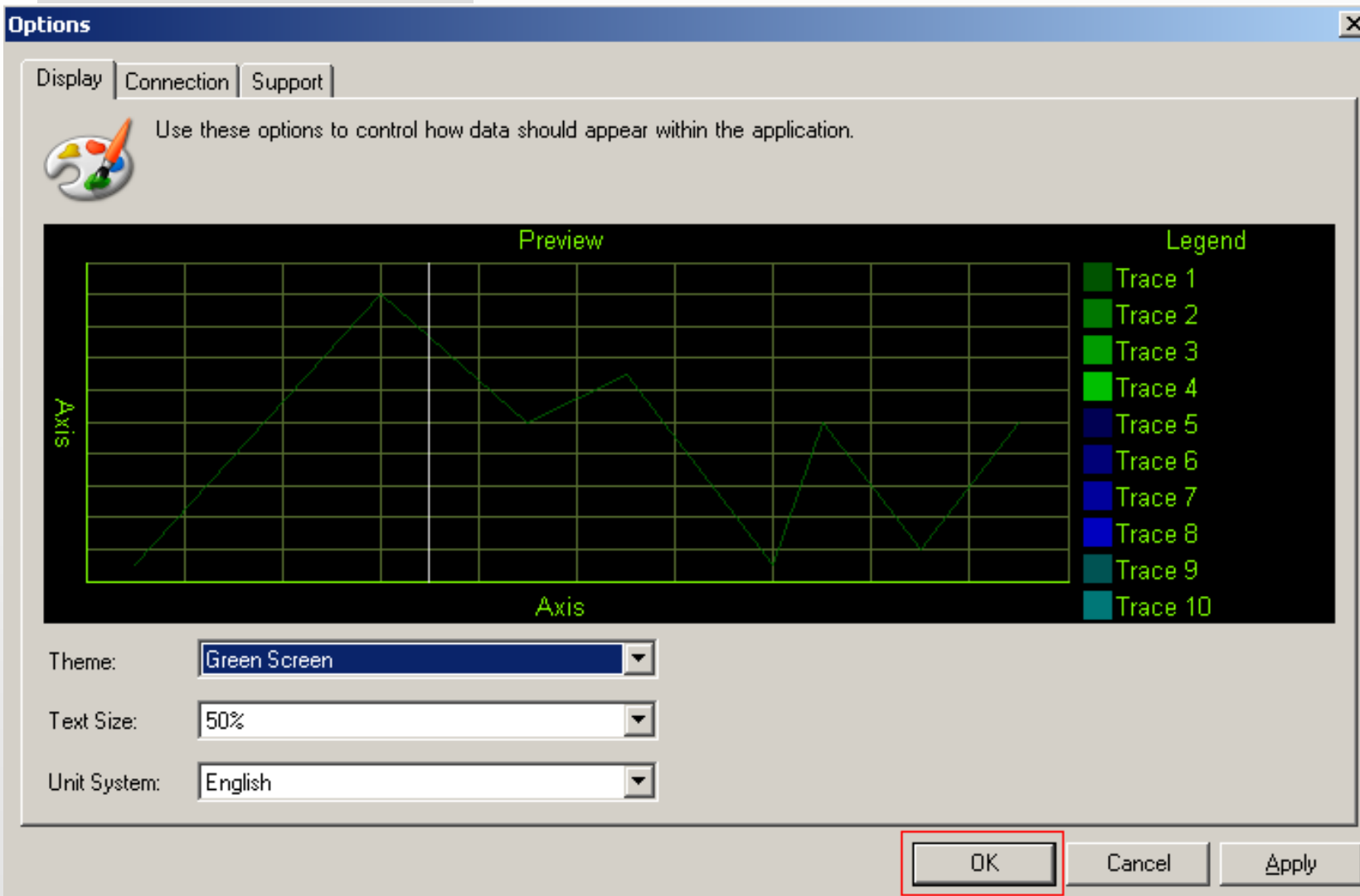
From the “Tools” drop-down menu select “Options”



Choose the “Display” tab to reveal the choices available.



2007 Electronic Tools for DDEC VI

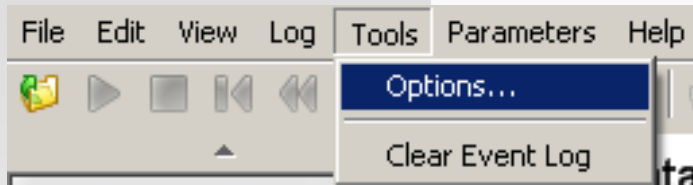


You may choose from different color schemes and font sizes although it is recommended that the default theme and 50% text size be used.

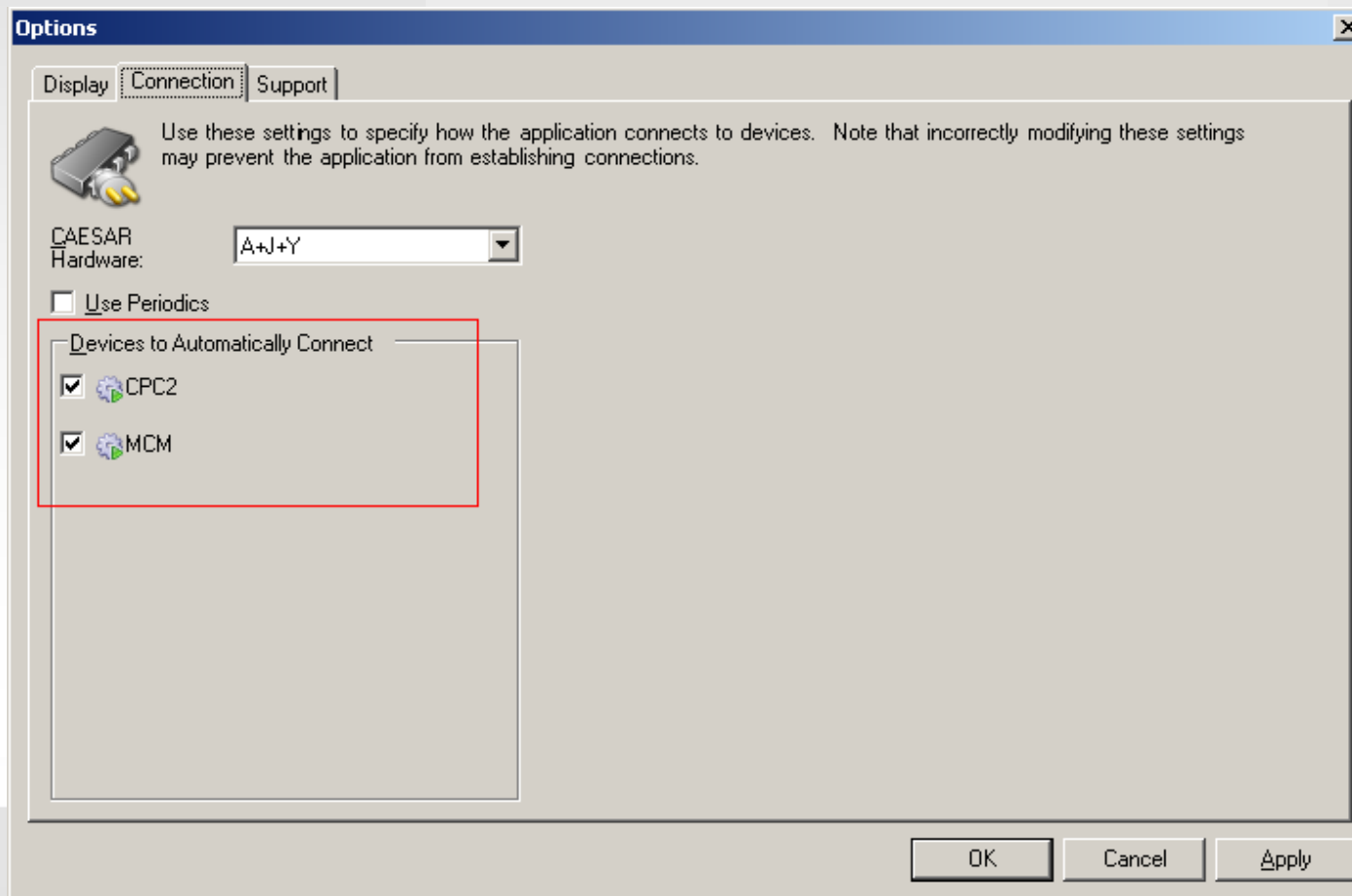
Once you have made your selections click on the “OK” box.



2007 Electronic Tools for DDEC VI



You may alter the settings for making an automatic or a manual connection by going to the “Tools” drop-down menu, and selecting “Options”.



The settings may be changed on the “Support” tab by checking the or checking the appropriate boxes, and applying the changes.



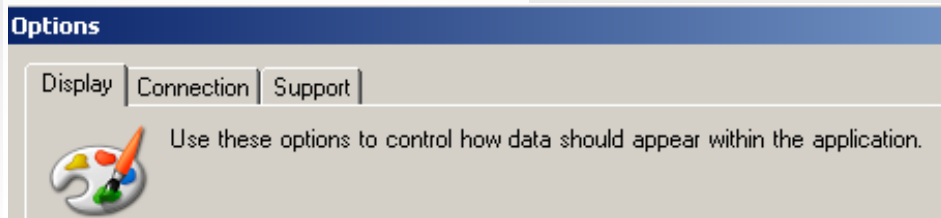
Configuring DDRS to connect to the DDC Programming Server

Special Note- In order to use this section you must have a current programming station ID and hardware key.

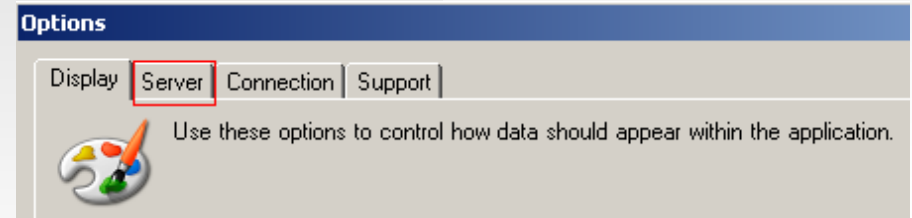
From the “Tools” drop-down menu select “Options”



Selections without hardware key present



Selections with hardware key present



Choose the “Server” tab to configure your settings.



2007 Electronic Tools for DDEC VI

Options

Display Server **Connection** Support

Use these options to modify server connectivity for the application. Note that changing these settings could prevent the application from connecting to the server.

Server Name: 148.99.32.62

Port Number: 80

Use ACF2 connection

User Name: DD38F

OK Cancel Apply

The settings that need to be configured in DDRS are similar to connecting with DRS. You may use your current ID, password, and method of connection (Int [redacted] relay). For assistance with these settings call 313-592-5800.



2007 Electronic Tools for DDEC VI

Support for 2007 Settings

Current DRS Connection Type:

DDC LAN Network

Distributor Frame Relay

Dial-up

Server Name: 148.99.32.62

Port Number: 80

Use ACF2 Connection: checked

User Name: Current DRS ID

Accessing the Server Via Internet

Server Name: ddcapps.detroitdiesel.com

Port Number: 80

Use ACF2 Connection: checked

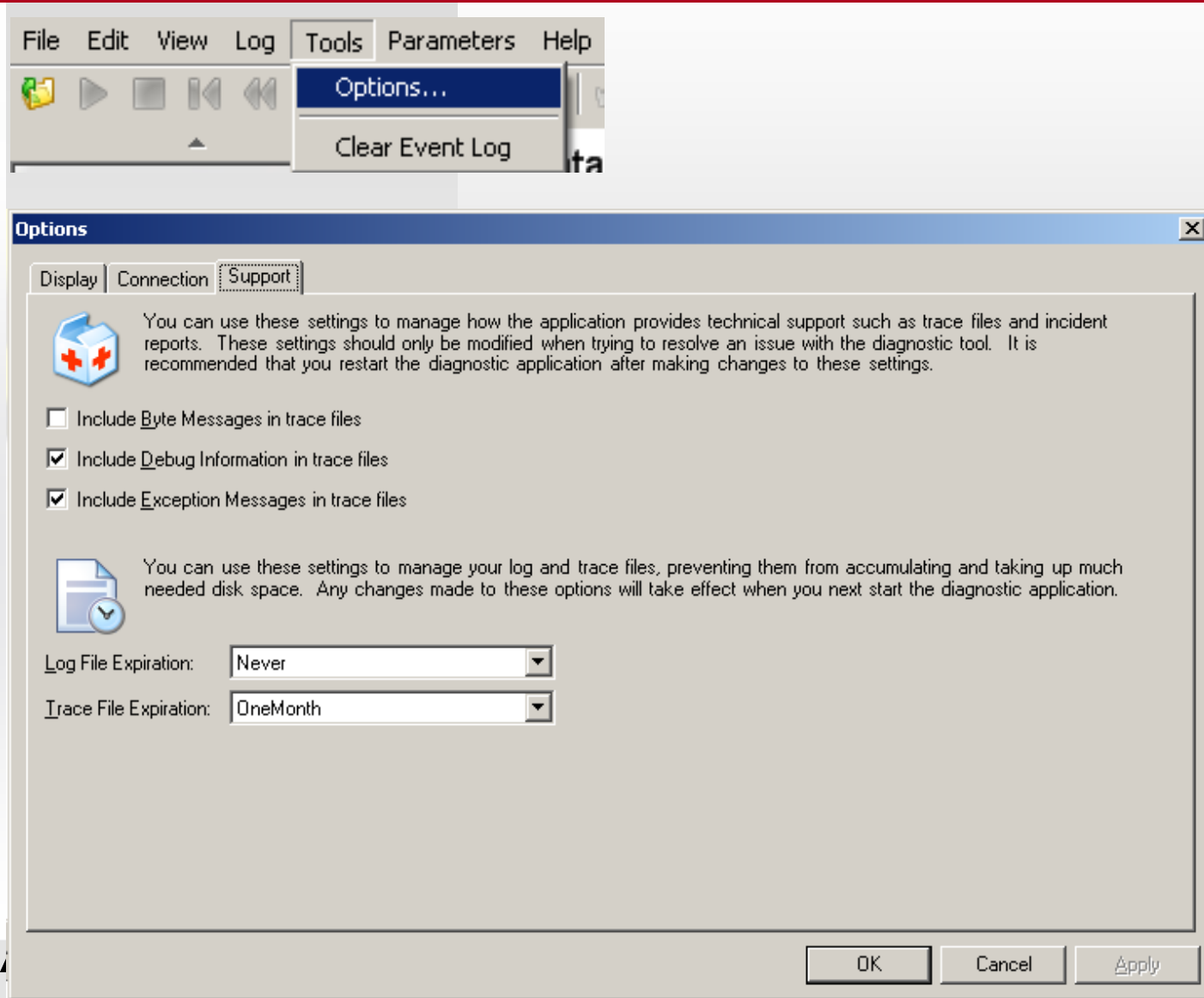
User Name: Current DRS ID



Additional Miscellaneous Information



2007 Electronic Tools for DDEC VI



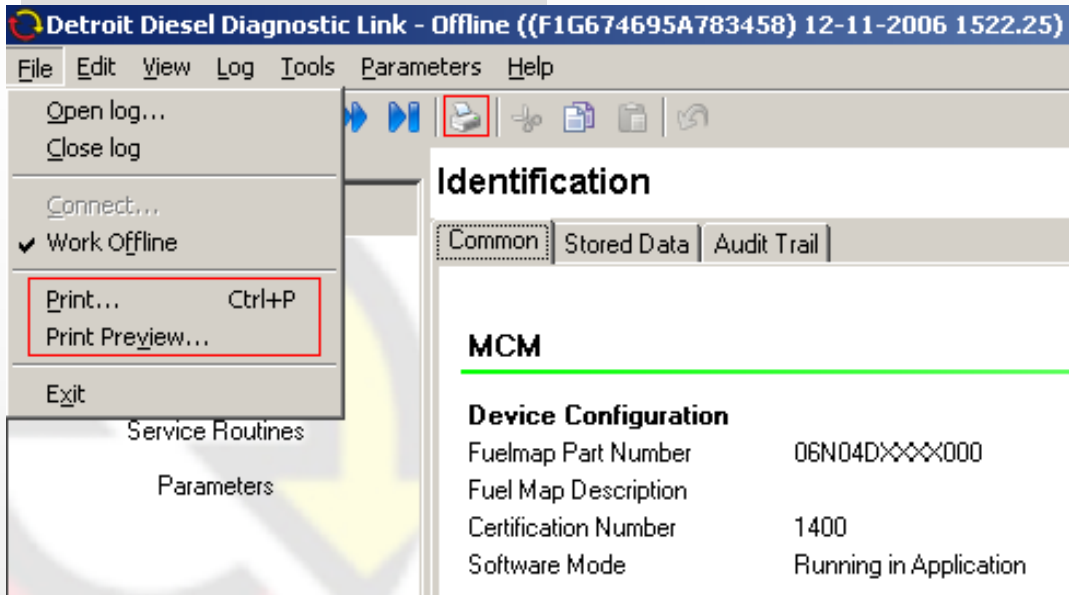
Log files are automatically created whenever DDDL 7.0 is connected to a live controller and stored on the hard drive. Over time these files may accumulate and need to be deleted to save hard drive space. The user may perform this process manually or he may automatically manage these files within DDDL.

Go to the “Tools” drop-down menu and selecting “Options” the user may access the “Support” tab and select settings to automatically delete log files after a given period of time.

Please note the default setting is “Never” so the feature will not work automatically unless configured by the user.



2007 Electronic Tools for DDEC VI



DDDL 7.0 offers the user a variety of options for printing the information contained in various windows of the program. The command to print may be accessed from the “File” drop-down menu (that also contains a “Print Preview” command) and from the printer icon in the icon bar.

The following items may currently be printed in DDDL 7.0:

- Information in the “Identification” window
- Information in the “Fault Code” window
- Troubleshooting Guide information
- Instrumentation (only the “All Instruments” list at this time)
- Parameters

Information from various service routine windows is not available for printing.



DETROIT DIESEL

Technical Support

