

## **DEFINITIONS AND FREQUENTLY ASKED QUESTIONS ABOUT DDEC AND DETROIT DIESEL DIAGNOSTIC LINK**

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## **Frequently Asked Questions about DDEC and Diagnostic Link**

### **What are Data Pages?**

Data Pages is memory in the DDEC III ECM that records operating information about the engine and the vehicle. It is an optional feature that is available for DDEC III ECMs. It was introduced in DDEC III software Release 5.0 (R5.0).

Data is stored in daily records for a maximum of 14 days. An internal clock/calendar, which must be reset each time the vehicle's batteries are disconnected, is used for timekeeping. Data on engine performance trends, service intervals, and ECM diagnostics is also stored.

### **How do I extract and report Data Pages data?**

Data extraction and reporting is accomplished with DDEC Reports or ProManager 2.10 software. The Remote Data Interface (RDI) may also be used for data extraction.

### **How do I get Data Pages turned on?**

Data Pages may be activated in DDEC III ECMs that have R5.0 or later software by reprogramming the ECM. There is a one-time nominal charge for this service.

### **What is DDEC Data?**

DDEC Data is dedicated memory in the DDEC IV & V ECMs that records operating information about the engine and the vehicle. It is a standard feature that is included in all DDEC IV & V ECMs. It was introduced in DDEC IV software R20 and was substantially upgraded in R21.

DDEC Data stores three monthly records and a trip file that may be reset after it is extracted from the ECM. An internal clock/calendar, with an internal battery, is used for timekeeping. Data on daily engine usage, periodic maintenance intervals, hard brake incidents, last stop records, and ECM diagnostics is also stored.

### **How much does DDEC Data cost?**

There is no additional charge for DDEC Data, it is included as a standard part of DDEC IV & V.

### **How do I initialize DDEC Data so that it records data?**

DDEC Data is initialized at the factory, so it's recording when you receive it. Data is being recorded with default settings that will be satisfactory for most customers. The settings can be customized using DDEC Reports software.

### **Can I turn the recording off?**

DDEC Data recording may be customized in DDEC IV & V ECMs with R24 or later software. Detroit Diesel Diagnostic Link (DDDL) 3.0 allows you to turn on and off two groups of parameters. DDDL 3.1 or later allows you to turn on and off up to five groups of parameters.

ECM Releases prior to R24 do not include the capability to turn the recording off, however hard brake data may be eliminated by setting the MPH/second number to zero using DDEC Reports to send a new set-up file to DDEC.

### **What PC software do I need to extract and analyze DDEC Data?**

DDEC Reports is the required software and it is part of Detroit Diesel Diagnostic Link (DDDL) 2.0 or later version. It was designed to extract and produce reports from DDEC Data obtained from DDEC IV & V. It will also produce DDEC III Data Pages reports, but the data is limited. Version 2.0 to 3.0 is Windows 95 and 98 compatible. Versions 3.1 and higher are compatible with Windows 95/98/ME/NT/2000. The Windows XP system was supported for the first time in version 4.20.

### **How do I extract the data?**

There are four methods currently available. One method is direct extraction using DDEC Reports, a part of the Diagnostic Link software. Plug the PC running DDEC Reports into the vehicle diagnostic connector through the DDC Translator box and follow the instructions.

A second method is to use the Remote Data Interface (RDI) to automatically extract when the RDI is connected to the vehicle diagnostic connector. The RDI requires DDEC Communications 1.22 or later software in order to be compatible with DDEC Data.

Extractions may also be done using the correct DDC software and DDC's Infrared Information System, known as IRIS. More information on IRIS may be found in the product information section of the DDDL CD.

Contact your Detroit Diesel distributor for more information on setting up to extract by any of these methods.

### **How is a direct extraction done?**

Direct extractions can be accomplished by connecting a laptop computer or PC, with DDEC Reports running on it, to a vehicle's diagnostic 6 or 9-pin connector. All the necessary hardware is contained in the Detroit Diesel extraction kit. This kit contains an RS-232 cable, the RP-1202 (or DDC) Translator box, a cable with a Molex connector on one end and the 6-pin Deutsch diagnostic connector on the other end. A 6-pin to 9-pin adapter is also included in the kit. The Multi Link translator box may also be used for data extractions.

### **What are the advantages of the RDI?**

The RDI allows unattended data extraction from all the DDC Management Information products. The weatherproof design allows installation in a convenient location where vehicles are apt to stop, such as a fuel island. A remotely located PC monitors the RDI and detects when the driver plugs the short extraction cable into the vehicle's diagnostic connector. Data is automatically extracted and revised set-up parameters are installed if necessary. Indicator lights on the unit keep the driver informed about the progress of the extraction.

### **What communications protocol does DDEC Data use?**

DDEC IV & V use an industry standard communications protocol called SAE J1587 Appendix B. This allows connection to wireless communication systems that use the same communications protocol. For example, QUALCOMM is a wireless communications system capable of SAE J1587 Appendix B protocol.

### **Do I need special hardware to connect DDDL to the vehicle?**

Both DDDL and DDEC Reports require the standard DDC Translator box and cables for connection to the vehicle. This is the same equipment that was used with DDC legacy products, ProManager 1.02, 2.10 and TRAC. It is also used with ProDriver Reports 1.0. DDDL may be purchased with the required hardware if you do not already have it.

### **What data is available in DDEC Data?**

See sample data files in DDEC Reports for examples of On-Highway, Off-Highway, and Marine Reports.

### **How long will DDEC Data record without losing data?**

There are different limits for various parts of the product. Daily Engine Usage begins to lose data after 30 days. Data for the 31st day is written over data for the 1st day. Monthly data is stored for the current month plus the two previous months.

Hard Brake, Diagnostic Records and the Last Stop Record store the most recent events regardless of the length of time since data was extracted. The other reports summarize the data, so there is no practical limit to the length of time data for these reports can be stored.

## **Can I upgrade the software level in the ECM?**

Yes. A DDEC IV & V ECM can be reprogrammed the same way you reprogrammed DDEC III. The standard reprogramming charge applies for upgrades.

## **What's a trip?**

A trip is defined as the time from one extraction to the next. A trip may be several hours or several months long. It is up to the user to determine the time span. Several reports contain a trip time data field that documents the actual engine running time between extractions.

## **What are my options if I have both DDEC III Data Pages and DDEC IV & V Data in my fleet?**

DDEC III Data Pages extraction may be accomplished with ProManager 2.10, DDDL version 2.0 or later the RDI.

Complete reporting of Data Page information requires the use of ProManager 2.10 software. However, DDEC Reports is capable of producing basic reports from Data Page information. The available reports include: Trip Activity, Vehicle Speed/RPM, Vehicle Configuration, Periodic Maintenance, Profile and Life-To-Date. These are the same reports that are available from DDEC Data, although some data fields will be filled with "-" as some of the data on the report is not available from Data Pages. The Periodic Maintenance report displays the status of the first three service intervals in Data Pages.

The dual reporting capability of DDEC Reports provides a good transitional tool for customers that have both Data Pages and DDEC Data vehicles in the fleet.

## **What is the ECM clock used for?**

The clock is used to determine the start of each day (midnight) and the start of each month. This affects the Monthly Activity and Engine Usage reports. It is also used to determine the start and end time of each trip and to date and time stamp events such as fault codes, hard brake events, and maximum speed and RPM recordings.

## **How often do I have to set the internal clock?**

DDEC III does not contain a back-up battery and the clock must be reset each time vehicle battery power is removed from the ECM. DDEC IV & V contain a built-in battery to keep the clock running when power is disconnected from the ECM. This eliminates the need for most clock resets.

The clock will need to be reset initially if the fleet uses a time zone other than Eastern Standard for their official fleet time zone. The default time in the ECM is Eastern Standard.

The clock is accurate to +/- 3 hours per year and may need to be reset periodically to account for this. DDDL software (version 2.0 or later) may be used to manually set the ECM clock in both DDEC III, DDEC IV, and DDEC V. The DDR (ProLink 9000) cannot set the ECM clock.

## **Is DDEC Data useful in an application without a vehicle speed sensor (VSS)?**

Yes. The Engine Load/RPM data is available whether a VSS is present or not.

You may choose an idle definition that depends on RPM or engine load limit instead of the standard zero vehicle speed method commonly used in on-highway applications. Diagnostic Link 3.1 or higher has a number of reports specifically designed for off-highway vehicles, marine vessels and stationary equipment without a VSS.

## **How will I know if one of the three maintenance intervals has expired?**

If a maintenance interval is within a specified percentage of expiration (default is 20%), the Check Engine Light (CEL) flashes six times when the ignition is turned on. The ignition must have been off for less than 30 seconds prior to being turned on. If the off time has been greater than 30 seconds, no indication of maintenance interval status is given.

## **How does Diagnostic Link differ from a DDR?**

DDDL troubleshooting and maintenance features provide the same utility as a DDR. However, DDDL provides a more “user-friendly” environment with the large color PC screen and easy operation. Some other advantages of DDDL over the DDR are:

1. DDDL provides the user with much easier access to functions.

Two examples of this are retrieving and changing calibrations, and monitoring engine parameters. DDDL displays this information in an easy to use manner, taking advantage of enhanced visual gauges and graphs. It also allows you to customize the data monitoring gauges.

2. DDDL contains online troubleshooting guides for the Series 50 & 60.

These guides walk you step by step through the troubleshooting of fault codes. They are very comprehensive and contain all the diagrams and schematics found in the hardcopy versions of the troubleshooting guides.

3. The snapshot feature aids troubleshooting.

A snapshot captures and displays engine data in real time and allows this information to be recorded and stored as a file. This file may be played back later for detailed analysis. When recording, you can mark an event that can be immediately recalled during playback mode. Because the snapshots are saved as computer files, they may be sent to another Diagnostic Link user via email (as an attachment) or saved on a diskette and mailed.

4. The calibration template capability saves time.

Diagnostic Link calibration templates save you a great amount of time when you need to make identical changes in the calibrations of multiple vehicles. You merely save parameter changes one time to a calibration template in Diagnostic Link. Then simply transmit the

saved template to any vehicle with a few keystrokes. This saves you from the need to re-enter all the parameter changes in the calibration over and over again for each vehicle. It also eliminates the human error in doing such a repetitive operation.

## What can cause a failed data extraction?

There are a number of reasons why you can experience problems with extractions. Some of these are addressed here.

1. Extraction fails due to no Dataset Definition File (DDF file). DDDL versions prior to 4.1.

If extractions fail repeatedly on a particular vehicle, go to the **Tools** drop-down menu and select the **Extraction Log Viewer**. If the extraction record in the viewer indicates that the extraction failed due to a "bad data set," then close the Viewer and go to the **Tools** menu once again. Click on the **Vehicle Registry Editor** to open it. Select the truck you are working with and double click the mouse pointer on that unit. You will see the **Vehicle Details Screen**. Check the Dataset Definition File title shown in the corresponding box. If "none" is displayed, click on the down arrow at the right side of the box and change to a selection with the word "trip" in the title. Now retry the extraction.

2. Trip activity report with zeros.

If you have a failed extraction from a vehicle followed by a successful one, the trip activity report that pops up will show all zeros. However there is good information available to display if you know where to look:

- a. The monthly portion of the trip activity reports has three months of data to view.
- b. The daily engine usage report has the last 30 days of data available to view.
- c. The configuration report has complete data.
- d. The life-to-date report is also complete.

3. Mistaken use of the Profile extraction.

When making extractions with the translator box or the RDI, use DDF files with the word "trip" in the title. The Profile extraction is a small subset of a trip extraction and is meant for wireless extractions only.

4. Inadvertent extraction abort.

You may inadvertently abort an extraction if you hit the **Enter** key after you have entered the vehicle ID instead of clicking on **OK** with your mouse.

5. Activating the communications manager the wrong way.

Only click on the small traffic light icon in the toolbar (along the top of the screen) to initiate

the extraction process. Be very careful to click on the icon only once. Don't click on the icon on the taskbar (bottom of the screen).

6. Broken wires or defective connectors.

A failed extraction can occur if a wire has broken or a connector has come loose. Always be sure that the physical setup is correct when troubleshooting your system.

### **Why are there missing or duplicate days in Daily Engine Usage Reports?**

If days are missing or duplicated in the Daily Engine Usage Report, there is probably a conflict between the fleet time zone set in the ECM and the PC time zone that processed the file. There is actually no missing or duplicated days or data, it has just been divided incorrectly in the report.

This time disparity can be corrected by setting the time zone of the reporting PC to the fleet time zone in the DDEC ECM. The fleet time zone for an engine can be found in its Configuration Report. The time zone in DDEC can be reset using DDDL.

### **Why don't RDI extractions produce a CSV file?**

If you are extracting with Detroit Diesel Communications through an RDI, no CSV files are created at the time of extraction. However, with DDDL 3.1 or later you can post-process the extraction file to put the data into a CSV file. For details on this process please refer to the documentation section of the DDDL CD.

### **How do I make reports from data extracted with an RDI?**

If you are extracting with Detroit Diesel Communications through an RDI, the extraction will not automatically display in DDEC Reports. You must move the extracted XTR files from C:\Detroit Diesel\Communications\Transit to C:\Detroit Diesel\Diagnostic\Data Pages using the Windows Explorer. Then you may open the files in DDEC Reports using the **File** drop down menu and selecting **Open**.

## **APPENDICES**

### **Appendix A - DDEC Compatibility Table**

**Table 1: DDEC System Software/Hardware Compatibility Table**

Recording Product	DDEC Reports		ProDriver Reports		ProManager 2.10		Data Summaries		RDI Extractions		IRIS
	extracts	reports	extracts	reports	extracts	reports	extracts	reports	DOS	Win95	extracts
DDEC III Data Pages	X	X			X	X	X	X	X	X	X
DDEC IV or V DDEC Data	X	X		X			X	X		X	X
ProDriver 3.0	X		X	X			X	X		X	X
ProDriver DC							X	X		X	X
Data Logger	X				X	X	X		X	X	X

### **Appendix B - Default Settings for DDEC Data**

Fleet Time Zone:	Eastern Standard (GMT - 5 hours)
Hard Brake Limit:	7 MPH/Sec
Stop Idle Limit:	5 minutes
Idle Method:	vehicle speed sensor
DDR Reset lockout:	yes
Maintenance visual reminder:	yes
Maintenance visual reminder percent:	20%
Vehicle speed bands (mph):	10, 20, 30, 40, 50, 55, 60, 66, 71
Engine speed bands (rpm):	700, 1000, 1200, 1300, 1400, 1500, 1600, 1700, 1800
Percent load bands:	10, 20, 30, 40, 50, 60, 70, 80, 90

### **Appendix C - ECM Software Version Compatibility**

DDDL (DDEC Reports) version 2.0: loads configurations, extracts data and produces reports from DDEC IV Release 20 software. Loads configurations, extracts data and produces partial reports from DDEC IV Release 21 and later software. (It treats it as though it were the limited data set of Release 20).

DDDL (DDEC Reports) version 2.1 and 2.11: loads configurations, extracts data and produces reports from DDEC IV Release 20 and later software.

DDDL (DDEC Reports) version 3.0: loads configurations, extracts data and produces reports (including Off-Highway) from DDEC IV Release 20 and later software.

DDDL (DDEC Reports) version 3.1 and 3.11: loads configurations, extracts data and produces reports (also Off-Highway and Marine) from DDEC IV Release 28 and later software.

DDDL (DDEC Reports) version 4.1 and 4.11: loads configurations, extracts data and produces reports (also Off-Highway and Marine) from DDEC IV Release 31 and later software. Also extracts data and creates reports from MBE VCUs with version 12.09 and later software.

DDDL (DDEC Reports) version 4.20: loads configurations, extracts data and produces reports (also Off-Highway and Marine) from DDEC IV Release 34 and later software. Also extracts data and creates reports from MBE VCUs with version 12.09 and later software.

DDDL (DDEC Reports) version 5.0: loads configurations, extracts data and produces reports (also Off-Highway and Marine) from DDEC IV Release 36 and later software. Also extracts data and creates reports from MBE VCUs with version 12.09 and later software.

DDDL (DDEC Reports) version 6.0 / 6.1: loads configurations, extracts data and produces reports (also Off-Highway and Marine) from DDEC IV Release 36 or later software. Both versions support extractions from DDEC V. Also extracts data and creates reports from MBE VCUs with version 12.09 and later software.

## **Appendix D - DDEC Reports Features**

Extracts data from the following products:

ProDriver DC  
ProDriver 2.02/2.03/2.04/3.0  
DDEC III Data Pages  
Data Logger 3.19  
DDEC Data  
MBE VCU w/12.09 or later sw

Loads configurations into the following products:

ProDriver DC  
ProDriver 2.02/2.03/2.04/3.0  
DDEC III Data Pages  
Data Logger 3.19  
DDEC Data

Produces reports from the following products:

DDEC III Data Pages  
DDEC Data  
MBE VCU w/12.09 or later sw

## **Appendix E - Product History**

Detroit Diesel Diagnostic Link (DDDL):

- ?? Versions 1.0, 1.1, 1.2: Windows? 3.1, replaces DDR (on-highway applications)
- ?? Version 2.0: Windows? 95, replaces DDR (on-highway applications), replaces TRAC, adds DDEC Reports
- ?? Version 2.1: Windows? 95, replaces DDR (on-highway applications), replaces TRAC, expands DDEC Reports
- ?? Version 2.11: Adds new sample reports
- ?? Version 3.0: Adds Mutli-ECM diagnostic and Troubleshooting capability, adds Off-Highway version of DDEC Reports, adds ability to customize DDEC Data, adds Maintenance Alert System capability, adds updated, online DDEC Troubleshooting guide
- ?? Version 3.1 and 3.11: Adds Windows NT / 2000 support, adds support for setting up PasSmart, improves the ability to customize DDEC Data, adds Marine version of

DDEC Reports, includes more complete instructions and user-guides on the CD-ROM version

- ?? Version 4.1: Support for DDEC R30 & R31, support Natural Gas Engines, export snapshot to CSV Files, Monitor bus MIDs, flexible instrumentation gauges, display max/min value in fault code list, display current engine hours on code screen, display date and time of logged codes, new Fuel Economy Incentive control, add user comments capability in the snapshot. DDEC Reports supports extraction and report creation from MBE VCUs with 12.09 and later software.
- ?? Version 4.2: Support for DDEC R32 –35, Windows XP support (Admin users), displays exhaust backpressure fault times, includes AFR clear table function, and adds new EGR diagnostic tab.
- ?? Version 5.0: Support for DDEC R36; Adds Diagnostic Support for MBE on-highway engines PLD software (diagnosis versions 4, 5, 6) and VCU software (diagnosis versions 150 and 151)
- ?? Version 6.0: Support for DDEC V; Adds Diagnostic Support for MBE on-highway engines running VCU software (diagnosis version 152)
- ?? Version 6.1: Support for 2004 MBE on-highway engines running with VCU 14 (diagnosis version 153) and DDEC-ECU 60 software (diagnosis version 9).

### Appendix F - Types of Reports Available from DDEC Reports

DDEC Reports produces comprehensive trip reports for service technicians and fleet managers in On-Highway, Off-Highway, and Marine formats. These reports are listed in the tables below.

**Table 2: On-Highway Reports available from DDEC Reports**

Available Reports On-Highway	DDEC III	DDEC IV or V		DDEC Reports version required
	Data Pages	R20	R21 or later	
Trip Activity	X	X	X	2.0 or later
Vehicle Speed/RPM	X	X	X	2.0 or later
Overspeed/Over Rev		X	X	2.0 or later
Engine Load/RPM		X	X	2.0 or later
Vehicle Configuration	X	X	X	2.0 or later
Periodic Maintenance	X		X	2.1 or later
Hard Brake Incident			X	2.1 or later
Last Stop			X	2.1 or later
DDEC Diagnostic			X	2.1 or later
Profile	X		X	2.1 or later
Monthly Activity			X	2.1 or later
Daily Engine Usage			X	2.1 or later
Life-to-Date	X		X	2.1 or later

**Note:** all reports available with R21 and later software except the Periodic Maintenance report are available from MBE VCU's programmed with 12.09 and high software and extracted with DDEC Reports 4.1 and higher.

**Table 3: Off-Highway Reports available from DDEC Reports**

Available Reports Off-Highway	DDEC III Data Pages	DDEC IV		DDEC Reports version required
		R20	R21 or later	
Period Activity		X	X	3.0 or later
High RPM		X	X	3.0 or later
Engine Load/RPM		X	X	3.0 or later
Configuration		X	X	3.0 or later
Periodic Maintenance			X	3.0 or later
DDEC Diagnostic			X	3.0 or later
Profile			X	3.0 or later
Monthly Activity			X	3.0 or later
Daily Engine Usage			X	3.0 or later
Life-to-Date			X	3.0 or later

**Table 4: Marine Reports available from DDEC Reports**

Available Reports Marine	DDEC III Data Pages	DDEC IV		DDEC Reports version required
		R20	R21 or later	
Period Activity		X	X	3.1 or later
High RPM		X	X	3.1 or later
Engine Load/RPM		X	X	3.1 or later
Configuration		X	X	3.1 or later
Periodic Maintenance			X	3.1 or later
DDEC Diagnostic			X	3.1 or later
Profile			X	3.1 or later
Monthly Activity			X	3.1 or later
Daily Engine Usage			X	3.1 or later
Life-to-Date			X	3.1 or later