

Maximize Vehicle Uptime, Improve Fuel Economy

Companies that rely on their vehicles for delivering goods or services need to maximize the efficiency of their fleets by keeping their vehicles running and their maintenance and fuel costs low.

The Trimble Mobile Resource Management (MRM) Vehicle Diagnostics 2.0 solution notifies you or your fleet managers of vehicle problems as soon as they occur in order to minimize vehicle breakdowns, as well as reduce fuel and repair costs. This is done through remote monitoring and real-time reporting of:

- Vehicle engine performance
- Engine malfunctions, faults or warning conditions such as low oil pressure or very high coolant temperature
- Inappropriate driver behaviors, including sustained excessive engine speed

Benefits

- Increases productivity of vehicles and drivers by decreasing vehicle downtime.
- Offers valuable diagnostic insight for improved fuel economy.
- Reduces the incidence of costly vehicle breakdowns and service interruptions.
- Provides early notifications that a vehicle needs maintenance attention, before problems become more expensive to repair.

Real-time, Remote Vehicle Monitoring

Trimble MRM Vehicle Diagnostics is an optional feature of Trimble GeoManager iLM®—a leading GPS fleet tracking solution that integrates GPS, wireless, satellite and Internet technologies into mobile software applications that help companies improve management of their mobile workers. Vehicle Diagnostics 2.0 is designed for vehicles through an OBD-II, J1708 or J1939 interface.

Vehicle diagnostics systems derive data from built-in engine control units that monitor engine and vehicle performance. Using in-vehicle hardware with wireless and Internet capability, Vehicle Diagnostics 2.0 continually collects diagnostic data from remote vehicles, then transmits it through the Trimble MRM data center to the GeoManager system. Since GeoManager is Internet-based, you



can access real-time or historical vehicle diagnostic information at any time, from any location where you have online access. Real-time notifications can be transmitted via text messages to email or mobile devices.

Vehicle Diagnostics 2.0 helps you immediately spot problems with vehicles in the field so they can intervene to avoid more serious problems like costly breakdowns, extensive repairs or missed customer appointments. On receiving notice of a fault code from a vehicle's engine bus, you can take immediate action to ensure the safety of the driver and the vehicle, and to minimize service interruptions. The data also helps service managers identify vehicle fuel economy problems, which may indicate the need for vehicle service or a change in fuel-wasting behaviors like repeated speeding or excessive idling.

Part of a Complete MRM Solution

Trimble GeoManager iLM, which supports the Vehicle Diagnostics 2.0 feature, is a comprehensive solution for effective Field Productivity & Management. Trimble MRM offers a complete array of MRM services through its Mobile Field Service & Sales, Field Asset Management and Fleet Productivity & Management solutions.

Reporting Features*

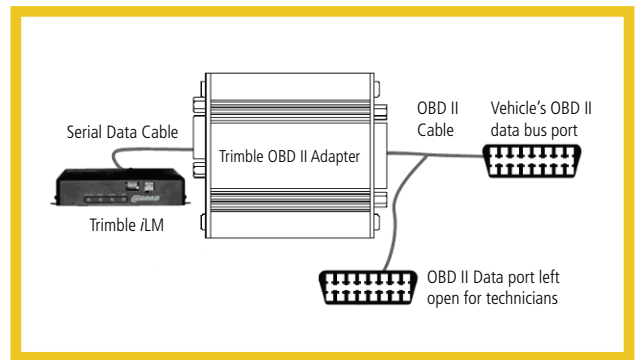
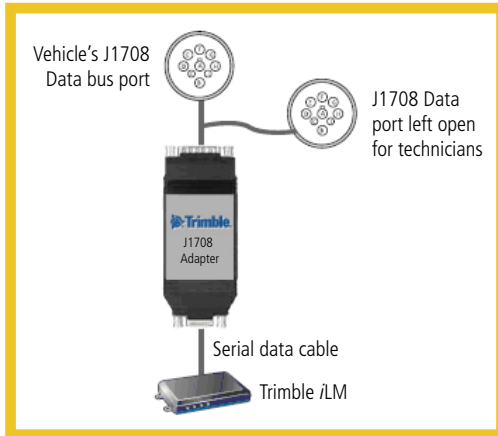
- Diagnostic fault codes and descriptions
- Driving duration
- Idle duration
- Trip duration
- Driving Fuel
- Idle Fuel
- Trip Fuel
- Miles Per Gallons
- Trip distance
- End Odometer
- Average Speed
- Stop Count
- Start/Stop Location

Vehicle	Driver	Run Type	Time	Fault Code	Source	ID	PNB	Description	Odometer	Adm
9121863Dugan		OR00	08:27:58 08:52:55 (CCPT)	P0430	-			Catalyst System Low Efficiency Bank 2	0	748 9 103
9121863Dugan		OR00	08:57:58 09:15:58 (CCPT)	P0430	-			Catalyst System Low Efficiency Bank 2	0	748 9 103
9121863Dugan		OR00	08:08:58 07:51:58 (CCPT)	P0430	-			Catalyst System Low Efficiency Bank 2	0	738 S. HENDON LN MUSTANG, OK 73064 CANADIAN N/A
9121863Dugan		OR00	08:08:58 07:51:58 (CCPT)	P0430	-			Catalyst System Low Efficiency Bank 2	0	361 S. STATE HIGHWAY 112 MUSTANG, OK 73064 CANADIAN N/A
9121863Dugan		OR00	08:08:58 07:51:58 (CCPT)	P0430	-			Catalyst System Low Efficiency Bank 2	0	8811 MENCHVILLE RD OHLAHONA CITY, OK 73179 OHLAHONA N/A
9121863Dugan		OR00	08:08:58 07:51:58 (CCPT)	P0430	-			Catalyst System Low Efficiency Bank 2	0	3611 S. ROCKWELL ST OHLAHONA CITY, OK 73179 OHLAHONA N/A
9121863Dugan		OR00	08:08:58 07:51:58 (CCPT)	P0430	-			Catalyst System Low Efficiency Bank 2	0	2227 S. COUNCIL RD OHLAHONA CITY, OK 73128 OHLAHONA N/A

* Percent of data may vary slightly due to GPS offset.

Row	Date	Mobile Device	Exception Type	Exception Name	Exception
4	August 28, 2008 9:38:08 AM PDT	9109925WMaennena	Diagnostics Fault	Vehicle Diagnostics	DTC P210
5	August 28, 2008 9:25:55 AM PDT	9109925WMaennena	Diagnostics Fault	Vehicle Diagnostics	DTC P210
6	August 28, 2008 9:56:36 AM PDT	9121863Jdugan	Diagnostics Fault	Vehicle Diagnostics	DTC P043
7	August 28, 2008 9:44:22 AM PDT	9109925WMaennena	Diagnostics Fault	Vehicle Diagnostics	DTC P210
8	August 28, 2008 9:11:37 AM PDT	9109925WMaennena	Diagnostics Fault	Vehicle Diagnostics	DTC P210
9	August 28, 2008 7:45:51 AM PDT	9121863Jdugan	Diagnostics Fault	Vehicle Diagnostics	DTC P043
10	August 28, 2008 7:18:18 AM PDT	9121863Jdugan	Diagnostics Fault	Vehicle Diagnostics	DTC P043
11	August 28, 2008 5:39:27 AM PDT	9121863Jdugan	Diagnostics Fault	Vehicle Diagnostics	DTC P043
12	August 28, 2008 5:32:38 AM PDT	9121863Jdugan	Diagnostics Fault	Vehicle Diagnostics	DTC P043
13	August 28, 2008 4:09:40 AM PDT	9121712MRector	Diagnostics Fault	Vehicle Diagnostics	DTC P009

Exception Details	
Date:	August 28, 2008 4:09:40 AM PDT
Name:	Vehicle Diagnostics
Value:	DTC P0009
Location:	1524 18TH ST, ROCKPORT, TX 78382
Criteria:	All Diagnostic Faults



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*Not all values or features are available from each vehicle's engine control unit or sensor type, as the data provided varies by vehicle type, make, model and year.

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