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Halderman newsletter

June 2019

What's new with Jim?

Light Vehicle Diesel Engines



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CURT WARD

NEW BOOK TITLE

This new title is designed to meet the needs of a semester course in light vehicle diesel engines.

Scope: The scope of this title is intended to meet the needs of a textbook that covers light vehicle diesel engines to supplement and enhance an automotive two-year curriculum. The first 9 chapters are designed to introduce diesel engine construction and engine mechanical systems. Chapters 10 through 21 cover the emission control and service procedures that every technician needs to know when servicing a light vehicle diesel engine. Chapters 22 through 25 cover each of the most commonly used diesel engine in detail.

Organization: The content includes the basics needed by all service technicians and also covers the following organization

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Where's Jim?

Jim does not have any travel plans in June, the first month in a long time that I have not scheduled to be attending an automotive event or conference.

Keep up with me at:
www.jameshalderman.com
 Email Jim
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Puzzle of the month

Find this month's puzzle of the month at this [link](#) and test your students knowledge on oxygen sensors.

Wide-Band Oxygen Sensors
Chapter 20

http://jameshalderman.com

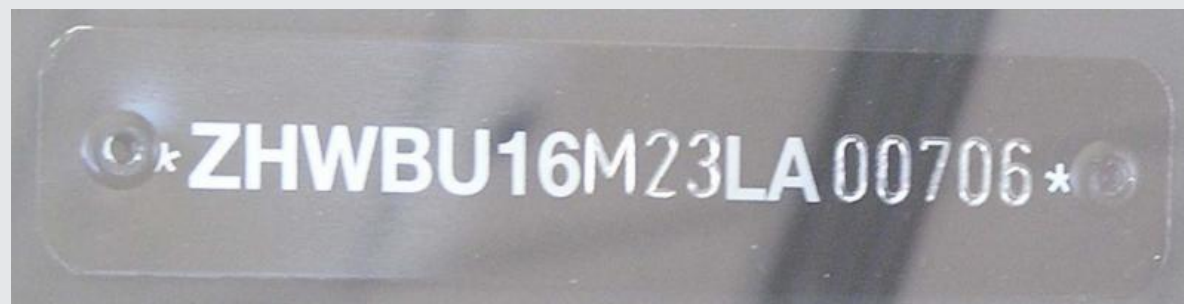
<p>ACROSS</p> <p>1 Another name for the ambient air electrode is the _____.</p> <p>5 The _____ is exposed to ambient air.</p> <p>7 Above the heater coil is another porous layer with two electrodes which insulates the _____ sensor.</p> <p>10 Another name for the three-bar design oxygen sensor is the _____.</p> <p>12 In a conventional zirconia oxygen sensor, a base or _____ can be applied to the two platinum electrodes, and then oxygen ions can be forced (pumped) from the ambient reference air side to the exhaust side of the sensor.</p> <p>13 Fuel heating is called _____.</p> <p>14 A typical zirconia oxygen sensor has the sensing element in the shape of a triangle and is often referred to as a _____.</p>	<p>DOWN</p> <p>2 Another name for a conventional oxygen sensor is a _____.</p> <p>3 The typical single cell wide-band oxygen sensor, usually called a _____, can be made using the cup or planar design.</p> <p>4 The _____ is exposed to the exhaust stream.</p> <p>5 The _____ is exposed to the outside air.</p> <p>6 A conventional oxygen sensor can be constructed using a _____ instead of the three-bar design.</p> <p>8 The _____ is exposed to the exhaust gases.</p> <p>9 A typical _____ wide-band oxygen sensor is called a _____ to a conventional four-cell zirconia oxygen sensor.</p> <p>11 A _____ planar-type wide-band oxygen sensor is made like a conventional planar O₂S.</p>
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for most systems:

1. Purpose and function of the system
2. Parts involved and operational description
3. Diagnosis and service

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Auto Trivia



In which country was this vehicle assembled?

- a. United States
- b. Canada
- c. Italy
- d. Japan

Answer at the bottom of this page!

FAQ

What is the Julian Date?

The Julian date (abbreviated JD) is the number of the day of the year. January 1 is day 001. The Julian date is named for Julius Caesar, who developed the current calendar. The Julian date is often mentioned in technical service bulletins where changes need to be made to certain components if the date of manufacturing falls within the specified Julian dates.

Behind the Scenes

Writing an automotive textbook is more than just sitting at a computer and writing. Before I write anything, I have to know the subject forward and backward. This often meant getting out to local shops and helping diagnose problems. Often the fault is something that the technician overlooked such as the corrosion on a battery cable. Other times, the problem can take several days and many tests to find the root cause. Regardless, the experience is invaluable to me as an author learning every day.



Sample ASE certification-type question

Question:

Excessive exhaust system back pressure has been measured. This can be caused by_____.

- a. A clogged catalytic converter
- b. A defective AIR pump diverter valve

- c. Clogged EGR valve ports
- d. Excessively retarded valve timing

Answer/Explanation

The correct answer is a. A clogged or restricted catalytic converter can cause excessive exhaust system backpressure. Answer b is not correct because a defective AIR pump diverter valve would cause airflow from the secondary air injection (SAI) system to flow to the wrong location, but would not have any effect on the flow of the exhaust through the exhaust system. Answer c is not correct because, while a clogged EGR valve exhaust port(s) could cause the exhaust gas recirculation system not to function correctly, it would not have any effect on the flow of the exhaust from the engine itself. Answer d is not correct because even though retarded valve timing could cause reduced engine performance, it would not have any effect on the flow of the exhaust gases through the exhaust system.

Tech Tip

Use a Bluetooth Hands-Free Telephone

When talking to a hotline service provider, it is wise to be looking at the vehicle during the call to be able to provide information about the vehicle and perform the suggested tests. This makes the job of troubleshooting easier and faster for both the technician and the service provider, resulting in shorter length calls. Using a Bluetooth handsfree telephone should help shorten the length of calls, which means the cost will be less for the help service.

Straight Talk

From the May 25Wheels section of Dayton Daily News

Reader Asks About a Strange Vibration

Steve B. from Oregon asks:

"I hope you can help. My company car is a Dodge mini van and I like the vehicle but recently, I attended a conference in Seattle and I had a vibration problem when driving at highway speeds. When the speed limit was 65 MPH, the van rode great and very smooth. However, when the speed limit changed to 70 MPH and I sped up, the whole front end started to shake. The dash was rattling and it seem as if the car was going to shake itself apart. I had to continue the trip up to Seattle and back at 65 MPH to avoid being shaken up. When I returned, I had a local shop check out the front tires and suspension and everything was normal, including the tires and tire balance. The shop was able to verify the condition, but did not know what the cause was. The owner of the van authorized replacing all four tires and this did not solve the problem. The wheels were also checked for runout and they found to be almost perfect. Any ideas? Thanks".

Halderman:

If a vibration is felt or seen in the dash, this usually indicates a fault with the front wheels or tires. Because these and everything in the front suspension has been checked, this leads me to think outside the box. I experienced a similar situation when test driving a customer's pickup truck. At lower speeds, everything was smooth, but when a certain speed was reached, the hood started to shake, and the dash and steering wheel began to shake too. It turned out that the owner said that it was fine until he installed a bug shield on the front edge of the hood. To check to see if this was the cause, the bug shield was removed and the vibration problem did not occur. Therefore, check to see if there is an aftermarket bug shield or a covering over the front of the vehicle. If so, try removing it to verify that this is the cause.

Have an automotive question? Please write to Jim with your questions at jim@jameshalderman.com

Trivia question answer: C.

Please let me know what you think of the newsletter. I would love to include any of your automotive news, trivia questions or any tech tips you might have. Send me your suggestions!

You can email me [here](#) or visit [my website](#). You can connect with me on Facebook, Twitter and LinkedIn too (links above).

Regards,

Jim Halderman

James D. Halderman writes automotive technology textbooks for [Pearson Education](#). He is an ASE-certified Master Technician with more than 20 years instructional experience.