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Halderman newsletter

November 2017

### What's new with Jim?

As I was working on a revision of an electrical chapter, I asked my artist, Carl Borsani, to help me create figures showing the three levels of dash warning systems. After a couple of weeks and many versions, we ended up with 128 dash symbols broken up into three areas by color:

- Green (Blue)- Used to inform the driver what is in operation
- Amber- Used to inform, the driver of a detected concern
- Red - Used to warn the driver of a fault requiring immediate attention

Featuring

Click here to download Jim's Dash Symbol Chart. Feel free to print and use in your classroom. Includes 128 symbols and their meanings.

This chart has now been posted on the homepage of my website where it can be easily downloaded and printed so that it can be used in every school and shop in the country. Visit [www.jameshalderman.com](http://www.jameshalderman.com).

### IN THIS ISSUE

[Auto Trivia](#)

[FAQ](#)

[Sample ASE](#)

[Tech Tip](#)

[Straight Talk](#)

### Find Jim online

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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 engine performance (A8).

Engine Cleaning And Crack Detection  
 Chapter 25

ACROSS

1. Because of environmental concerns, most chemical cleanings is now performed using water based solutions called \_\_\_\_\_.
11. To be seen \_\_\_\_\_ requires a flashlight.
12. \_\_\_\_\_ leading to oiliness on pistons and other parts necessitates all aluminum and other nonferrous metal \_\_\_\_\_.
13. \_\_\_\_\_ used to clean small parts and must be absolutely clean, such as hydraulic lines and clevis pins.

DOWN

2. \_\_\_\_\_ helps fresh cleaning solution making past the oil to help it flow.
3. A \_\_\_\_\_ which means of light through numerous high pressure nozzles to clean dirt and grime on engine surface.
4. Usually, there will be a level of water over the chemical to prevent evaporation of the chemical. This water layer is called \_\_\_\_\_.
5. Most chemical cleaners consist of cleaning concentrate dissolved in ethylene glycol \_\_\_\_\_.
6. The \_\_\_\_\_ is usually equipped with a safety shut-off cap to \_\_\_\_\_.
7. The \_\_\_\_\_ is used to remove grime and carbon.
8. \_\_\_\_\_ have 24 hours from 1 through 4.
9. \_\_\_\_\_ over clean engine parts by decomposing dirt, grease, and particles with heat in a reactor with 100% of acid-cleaning power.
10. The scraper tool (hepatary) used is a \_\_\_\_\_ or scraper tool.
12. \_\_\_\_\_ is a trademark of the Magnaflex Corporation.
14. \_\_\_\_\_ measurement or acceptance is to measure the amount of chemical activity in the soap.

### Auto Trivia

Which manufacturer designed the engine for the Bugatti Veyron?

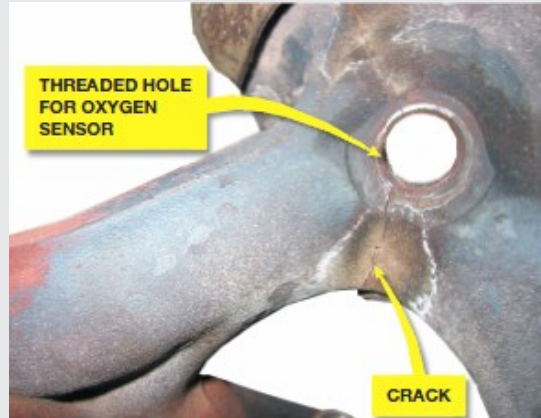
- Ferrari
- Volkswagen
- Lamborghini
- Maserati

Answer at the bottom of this page!

## FAQ

### How can a cracked exhaust manifold affect engine performance?

Cracks in an exhaust manifold will not only allow exhaust gases to escape and cause noise, but also allow air to enter the exhaust manifold. Exhaust flows from the cylinders as individual puffs or pressure pulses. Behind each of these pressure pulses, a low pressure (below atmospheric pressure) is created. Outside air at atmospheric pressure is then drawn into the exhaust manifold through the crack. This outside air contains 21% oxygen and is measured by the oxygen sensor (O2S). The air passing the O2S signals the engine computer that the engine is operating too lean (excess oxygen) and the computer, not knowing that the lean indicator is false, adds additional fuel to the engine. The result is that the engine will be operating richer (more fuel than normal) and spark plugs could become fouled by fuel, causing poor engine operation.



## Sample ASE certification-type question

### Question:

An increase in oil viscosity can be due to \_\_\_\_\_.

- a. Wear metals in the oil
- b. Fuel dilution of the oil
- c. A clogged air filter
- d. All of the above

### Answer/Explanation:

*The correct answer is a.* Small particles of steel, cast iron, and other metals in an engine can react chemically to increase the viscosity (thickness) of the oil. Answer b is not correct because if fuel were added to oil, it would become thinner (lower viscosity). Answer c is not correct because a clogged air filter does not have a direct effect on the viscosity of the oil. It is true that dirt could get into the oil, which will make the oil thicker but this is not a direct result of the air filter itself. Answer d is not correct because it includes b and c, which are not correct.

## Tech Tip

### Hints for gasket usage

1. Never reuse an old gasket. A used gasket or seal has already been compressed, has lost some of its resilience, and has taken a set. If a used gasket does reseal, it will not seal as well as a new gasket or seal.
2. A gasket should be checked to make sure it is the correct gasket. Also check the list on the outside of the gasket set to make sure that the set has all the gaskets that may be needed before the package is opened.
3. Read the instruction sheet. An instruction sheet is included with most gaskets. It includes a review of the things the technician should do to prepare and install the gaskets, to give the best chance of a good seal. The instruction sheet also includes special tips on how to seal spots that are difficult to seal or that require special care to seal on a particular engine.

## Straight Talk

From the October 28, Wheels section of Dayton Daily News

### Reader is confused about oil level

**Wheels:**

Randall writes by email:

"I have a 2008 Dodge minivan with a 3.8 L engine. When I check the oil with the dipstick, I get a different reading every time, no matter how many times I check it. I called the dealer, he said to start the car and run the engine for a couple minutes. Then, shut it off and let sit a couple minutes, and check the oil level. It's still the same. Do you have a suggestion?"

**Halderman:** For most engines, the oil level should be checked before starting the engine and after it has been sitting overnight. I have read that some engines will not display an accurate oil level unless the engine has been off for an hour or longer. It takes a long time for the oil to travel from passages and locations, such as the cylinder head and overhead camshafts, and back into the oil pan. Also be sure that the vehicle is on a level location to avoid an error in reading the oil level. Therefore, for best results, park somewhere level and check the oil in the morning before starting the engine. Remove the dipstick and using a shop cloth, wipe the oil off and reinstall. Be sure that the dipstick is fully depressed to get an accurate measurement. Remove the dipstick a second time and observe the oil level. The oil level should be between full and add. Do not overfill. The add mark indicates that 1 quart of oil is needed.



*Have an automotive question? Please write to Jim with your questions at [jim@jameshalderman.com](mailto:jim@jameshalderman.com)*

**Trivia question answer: B.**

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.*

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