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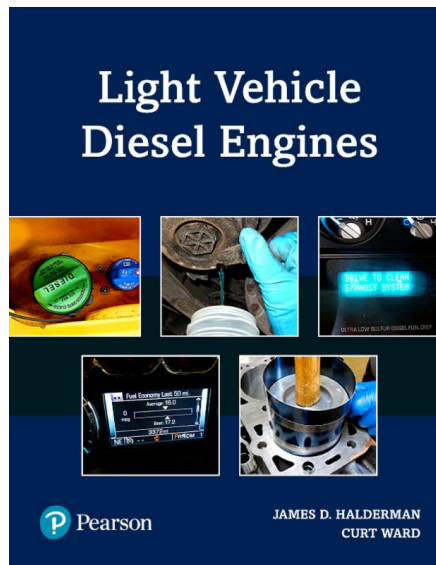
Halderman newsletter

July 2017

### What's new with Jim?

I am pleased to let everyone know that the manuscript for the Light Vehicle Diesel Engines has been sent to Pearson Education where it will start the production preprocess. This does not mean that Curt Ward and I are done with this project. We still have the instructor manual to write as well as the task sheets that will be made available for this title.

I am also working with my co-author, Jimmy Dinsmore, the editor of this newsletter on the Gale Halderman book about the birth of the original Mustang. It has been an honor to be involved with creating the legacy of Gale Halderman's involvement. I have also met many of the people involved when the Mustang was first designed including the legendary Hal Sperlich (pictured below).



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### Find Jim online

[www.jameshalderman.com](http://www.jameshalderman.com)  
Email Jim  
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### Where's Jim?

**Jul 10-11** Macomb College, advanced technology seminar  
**July 17-21** NACAT, Macomb College, presenting Diesel Diagnosis for Gas Instructors, with Curt Ward and Free Instructor Resources with Curt Ward

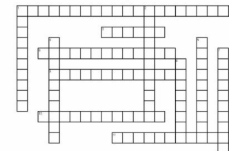
### Puzzle of the month

Find this month's puzzle of the month at this [link](#) and test your students knowledge on batteries (A6).



#### A/C System Components, Operation, and Service

Chapter 7



ACROSS

- 1 A \_\_\_\_\_ senses both temperature and pressure and controls the flow of refrigerant into the evaporator.
- 2 The \_\_\_\_\_ design uses four passages and controls the refrigerant flow using opposing pressures.
- 3 Standing at the compressor, the \_\_\_\_\_ connects the compressor to the condenser inlet.
- 4 A condenser is a \_\_\_\_\_ that is used to get rid of the heat removed from the passenger compartment.
- 5 The non-permeable nylon layer forms a seal around the receiver and is called \_\_\_\_\_.
- 6 Some manufacturers use a \_\_\_\_\_ which locates the O-ring more precisely in a shallow groove.

DOWN

- 1 A \_\_\_\_\_ is commonly used to sense temperature.
- 2 The \_\_\_\_\_ extracts the evaporator oil from the accumulator or compressor and has the largest diameter because it transfers low-pressure vapor.
- 3 \_\_\_\_\_ allows observation of the refrigerant flow and it leaves the receiver-drier.
- 4 A \_\_\_\_\_ senses pressure and changes a variable pressure signal into a variable electrical signal.
- 5 The \_\_\_\_\_ connects the condenser outlet to the receiver-drier and TXV or CVT.
- 6 The \_\_\_\_\_ must be increased until the refrigerant temperature is above ambient air temperature so the condenser can get rid of all the heat absorbed in the evaporator.

## Auto Trivia

The Mitsubishi 3000GT shared a platform with which vehicle?

- A. Dodge Stealth
- B. Plymouth Horizon
- C. Chrysler LeBaron
- D. Eagle Talon

**Answer at the bottom of this page!**

## FAQ

### What is an A/C virus?

Recovering an A/C system which is contaminated by a substance, such as R-22 or a hydrocarbon into the recovery container that is half full of R-134a will ruin the R-134a in the container. If the container is then used to service another vehicle, the contaminated refrigerant will contaminate the other system(s) as well. Many compare a system with contaminated refrigerant to a virus that can sometimes spread from person to person at a very rapid rate.

## Sample ASE certification-type question

### Question:

Both high-side pressures and low-side pressures are low with the engine running and the selector set to the air conditioning position. Technician A says that the system is undercharged. Technician B says the cooling fan could be inoperative. Which technician is correct?

- a. A only
- b. B only
- c. Both A and B
- d. Neither A nor B

### ANSWER/EXPLANATION

The correct answer is a. Technician A only is correct because a system that is undercharged (low on refrigerant) will keep the compressor from creating pressure. As a result of the low amount of refrigerant, the cooling ability is reduced. Technician B is not correct because an inoperative cooling fan will cause the discharge pressure to increase rather than decrease because the air will not be forced through the condenser, thereby not allowing the heat to be transferred from the refrigerant to the outside air. Answers c and d are not correct because Technician A only is correct.

## Tech Tip

### Always check for sealant

It is possible for an A/C system to contain a sealant, and this sealant can damage a refrigerant identifier and/or a service unit when that refrigerant in the system is recovered. It is highly recommended to test for a sealant before starting any other refrigerant service. The only sure way to completely remove a sealant from a system is to replace every component that contains refrigerant.

## Straight Talk

From the June 24, Wheels section of Dayton Daily News

### Reader asks about buying new versus used vehicles

#### Wheels:

David B. writes by email:

"I am a company service representative and travel a lot (about 40,000-50,000 miles a year). I really don't want to purchase a new vehicle because it would soon be out of warranty and in my opinion, a waste of money. However, I am not comfortable trying to find a good used car because I don't know what to look for when inspecting a used vehicle. Any thoughts or ideas would be appreciated. Thanks".

**Halderman:**

Did you know that everyone drives a used vehicle? As soon as a new vehicle is driven out of the dealership, it is used and its value drops. Used vehicles including cars, trucks, and SUVs are less expensive to purchase and if three

years old, can often be purchased for half of what it cost when new. I think the best plan of action is to purchase a used vehicle that was returned after three-year lease and is "certified" by the dealer and the factory. Being a certified used car, it has to meet stringent requirements and be free from any mechanical, body, or interior faults and be accident free (have a clean "Car Fax"). Things to consider when deciding whether or not to purchase a used vehicle include:

- A used vehicle often is sold as a certified used vehicle, especially those returned after a lease and offered with a warranty that is often longer than the original factory warranty.
- Many high cost options are included at a fraction of their original cost and often at no additional cost at all. Therefore, if a potential vehicle buyer wants some or many of the high cost options, such as heated and cooled seats, navigation or radar cruise, backup camera, then purchasing a used vehicle is a wise decision.
- The selection is almost as good as, and often better, than purchasing a new vehicle. While this does not seem right, Automotive News stated that 95% of new vehicle purchases are made from the selection on the dealer's lot. While purchasing used does not allow the buyer to select the exact vehicles and color wanted, often the selection is very good.

Most people cannot tell the year a vehicle so if it is clean and well maintained, no one will know that it was purchased used. For those of us that like to keep as much of our hard-earned money as possible, purchasing a used vehicle is truly the wise choice.

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

**Trivia question answer: A.**

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.*

