



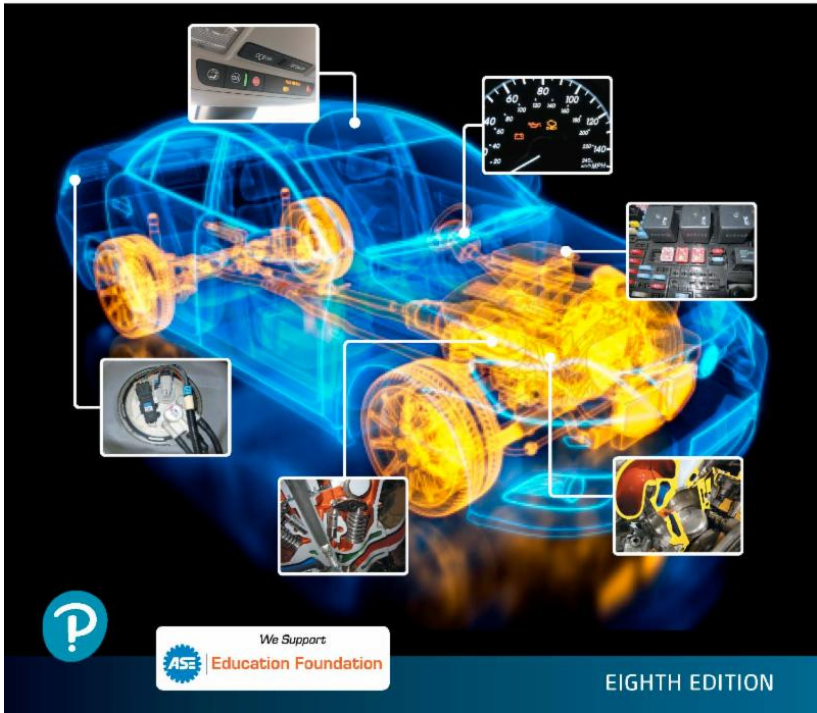
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What's new with Jim?

Automotive Electrical and Engine Performance

JAMES D. HALDERMAN



I am happy to announce that the 8th edition of "Automotive Electrical and Engine Performance" is now available and can be ordered for summer and fall semester classes. This title includes all of the content to cover the ASE tasks for both Electrical and Electronic Systems (A6) as well as Engine Performance (A8)
 ISBN: 0-13-522480-2
 The following changes and updates have been made to the new eighth edition based on requests from instructors and

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Where's Jim?

April 2, 2019- Attending the Advisory board meeting for the Technological Studies department at Ohio Northern University in Ada, Ohio
April 27, 2019- Attending and presenting at the California Automotive Teachers (CAT) conference being held at Solano College, Vallejo, CA

Keep up with me at:
www.jameshalderman.com
 Email Jim
 Facebook

Puzzle of the month

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

HALDERMAN
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Chapter 5
 A/C System Components, Operation, and Service

ACROSS

- 2 The _____ connects the condenser outlet to the receiver-drier and TXV or O/F.
- 4 The _____ connects the evaporator outlet to the accumulator or compressor and has the largest diameter because it transfers a low-pressure vapor.
- 5 The nonpermeable nylon layer forms a leak-proof barrier commonly called _____.
- 7 The _____ allows observation of the refrigerant flow as it leaves the receiver-drier.
- 8 Some manufacturers use a _____ also called captured O-ring, which locates the O-ring more positively if it is shallow grooved.
- 9 A _____ is commonly used to sense temperatures. It is basically an electrical resistor that changes resistance in inverse relationship to its temperature.

DOWN

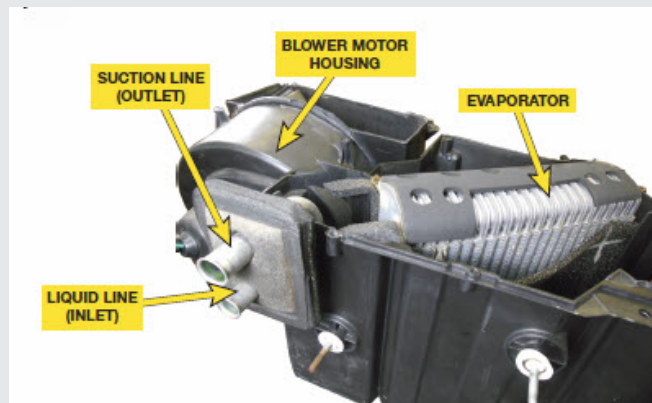
- 1 Starting at the compressor, the _____, sometimes called the hot gas line, connects the compressor to the condenser inlet.
- 3 A _____ senses pressure and changes a variable pressure signal into a variable electrical signal.
- 6 The thermal expansion block valve is another type of TXV. It is called an _____ or an H-valve. The H-block design uses four passages and controls the refrigerant flow using opposing pressures.

readers from throughout North America.

- Over 75 new full color line drawings and photos have been added to the new edition to help bring the subject to life.
- Updated throughout and correlated to the latest ASE tasks.
- The number of chapters has increased from 43 to 46 chapters by splitting up larger chapters and placing the content into shorter more concise chapters.
- A new chapter on Safety, Comfort and Convenience Accessories (Chapter 23) has been added.
- A new chapter called Air Management Systems (Chapter 24) has been added.
- Immobilizer Systems (Chapter 25) has been added to the new edition.
- The ignition system chapter was split into two shorter chapters (Chapters 29 and 30) to make teaching and learning this topic easier.
- The new Tier 3 emission standards have been added (Chapter 41)

Behind the Scenes

Whenever I use a photo of anything, I use an arrow pointing to the object and label identifying what it is called. This is a huge help to the reader who is likely not familiar with what is being shown. When selecting a textbook, check that all of the major objects being shown are labeled so that the reader can easily see and understand the what is being shown in the photo.



Auto Trivia



What is this classic car from the 1930s?

- a. 1933 Packard
- b. 1935 Rolls Royce
- c. 1936 Duesenberg
- d. 1932 Cadillac

Answer at the bottom of this page!

FAQ

Why Is the Blower Speed So High?

This question is often asked by passengers when riding in a vehicle equipped with automatic climate control. The controller does command a high blower speed if:

* The outside temperature is low and the engine coolant temperature is hot enough to provide heat.

The high blower speed is used to warm the passenger compartment as quickly as possible then when the temperature has reached the preset level, the blower speed is reduced to maintain the preset temperature.

* The outside temperature is hot and the air conditioning compressor is working to provide cooling. The high-speed blower is used to circulate air through the evaporator in an attempt to cool the passenger compartment as quickly as possible. Once the temperature reaches close to the preset temperature, the blower speed is reduced to keep the temperature steady.

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. Technician A only

- b. Technician B only
- c. Both Technicians A and B
- d. Neither Technician 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

The Paper Test

To determine if there is adequate airflow through a condenser, many technicians place a sheet of paper or a dollar bill in front of the condenser when the cooling fans are operating. With the engine running at idle speed, the bill should stick to the condenser.

Straight Talk

From the March 30 Wheels section of Dayton Daily News

Reader Asks About Tire Pressure Gauges

William D. writes by email:
"How do you know if your tire pressure gauge is accurate? I have a stick tire pressure gauge (the kind shaped like a pencil where a stick pops out of the bottom to indicate the pressure) that I've had for decades and worked fine (or so I believed) until I got a car with the tire pressure sensors. The problem is the car's sensors and the stick gauge disagree by 3-4 lbs. So I bought a dial gauge, hoping it would prove one or the other correct. Nope, that one is off 3-4 lbs in the other direction. Are the sensors that come with modern cars (mine is an Altima) accurate? Are sticks better than dial gauges?"



Halderman:

Thanks for writing. I suggest that you use a digital tire pressure gauge. Stick or "pencil-type" gauges are not very accurate and while dial gauges are usually better, digital can show pressure within 0.1 PSI allowing the user to get all of the tires equally inflated. Digital tire pressure gauges are now relatively inexpensive and easier to use than other types you mentioned. The tire pressure sensors are relatively accurate as they have to adhere to Federal law and trigger the TPMS warning light when the pressure drops 8 PSI below the door placard pressure.

Have an automotive question? Please write to Jim with your questions at 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.