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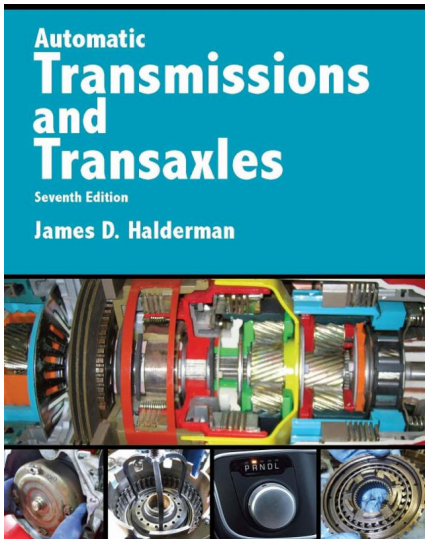
What's new with Jim?



I am happy to announce that the latest edition of Automatic Transmissions and Transaxles (7th editionISBN: 0-13-461679-0) will be available soon. Based on conversations and recommendations from automotive instructors and reviewers, the following updates have been incorporated in the new seventh edition:
1. Automatic transmission/transaxle hydraulic systems has been greatly expanded and then split in to three chapters to make teaching and learning hydraulic systems easier:

- Automatic Transmission Fluid, Filters And Coolers - Chapter 2
- Automatic Transmission/Transaxle Hydraulic System-Chapter 3
- Hydraulic Control Valves and Solenoids-Chapter 4

2. Updated throughout to match the latest ASE/NATEF tasks.
3. Over 50 new full color line drawings and photos make the subject come alive.
4. Case studies added to selected chapters that include the "three Cs" (Complaint, Cause and Correction).
5. Global electrical symbols added to Chapter 8.
6. All systems and components are described throughout with the following format to make learning complex systems easier:

- Purpose and Function
- Parts and Operation
- Diagnosis and Service

Also, I now have an official Facebook "fan" page where all of my information and updates will go. Please like the page for all updates on conferences, website news and book updates. Click this link and give it a like.

Sincerely,
Jim

IN THIS ISSUE

Find Jim online

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WHERE'S JIM?
Jan. 6-7 KOI technician training - Cincinnati, Ohio

Jan. 8-9 NAIAS (Detroit Auto Show) Detroit, Michigan

Auto Trivia

Dodge produced a Ram truck with a Viper engine called an SRT-10 Ram during which years?

a. 2002-04
b. 2004-06
c. 2006-08
d. 2008-10

Answer at the bottom of this page!

FAQ

What Is "Compacted Graphite Iron"?

Compacted graphite iron (CGI) has increased strength, ductility, toughness, and stiffness compared to gray iron. If no magnesium is added, the iron will form gray iron when cooled, with the graphite present in flake form. If a very small amount of magnesium is added, more and more of the sulfur and oxygen form in the molten solution, and the shape of the graphite begins to change to compacted graphite forms. Compacted graphite iron is used for bedplates and many diesel engine blocks. It has higher strength, stiffness, and toughness than gray iron. The enhanced strength has been shown to permit reduced weight while still reducing noise vibration and harshness. Compacted graphite iron is commonly used in the blocks of diesel and some high-performance engines.

Sample ASE question

Question:
Which computer sensor may have to be replaced if the engine had been found to have a defective head gasket or cracked head?
a. Throttle position sensor
b. Oxygen sensor
c. Manifold absolute pressure sensor
d. Engine coolant temperature sensor

Answer/Explanation:
The correct answer is b. The oxygen sensor should be replaced if the engine has a blown head gasket. Additives in conventional coolant such as silicates and phosphates can coat the oxygen sensor causing the sensor to incorrectly sense the oxygen content in the exhaust. Answer a is not correct because the throttle position sensor would not be directly related to a fault with the head gasket nor be affected by the condition, as would the oxygen sensor. Answer c is not correct because a blown head gasket would not affect the MAP sensor directly. While it is possible for some coolant to get into the sensor through the intake system, this would be very unlikely. Answer d is not correct because a blown head gasket would not affect the ECT sensor since it is already exposed to coolant normally. A defective ECT sensor could be the cause of the blown head gasket if it had not accurately measured engine coolant temperature.

Tech Tip

Soak the timing chaing

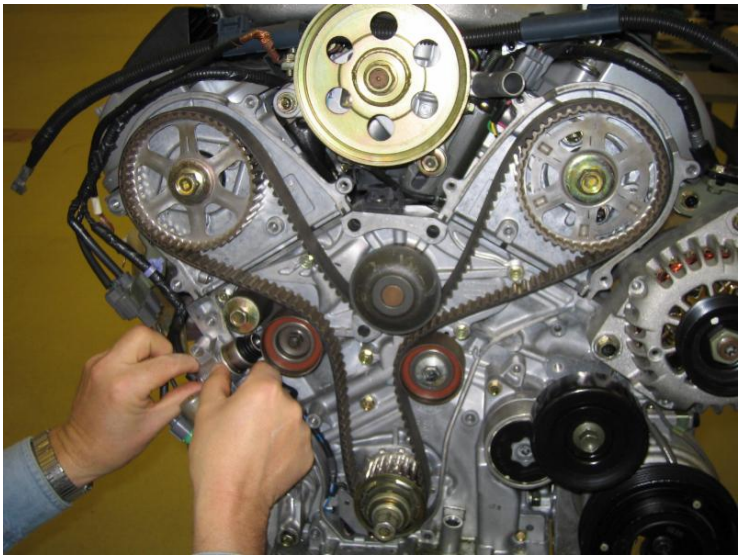
Many experts recommend that a new timing chain be soaked in engine oil prior to engine assembly to help ensure full lubrication at engine start-up. The timing chain is one of the last places in the engine to get lubrication when the engine first starts. This procedure may even extend the life of the

chain.

Straight Talk

From the December 31, Wheels section of Dayton Daily News

Reader asks about timing belt changes



Wheels: Curt asks by email: "Should I have the timing belt replaced on a 2010 Honda Accord 3.5 liter V-6 that has only 43,000 miles on the odometer? The dealer recommended that the belt be replaced at a cost of about $500. The owner's manual says to replace the belt at 90,000 miles. I want to maintain the vehicle, yet not spend money if at all possible. What is your advice? "

Halderman: The dealer is correct - the belt should be replaced. The vehicle manufacturer recommends that the belt be replaced every 90,000 miles or every 72 months (6 years) whichever occurs first. Because the Honda is over 6 years old, I would bite the bullet and have the belt replaced. The belt deteriorates due to age, as well as use. The engine in this Honda is called an interference engine. This means that if the belt breaks when the engine is running, the pistons can hit the valves. This interference often causes catastrophic engine damage, including bending valves, breaking pistons, cracking the cylinder head, or even cracking the engine block. The cost to repair this type of engine damage is very expensive and could exceed the value of the vehicle.

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