HALDERMAN
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Halderman newsletter December 2019

***Starting January 1, 2020, full access to the thousands of resources on the new website will require a paid subscription at an introductory rate of only $50/year. On that date, you will see registration and login menus. Click the registration menu and to register with our secure payment form and you'll have immediate access to all resources while logged into your account.***

**What's new with Jim?**

I am pleased to announce that the latest edition (8th) of Automotive Steering, Suspension and Alignment will be available early next year. Order ISBN 9780135674642.

- The number of chapters have been increased from 20 to 21 to help meet the latest ASE tasks. The new chapter is Chapter 3 - Service Information, Work Orders and Vehicle Identification
- Over 40 new full-color photos and line drawings make the subject come alive.
- Updated throughout and correlated to the latest ASE A4 tasks.
- New Case Studies are included in this edition covering the "three Cs" (Complaint, Cause, and Correction)
- Additional content on snap-in and clamp-on TPMS sensors are included, plus updated relearn procedures.
- New content on the affect of larger wheel and tire have on the scrub radius.

**ASE CORRELATED**

The areas of the ASE material certification test are listed in the objectives at the beginning of each chapter, and all laboratory worksheets are correlated to the ASE Task Sheets.
The 2020 ASE task sheet correlation chart will be posted as soon as possible after ASE releases the new task list.

## IN THIS ISSUE



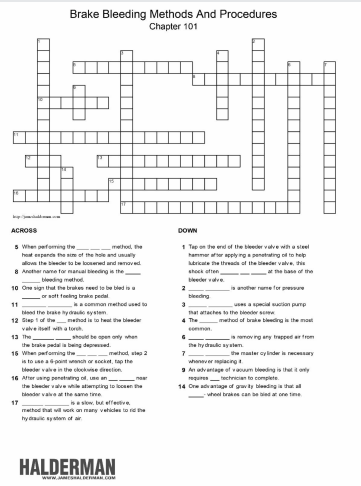
## Where's Jim?

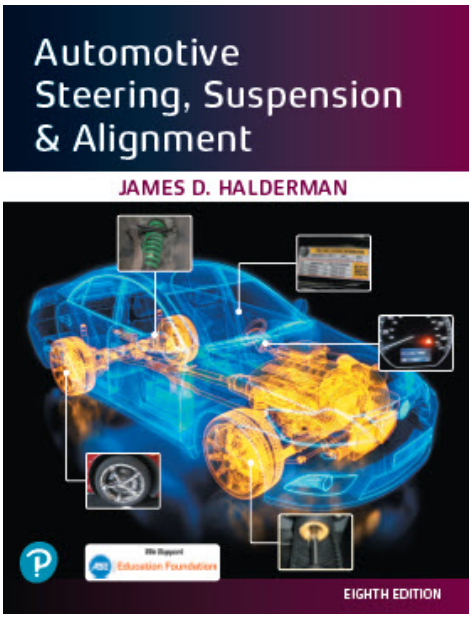
Jim has no travel plans for the month of December. Just spending family time at home.

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 brakes.






## Auto Trivia

What is this unit on the top of the rear quarter panel on a 1960 Cadillac used for?

a. Flow through passenger compartment ventilation
b. Air conditioning inlet vent
c. Engine exhaust outlet
d. Trunk ventilation vent

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

## FAQ

### What Are Ceramic Pads Exactly?

NAO/Ceramic friction materials contain some ceramic powders or fibers. They are not "ceramic matrix composites," but rather they are an organic matrix composite molded using a phenolic resin. Ceramic compounds provide much quieter braking because the ceramic compound helps dampen noise by generating a frequency beyond the human hearing range. Another characteristic that makes ceramic materials attractive is the absence of noticeable dust. All brake pads produce dust as they wear. The ingredients in ceramic compounds produce a light-colored dust that is much less noticeable and less likely to stick to the wheels. Ceramic pads meet or exceed all original equipment standards for durability, stopping distance, and noise. This is quite an improvement over organic and semi-metallic brake materials that typically sacrifice pad life to reduce noise, or vice versa.

# Case Study

## Weird Chevrolet Truck Brakes

The owner of a newer Chevrolet pickup truck complained that sometimes after stopping on a hill, the brakes felt as if the brakes were slow to release when the driver removed his foot from the brake pedal and started to accelerate when the traffic light turned green. The technician was able to duplicate the concern if stopped on a hill either upward or downward. The technician discovered when searching service information that the vehicle was equipped with a hill assist program. This part of the antilock brake system holds the brake applied if the longitudinal acceleration sensor senses that the vehicle was on a hill and the driver exerted a force to the brake pedal to keep the vehicle stopped. Under these conditions, the ABS controller-maintained brake fluid pressure in the system to keep the brakes applied until the driver released the brake pedal. What the driver was feeling was the slight delay in the releasing of the brakes when the brake pedal was released.
Summary

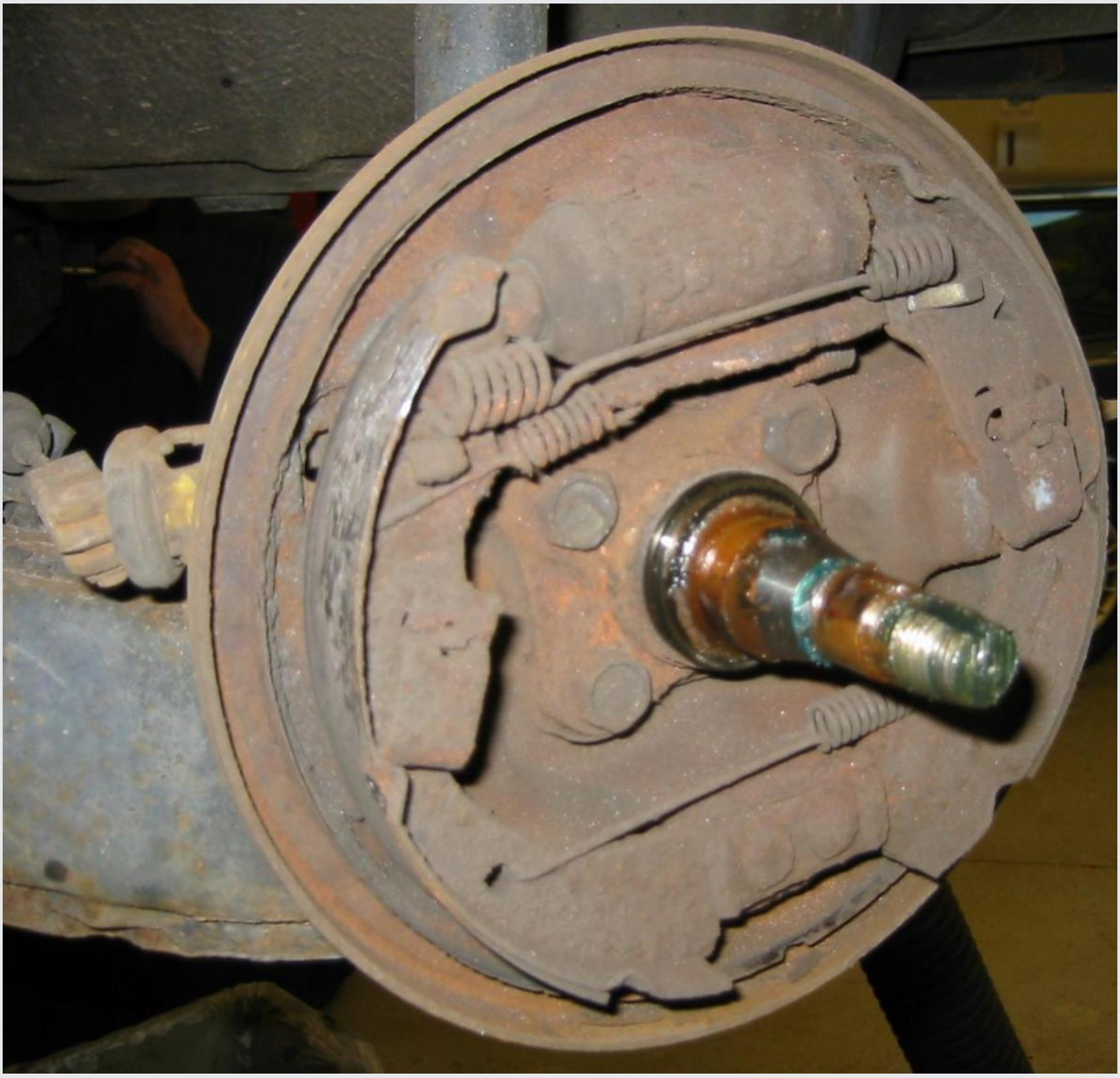
- Complaint-Brakes are slow to release at times.
- Cause-Normal condition when the vehicle is stopped on a hill when equipped with hill assist.
- Correction-Informed driver that this is normal operation due to hill assist function.

# Guest Expert

## What I See Rolling in the Door

This month's expert is Mike Garblik and here is what he is seeing rolling in the door.
In my fleet maintenance business, the #1 issue I see with brakes is lack of lubrication or proper lubrication.  I still see primary and secondary shoes reversed and adjusters on the wrong sides.  Nothing has changed in

the last 40 years. You can contact Mike Garblik at: mgarblik@woh.rr.com.



## Sample ASE certification-type question

**Question:**
Most vehicle manufacturers specify brake fluid that meets what specification?
a. DOT 3
b. DOT 4
c. DOT 5
d. Either a or b
**Answer/Explanation**
*The correct answer is d*. Answer d is correct because either DOT 3 or DOT 4, depending on the make and model of vehicle meets specifications. Answer a is not correct because, while DOT 3 brake fluid is recommended by most domestic and Asian vehicle manufacturers, the best answer is d because most European vehicles specify the use of DOT4 brake fluid. Answer b is not correct even though DOT 4 is the recommend fluid to use in many European and some domestic vehicles. It is not the recommended for use in many domestic or Asian vehicles. Answer c is not correct because DOT 5 is silicone based and does not mix with polyglycol-based DOT 3 or DOT 4 brake fluid and is not recommended.

## Tech Tip

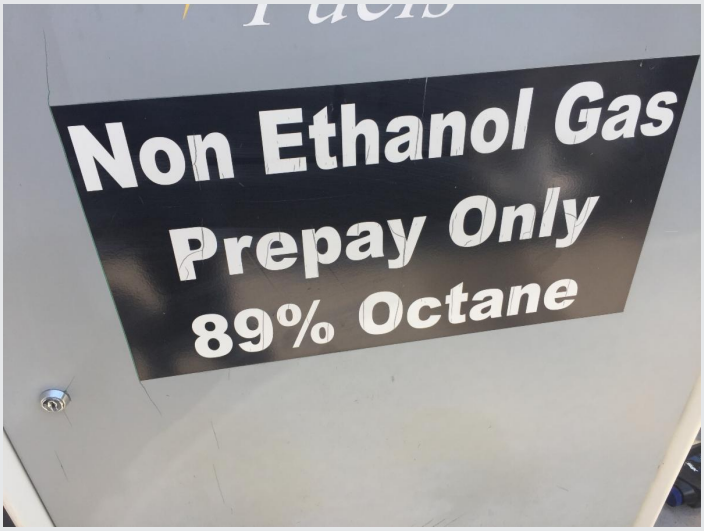
**Don't Fill the Master Cylinder Without Seeing Me!**

The boss explained to the beginning technician that there are two reasons why the customer should be told not to fill the master cylinder reservoir when the brake fluid is down to the "minimum" mark.
1. If the master cylinder reservoir is low, there may be a leak that should be repaired.
2. As the brakes wear, the disc brake piston moves outward to maintain the same distance between friction materials and the rotor. Therefore, as the disc brake pads wear, the brake fluid level goes down to compensate.
Therefore, if the brake fluid is low, the vehicle should be serviced-either for new brakes or to repair a leak.

## *Straight Talk*

From the November 30 Wheels section of Dayton Daily News

### Reader Asks About Alcohol-Free Gasoline




**Wheels:**
Jeff asks:
I am ready to store my lawn mower and the gas-powered weed trimmer, and I have heard that today's gasoline contains alcohol and that I should not use it in my lawn equipment. Almost all of the gas pumps I see say right on the pump "contains up to 10% ethanol." I guess I have two questions:
1. Where can I find gasoline that does not have ethanol?
2. If I can't find alcohol-free gas, what can I do to protect my lawn equipment when they are being stored over the winter?

**Halderman:**
You are correct that most gasoline today contains ethanol. While ethanol (ethyl alcohol) is used to increase the octane rating of the fuel, it does absorb moisture from the air. Here is what happens:

- Moisture in the air is absorbed by the alcohol in the fuel (this is why it is important to keep the fuel tank full when storing a mower to keep air out of the tank).
- When water is absorbed by the alcohol, it tends to separate from the gasoline. This is called "phase separation."
- The alcohol-water mixture is heavier than the gasoline and sinks to the bottom of the tank.
- The engine draws the fuel from the bottom of the tank, which means that the engine is using this alcohol/water combination, leading to hard starting or no starting in the spring.

Most experts recommend using ethanal-free gasoline in vehicles that are being stored for any length of time to help reduce moisture from being absorbed. Visit www.pure-gas.org to find a station that sells alcohol-free gasoline. Some of the stations listed have a special pump and may not be labeled so be sure to ask at the station where the alcohol-free gas pump is located. It is usually more expensive and often 89 or higher octane compared to 87 for regular unleaded gas.
Most experts state that the shelf life of gasoline is 90 days. Shelf life means that it works like new for 90 days, but after that the light ends start to evaporate and oxidation starts to occur that affects its performance. I recommend a gas stabilizer be added to the gas container to help protect the gasoline itself and allow the gas to remain fresh for six months or longer.
Always fill the tank with fresh gas and use fresh stabilizer. Also try to use Top Tier gasoline in all vehicles, not just in mowers. Top Tier Gasoline is gasoline that has engine cleaning chemicals to help reduce engine deposits, more than specified by the EPA. For a list of brands that are top tier visit www.toptiergas.com.

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

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.*