

FLAT TIRE ON ALL-WHEEL DRIVE



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All-wheel drive (AWD) systems are more and more popular on modern vehicles. They are particularly nice up here when driving on our interior Alaska snow and ice covered roads.

Simply put, AWD vehicles work by having sensors on each wheel that send continuous signals to an on-board computer that can then figure out when one or more of the wheels is losing traction. The computer then instantaneously redirects the power to the wheels that aren't slipping thereby maximizing traction. By the way, those sensor and computer systems are the same ones that tell the anti-lock brake system how and when to activate.

Because of how AWD systems operate, an important factor to consider for AWD vehicle owners is tire circumference. If, say one wheel is larger in circumference than the others, the computer may think that the other three wheels are slipping and it will keep trying to transfer power away from the larger wheel to the smaller ones – even on bare

pavement. That overworks the drive train components as they continuously disengage and re-engage causing unusual wear that can then lead to component failures. Repairs to or replacement of these components can amount to hundreds and even thousands of dollars.

So, if you have an AWD vehicle and experience a flat tire, you should be careful not to end up with one tire larger than the others any longer than absolutely necessary. Rather than end up with mismatched tires, you may need to replace sets of tires rather than just the one that failed. And, when talking about matching tires, it's absolutely best to make sure all tires on an AWD vehicle are the same brand, model, size and tread pattern.

Now, not all AWD systems have the same tolerances to tire circumference. Some manufacturers have more sensitive systems than others making tire matching even more critical. Your manufacturer's dealership tire department is the best place to check with for advice on this subject. You should also be able to find this information in your Factory supplied Owner's Manual.

A good industry-wide rule of thumb is that a difference in as little as $\frac{1}{4}$ of an inch can have an impact on an AWD system. That

measurement is made by hooking the end of a tape measure on a cleat of the tread and rotating the wheel until you can accurately record the measurement. Just remember, the stakes are high here. A new set of tires can be a lot less expensive than the repairs to the AWD system.

If you are one of the unlucky who experience a tire failure on your AWD vehicle, check out some of the tire promotions around town. For example, Ford Motor Company rather routinely offers a substantial discount when buying a set of four new tires or a "buy three and get a fourth free" promotion on a wide range of tire manufacturer's products through our Quick Lane Tire and Auto Center. Other tire centers also have seasonal promotions. And, if you find that replacing that one failed tires would cause you to exceed the tire circumference requirements on your AWD, it may be time for a new set of tires anyway. In addition to protecting the AWD system, you will experience better traction, better braking distances and safer handling.

Good luck and safe driving for you and your family.

Ralph Seekins has more than 42 years' experience in the automotive industry. He started as a mechanic, worked in sales, and for the past 35 years, has been the owner of Seekins Ford Lincoln.