



## MIKES CORVETTE CORNER

### **Run Flat Tires, a brief overview:**

At the last club meeting a couple of members asked me about run flat tires. I did have some experience with them when they first appeared in some tire testing I was doing in Akron. But since that time, materials, technology, tire compounds, have changed dramatically.

Run-flat or zero-pressure tires can support the weight of a vehicle for a short time, providing the driver with roughly 100 miles of range to find a repair shop. While it may sound like the perfect solution, car owners and car shoppers should know about the trade-offs.

Run-flat tires are standard on 15 percent of new vehicles, according to Edmunds data. Traditionally, carmakers have used run-flat tires on sports cars, but in recent years they have started to use them for other cars, too. Cadillac and BMW, for example, have made run-flat tires standard on a number of their sedans.

### **Self-Supporting Tire**

The most common type of run-flat tire in use today is the self-supporting tire. The tire's sidewalls are heavily reinforced to support the vehicle when the air pressure is low or even when the tire has lost all its pressure.

**Pros: You can drive on a flat tire:**

The primary benefit of a run-flat tire is that it allows you to keep driving about 100 miles after all the air has gone. This means that a person doesn't have to get out of the car in the cold, or the rain, or onto a busy highway or on the street in a strange part of town. Drivers will usually have to reduce speed to about 50 mph to get the maximum range. The owner's manual will have exact figures for each tire/vehicle application.

**Better stability after a blowout:**

Because this tire can support the vehicle without air, a sudden deflation results in less weight transfer and tread destabilization. Steering and handling will remain near normal.

**Lower vehicle weight:**

With the spare and tire repair tools eliminated, vehicle weight should *theoretically* go down. But it's not as much as you might expect, since run-flat tires weigh more than regular tires, due to the added sidewall reinforcement.

**Cons: No spare:**

Vehicles equipped with run-flat tires carry no spare, which means they don't have the jack or tools either. In fact, eliminating the spare and reallocating other purpose (styling, third-row seat, interior room, etc.) is a

big reason why carmakers offer run-flats.

**Reduced tread wear:**

A recent study by J.D. Power found that people were replacing their run-flat tires an average of 6,000 miles sooner than owners using standard tires. Opinions differ on why this is, but one theory is that tire makers put a soft tread compound on a run-flat tire to counter the hard ride. A side effect of the softer compound is a shorter tread life.

**Blowouts are still possible:**

If a driver fails to heed or notice the run-flat warning and drives beyond the zero-pressure range or above the speed limitation, the tire can begin to disintegrate, with the same destabilizing effects. Additionally, if the puncture occurred on the sidewall or if the tire hits a large object, the driver would have to call a tow truck. The J.D. Power study found that "customers with vehicles equipped with run-flat tires are nearly twice as likely as those with vehicles equipped with standard tires to have to replace a tire due to a flat or blowout."

**Hard to tell if it is low on air:**

A side effect of the stiffer construction is that the sidewalls do not bulge if the air pressure is low. This means that it is critical to have a properly operating tire pressure monitoring system and to check your tire

pressure frequently.

**Harsher ride:**

The stiff sidewalls that make a run-flat work also result in a harder ride. If the vehicle came with run-flat tires from the factory, the automaker usually tunes the suspension to offset the harsher ride. However I'm not sure if that relates to Corvettes due to different handling packages they offer and whether or not it's a coupe or convertible.

**Cost:**

Run-flat tires are more expensive to replace. A 205/55R16 run-flat tire at a local shop in Santa Monica, California, costs \$239. The standard tire equivalent costs about \$174, a \$65 difference per tire. Also, many run-flat tires cannot be repaired and often need to be replaced in pairs. However, due to improvements in construction and tire compounds these prices will continue to climb, but if production increases, who knows, they may come down.

**Less on-shelf availability:**

Because run-flats aren't a big-selling tire, drivers shouldn't expect to roll into just any tire store and buy one. It may be easier to do so in larger cities, but if you're a run-flat user on a road trip and get a flat near a small town, you'll probably have to make a detour to

find a suitable tire dealer. Or worse, you may have to stay there overnight, waiting for the tire to be shipped.

### **Self-Sealing Tire:**

The self-sealing tire isn't a run-flat tire in the sense that it can operate without air. Instead, it has a layer of sealant inside the tire that can maintain the air pressure in the event of a puncture. If you get a nail in the tire and remove it, the sealant will fill the puncture, as long as it is not larger than 5mm and is near the center of the tread.

The biggest advantage of the self-sealing tire is that it resembles a traditional tire. It can be mixed and matched with standard tires and the tread life is the same. The downsides are the higher cost and lower availability.

This type of tire isn't standard on new vehicles, but is worth mentioning since it is available as a replacement tire.

### **My Thoughts:**

In everyday driving the single biggest area of concern for most drivers riding on run-flat tires is ride quality. Older and many Original Equipment run-flat tire designs weren't known for providing a comfortable ride. Thankfully many of the newer designs have made big gains in this area. It's important to remember that a run-flat tire that's driven with low or no inflation pressure will need to be replaced (just as a conventional tire would). It's not that you can simply repair the puncture, re-inflate and be on your merry way. All tire manufacturers require the use of a tire

pressure monitoring system (TPMS) when using run-flat tires, as it's possible to not know you have a flat.

Despite these notable limitations, run-flat tires can make sense for cars that don't have space for a spare tire. They do provide extended mobility, limiting your chances of being stranded in an unsafe area or having to change a flat in foul weather. And run-flats are a better solution than the sealant kits that now commonly replace a spare tire, allowing a temporary roadside fix to a small tread puncture.

Mike