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## A New Tire Air Maintenance Technology

Improperly inflated car tires can reduce gas mileage and car performance, speed up tire wear, and even

that is self-regulating in regard to air pressure. Goodyear calls the new self-regulating system air maintenance

nal pump to pump in outside air to correct the tire's low pressure. This action takes place when your vehicle is in motion.

The rolling motion of all tires, even bicycle tires, causes the part of the tire that is in contact with the road to deform. AMT tires have been designed to use the energy from this constant rolling tire deformation to run a pump that draws in outside air to keep the tire properly



**Photo 1—Once a month, you should check to see if all of your tires are properly inflated and follow this procedure: (1) Find your car's tire pressure inflation information; (2) use a tire pressure gauge to determine the current psi for each tire; (3) if a tire is underinflated, pump it up to the proper psi; (4) [not shown] even if the air pump you are using has a pressure gauge, double check that the reading is correct using your own gauge.**

cause a tire to blow out. "You can improve your gas mileage by up to 3.3% by keeping your tires inflated to the proper pressure," according to the U.S. Department of Energy's website ([www.fueleconomy.gov/feg/maintain.shtml](http://www.fueleconomy.gov/feg/maintain.shtml)). The AAA auto club recommends that someone check the air pressure of your car's tires at least once a month.

If your car has a tire pressure monitoring system (TPMS), your car's manufacturer has seen to checking tire pressure for you. With TPMS, all you need to do is not ignore a low tire pressure warning. You will find proper tire inflation information for your vehicle on a decal located on a car door jamb, inside the glove box door, and/or in the owner's manual. Always check all four tires and add air as necessary. (See Photo 1.)

Wouldn't it be nice, though, if someone came up with a tire pressure-monitoring system that also automatically kept your tires properly inflated? A recent Goodyear press release announced that Goodyear engineers have developed a new tire

nance technology (AMT) and it literally places an air pump, air gauge, and automatic air valve in each tire. (See Photo 2.)

It is hard to imagine a new tire with all these built-in systems staying operational after it hits a number of potholes or other road hazards. But the engineering team that developed AMT is very confident that their system is robust enough to survive speed bumps, potholes, and any other abuse that current tires endure. While surviving these road hazards, AMT tires will also stay properly inflated.

Each AMT tire has an internal psi pressure regulator that is designed to open a valve to allow the tire's inter-

inflated. Not only does the rolling of an AMT tire power the air pump, it also provides all the needed energy



**Photo 2—Each AMT tire has an air pressure gauge, automatic air valve, and an air pump inside. This tire will be able to self-regulate its own inflation.**

to run the entire AMT system. (See Fig. 1.)

Once this system completes



Fig. 1—Operation of Goodyear's self-regulating tire pressure system

Goodyear's road testing and all government safety tests, Goodyear plans to start selling AMT tires first to owners of commercial vehicles. Goodyear bases its plan to first sell

to fleet operators on an American Trucking Association report that cites tire-related costs as the largest maintenance item that fleet owners must deal with.

Goodyear estimates that a vehicle with 10% underinflated tires shortens the life expectancy of the tires by 9% to 16%. With the current price of fuel, most commercial freight operators are very aware that underinflated tires cost them money. Goodyear hopes that they will jump at the chance to replace worn out tires with AMTs because these tires will quickly save them money by improve gas millage and reducing tire wear.

### Recalling the Facts

1. Describe how an AMT tire determines underinflation and how, if necessary, it draws in outside air.
2. Do you think that road testing and government approval of AMT tires will be quick or take an extremely long period of time? Why? ☹

*Alan Pierce, Ed.D., CSIT, is a technology education consultant. Visit [www.technologytoday.us](http://www.technologytoday.us) for past columns and teacher resources.*

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