

DIY

## Auto

Saturday  
MechanicGoodyear  
Ultra Grip Ice  
235/65R17

WINTER

## The Myth of the All-Season Tire

A HEAD-TO-HEAD COMPARISON IN NORTHERN MINNESOTA PROVES ALL-SEASON TIRES REALLY AREN'T.

BY BEN WOJDYLA

❖ **Back in 1977**, Goodyear introduced the Tiempo, the first tire dubbed all-season. The idea was simple and alluring: Instead of dealing with the hassle of switching between snow and summer tires as the seasons change, drivers could use one tire all the time. Sales skyrocketed and other companies quickly followed suit. These days nearly all vehicles sold in the United States are fitted with all-season tires from the factory, and 97.5 percent of replacement-tire sales are the same. But is that such a good idea? Actually, no. It turns out that all-season tires are fine in warmer months, but in the snow, they lack traction compared with dedicated snow tires. And that means that the millions of drivers who make do with all-season tires in the winter months are driving cars that aren't as safe as those shod with tires designed for icy conditions.

Snow flies in Baudette, Minn., as we put all-season and winter tires to the test—and have a good bit of fun doing it.

INSIDE

✕ TICKING TAPPETS + SCRATCHED WINDSHIELD + REMOVAL-RESISTANT NUTS

DIY

## Auto TIRE TEST

We know because we traveled to northern Minnesota, home of some of the nation's harshest conditions, to test the claim of the all-season tire. And since all-wheel drive is rapidly becoming a common option, we also tested the notion that the feature is a suitable substitute for snow tires. Our assumption was that, while AWD improves some aspects of winter performance, it doesn't help a car turn or stop, and the added weight of the mechanical bits can actually be a disadvantage. Common sense and physics suggested this to be true, but nothing proves a point like data. And the best way to gather data on winter-tire performance is to find yourself an icy, snowy proving ground.

## Ice Driving

➔ **There's something** foreboding about traveling to a place so cold it's called the Ice Box, but Baudette, Minn., was the perfect place to run our experiments. The sprawling Automotive Enviro Testing facility there specializes in frigid-weather testing for many large auto manufacturers. With a five-month winter season, the facility can maintain enormous snow and ice surfaces kept within strict tolerances by GPS-controlled tractors towing custom-built ice- and snow-grooming systems—basically the world's largest Zambonis.

To set a level playing field, we brought along two nearly identical four-cylinder 2011 Chevy Equinoxes—one optioned with front-wheel drive, the other with AWD. We ran both through a series of tests to measure acceleration, braking, hill-climb and turning ability. The cars were first outfitted with Goodyear all-season tires, then we ran the tests again with Goodyear snow tires. We ran each test numerous times and then averaged the results. To minimize the variables, the same driver performed all the tests, and the traction- and stability-control systems were left on. Data collection was completed with the industry standard VBOX—a GPS and accelerometer-based data logger.

TIRE TESTING

## WINTER vs ALL-SEASON

Like all engineered products, tires balance design elements to maximize intended performance. Here's a rundown of the main differences between all-season and winter tires.

The difference in **winter tires** starts with the rubber compound, which remains flexible during cold weather rather than hard like all-seasons. Deep grooves (1) in the unidirectional tread blocks (2) clear snow and slush efficiently; small cuts, called sipes (3), grip tiny variations in slick surfaces.

**All-seasons** wear longer because of harder rubber compounds. Drainage channels (1) limit hydroplaning; fewer grooves (2) mean better dry-surface grip. Bidirectional tread (3) allows tires to be rotated to both sides of the car.



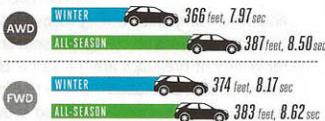
Goodyear  
Ultra Grip Ice  
235/65R17



Goodyear  
Integrity  
P235/65R17



1  
60-0 MPH  
Braking



➔ "I'll be fine, I have all-wheel drive." It's called all-wheel drive instead of all-wheel stop for a reason. On all-seasons, the AWD car stopped in the longest distance. On snow tires, both cars came to a halt about a car length sooner—often the difference between a close call and a call to your insurance company.

## THE SETUP



**VEHICLES**  
2011 Chevy Equinox four-cylinder AWD  
•  
2011 Chevy Equinox four-cylinder FWD



**LOCATION**  
Automotive Enviro Testing, Baudette, Minn.



**OUTDOOR TEMP RANGE**  
18 F–27 F



**CONDITIONS**  
Packed snow with milled-ice underlay

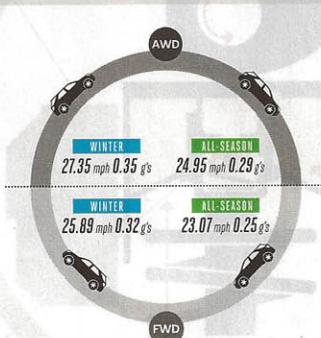
## THE TESTS

- 60–0 mph Braking
- 0–60 mph Acceleration
- Snowpacked Skidpad
- 10 Percent Hill Climb

**2**  
0-60 MPH  
Acceleration



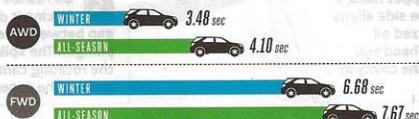
→ Getting moving can be difficult when the only traction you have is on snow. In this test, the all-wheel-drive vehicle had a significant advantage over the front-wheel-drive version—no surprise there—but the half-second improvement with the winter tires was bolstered by more stable vehicle behavior.



**3**  
Snowpacked  
Skidpad

→ Cornering to drive around obstacles is important for avoiding winter accidents. Racing around a 280-foot-wide circle shows that all-wheel drive helps, but not as much as the winter tires. Our AWD tester with all-seasons was bested by the FWD car with winter tires.

**4**  
10 Percent  
Hill Climb



→ When climbing snowy hills, more tire grip means traction control has less work to do, which gets you up the hill faster. We sent our SUVs up a 100-foot 10 percent grade, measuring how fast each reached the top. Here, AWD made a big difference, but AWD with winter tires was even better.



**10%  
GRADE**

## The Bottom Line

→ **In a contest** between all-season and winter tires driven on snow and ice, the latter won the day. Although the year-round rubber performed admirably, it's clear in all situations that with either FWD or AWD there's a substantial advantage to having proper rubber under you. The results were especially striking during braking and cornering, when snow tires improved performance by up to 5 percent and 20 percent, respectively.

Buying and living with winter tires isn't that much of an inconvenience, but there are some guidelines you should follow:

- If you live anywhere north of the Mason-Dixon line, it's probably worthwhile to invest in winter tires.
- Make sure you buy four tires; skimping and putting winter tires only on the drive end of the car will result in unpredictable handling and could be dangerous.
- If you'd rather not remount your tires each season, pick up a separate set of inexpensive steel wheels for permanent winter-tire duty. (This also keeps expensive alloy wheels from getting damaged in harsh, salty winter conditions.)
- Swap to winter tires around Thanksgiving and back to all-season or summer tires around Easter—winter tires' softer rubber compounds wear quickly in warmer temperatures.
- Store off-season tires in a cool, dry area out of the sun, and consider wrapping them in black plastic bags to reduce oxidation.
- Keep in mind that having two sets of tires isn't doubling the expense, it's halving the wear. You'll have twice the number of tires but buy new ones half as often.
- Remember, fancy new tires or not, the standard winter driving advice still applies: Slow down, double your following distances, anticipate traffic changes ahead, and give yourself extra time to get where you're going. Good luck out there!