

The Alternative Line

by Joe Holzer for Publication in CNY-PCA Redline Report Copyright 2007 <http://www.holzerent.com>

Performance Driving in Winter

As a few of you have noticed, this winter has been quite mild by CNY standards. So many have been able to drive their performance cars (that's Honda for Skip, Porsche for most of the rest of us) even as late as past New Year's Day. That is fine and dandy, but you should be aware that the laws of physics have not changed just because the globe seems to be warming. As Autoweek notes, most of the crashed cars at the first snow are SUV's with AWD, which cannot stop any better than a RWD pig. All they can hope to do is have traction to get out of the muck. And the worst condition of all is slush, since it has mass enough to float a tire and yank it at the same time, which causes spins.

Why do you think people who drive manual gearbox cars have a substantially lower accident rate in inclement weather vs automatics? It's true. And especially so at initial start and drive off, one of the worst times, partly because it is most often people rushing somewhere with no real-time awareness of the current driving conditions. But that would be true for both tranny types, so should be equal, right? Not so. And the reason has to do with the process of regaining control. Not because they are more attentive (they are not) nor really even aware of their doing so (they aren't), but manual gearbox people remove all countermanding power inputs, thereby setting all wheels at neutral loading with most uniform braking action, by the simple action of depressing a clutch pedal, which they do unconsciously. An auto tranny car can have exactly the same effect by merely popping the gear lever to Neutral, but very few people are so attuned to what they do behind the wheel as to take that "active safety" action. And it is more a nuisance since the Audi "unintended acceleration" (actually moronic pedal mis-application, since no manual gearbox Audi EVER had the problem, but I digress...) lockouts which require the brake lights be on to allow return to drive, thereby forcing an unnatural activity; braking to add power. If you have a Tiptronic, you are already most of the way there, since you let the car do the work during a boring drive, but love to shift just for the joy of being in control! Now all you have to learn is that Neutral can be a gear to save your life as well, whether using a slushbox, or driving in slush.

Most performance tires are optimized for dry street/track conditions. That means they have stiff sidewalls, large block tread and thin water grooves, especially at the shoulder (the outboard corners if you were looking at a tire from its rolling direction). And the tread is also designed to be stiff, but does not seem so in summer because of operating temperatures. Contrast that with the same tire in winter, and you can see that it is the WORST possible combination. Precisely because it is designed to maximize cornering in summer, it will break away at substantially lower cornering speeds when cold. Now add to that a few realities of CNY roads; because you share the roads with (ahem) morons who forget that it has been snowing here for about a billion years. So the first few flakes are met by DOT with a layer of white powder after the meltoff which is deeper than any snow could have been. It is salt precipitate after the small moisture in the snow evaporates. Alternatively, sand has been spread, since sand works as an abrasive between tires and pavement when tires are actually suspended by the snow above the pavement. And the wider the tire / lower the aspect ratio (in a 215/50 ZR tire, the height from the rim to the periphery is 50% of the width of the contact with the road. Generally, the lower the aspect, the faster a tire can corner dry because the sidewall does not roll under as much). But I digress... as usual.

Sand in the snow actually punches through because it is harder than the snow, thereby transferring the ability to apply force, as grip, to the pavement. Otherwise, it is simply a toboggan. And that is why in mountainous areas they require chains, which do the same thing. Unfortunately, once the snow or ice is no longer there, the grit becomes like a ball bearing. If you have ever ridden a bicycle in gravel, you know full well what that means. It often amazes me how much people will invest to get the next incremental mph capability from their car in summer, but neglect their own safety as the weather gets cold and wet, because the same factors affect tires on wet leaves. So some advice, and it matters not whether you have AWD or any other propulsion; if it rolls, it deals in the same environment, so obeys the same laws. And violating them is no mere ticket:

- a) Use the smallest rim size which will fit over your brake calipers, but keep the same outer diameter of the tire as before, with a net aspect ratio typically in the 60-78 range. The narrow tires will both float less on water and snow, and roll on the edges to maintain static grip longer than a stiffer tire.
- b) Use snow tires, and I have read great comments about the tires with embedded "chips" of silicon carbide. They do far less damage than studs (to both your car and the roadway), yet they are so plentiful as to have higher grip, even while minimizing the "tap dancer" effect studs get on dry pavement.
- c) Slow down to the speed at which the WORST conditions you hit will be within your capabilities; you never know.
- d) And watch out for the morons who didn't read and follow the advice in this column.

Spring will be here soon enough. It has for the past billion years or so. Better to bench race until then.

