Tow Vehicle Transmission Burnout

Question: I have a 1997 30' Airstream Classic trailer. I have towed it several times about 1500kms each way to Florida through the Pennsylvania Mountains on Interstate 81 with a 2004 and a 2008 Yukon XLT 4 wheel drive with regular 5.3 L engines and tow packages. I never had any problems with either tow vehicle.

This September we towed the trailer for the frst time with our newer 2010 Yukon with identical specs to the older models and with only 45000kms. About 300kms into the trip along the relatively level route south of Lake Ontario, the transmission burned out without warning, and had to be replaced (under warranty).

The 2010 Yukon owner's manual says it is rated for max trailer weight of 7900 lbs. I believe my trailer weighs more like 9000 lbs.

1. Is the new Yukon inferior to the older ones?

2. Should I expect it to be OK for the harder towing through the mountains?

3. Was the tranny failure just a fluke, or have I been pushing my luck in the past with the older Yukon's?

I look forward to receiving your words of wisdom.

Answers: You have been pushing your luck with all of the tow vehicles. You will, for sure, burn it out again especially in the mountains. With truck loading and trailer equipment, you are severely overheating the transmission fluid. In the mountains on a hot day with the A/C running, you can count on a failure. Years ago, I towed with a Chevy Suburban with the big block engine and full towing add-on gear. I burned out two transmissions before I realized what was happening.

The fix is to add an auxiliary transmission cooler. Get the largest one that will ft the engine compartment. Even the trailer tow package with the built in transmission cooler is marginal. The transmission heat build-up is worse when the engine is lugging. In fact, when the tranny temperature is starting to rise (when going up a mountain), you should down shift and keep the revs up. Going to higher revs increases the cooling fan speed.

As your transmission fluid heats up, it will eventually boil and appear as white smoke behind the tow vehicle, (early signs could be small drops of fluid on the front of the trailer). Your fluid will break down and decrease in level.

A very useful addition to the dashboard panel is a transmission temperature gauge. You can monitor the temperature on a hot day. When it is getting too hot on a steep hill, pull over and let the engine idle until it drops to a safe level. Coolers that use the built-in truck fans run around $50. A complete remote mounted unit, which contains its own fan, is about $175 to $250.

Another trick is if your tow vehicle has an auxiliary temperature operated fan (for example, a sensor operated air conditioner unit), wire a switch across the sensor so you can turn the fan on manually before the temperatures get into the dangerous level. Use a switch that has a built in light so you can always tell when the fan is on. On a hot day, turn the fan on before you head up the mountain. It is much easier to prevent the temperatures from rising then having to stop to cool off the system.

Figure 1. How does heat affect transmission life clearly indicates the penalty you are paying for inadequate cooling of the fluid.

TRANSMISSION FAILURE/TEMPERATURE CHART

Most automatic transmissions fail due to a breakdown of the transmission fluid (oil) caused by overheating. This chart provides a graphic display of heat's contribution to transmission failure.

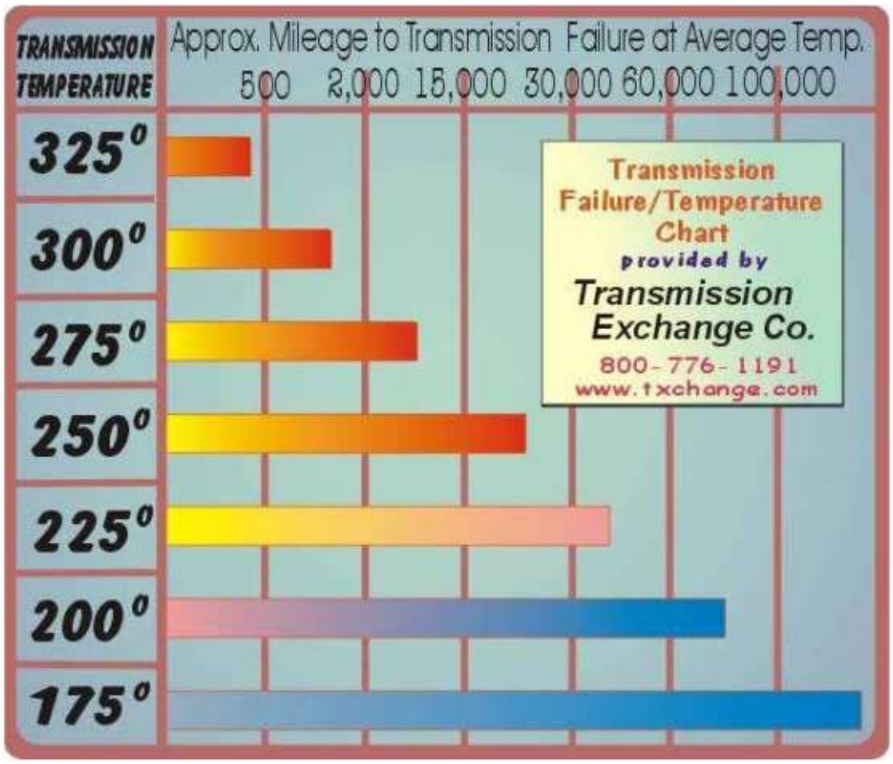

Figure 1How does heat affect transmission life?

The effect is also cumulative. Short-term exposure to high heat levels (or even prolonged exposure to moderate heat) can break down the oil to the point where even very short episodes of overheating will lead to failure.