ATV ACCIDENTS AND INJURIES:
HOW IS ATV TIRE PRESSURE RELATED?

As a Court-Qualified Expert Witness, I'm often asked why it is critical to always have the correct tire pressure in each tire of an all-terrain vehicle (ATV) or UTV (utility vehicle, side-by-side, SxS). Manufacturers provide warnings and guidelines in ATV and UTV owner's / operator's manuals. These documents stress the importance of consistently checking and balancing ATV and UTV tire *pressures to ensure correct handling of the ATV and UTV.*

This article is focused on ATVs. Manufacturers know that a standard automotive tire gage will not measure low enough psi to measure the tire pressures in low-pressure tires on an all-terrain vehicle. That is why most manufacturers of ATVs provide a low-pressure tire gage in the tool kit that comes with the vehicle when the quad is purchased. The goal is to make it easy and convenient for owners and operators to check their tire pressures. Most manufacturers also recommend safety training.

The manufacturer also notes the correct tire pressures in the owner's / operator's manual. (Look in the index of these documents under "tires" for the specific location within a given manual.) Manufacturers feel so strongly about tire pressures that most of them have also placed a safety decal on the all-terrain vehicle. This decal or warning is usually located on the left back fender area, where it is easy to see and read. Look for a statement regarding max psi and min psi. Often, the difference is only one pound from max to min, which shows how critical proper tire pressure is.

Note: If the safety decal is damaged in any way and becomes hard to read, almost all manufacturers will replace the safety decal at no charge to the customer. This allows the owner of the ATV to keep all of their safety warnings up to date and in readable condition. This means anyone who is allowed to operate the 4-wheeler will have access to the safety information.

Note: The person checking to see how much air to put into an ATV's tires needs to be very careful when they read the print on an all-terrain vehicle tire's sidewall to discover how much air to put into the quad's tire. I say this because people have become accustomed to a certain way of checking for car and truck tires recommended psi. When

an ATV operator reads the printing on a 4-wheeler's sidewall, they will see print that warns them not to inflate the tire over 36 psi.

Unfortunately, I've seen people putting 36 lb. of air in their all-terrain vehicle's tires when their tires should have had 3.5 lb. of air. This happened because these operators stopped reading when they saw "36 lb." written on the sidewall.

If they had read just a little farther, they would have seen a phrase like "Never put over 36 lb. of air in the tire *when mounting the tire".* This phrase refers to when an operator places a new tire onto the wheel rim from scratch. This is what is needed to seat the bead onto the wheel rim correctly.

Have you ever watched someone mount a tire onto a car wheel rim and then heard a loud popping sound when the tire beaded up? That's what I'm talking about. With ATV tires, the manufacturer's warning is designed to prevent an operator from damaging an ATV tire by putting too much air in the tire when mounting it to the wheel rim. Note: Because the beads are really tight on quad wheels, this warning is placed on the side of the tire (again, to prevent tire damage).

The manufacturer's statement to check the all-terrain vehicle's tire pressure before each use covers both of the following situations. (1) Before each day's operation, and (2) observing tire pressure during a day of riding, to make sure the ATV tires stay inflated correctly.

Because 4-wheelers use low pressure tires, it is an important safety issue to keep tires' psi balanced with each other. Depending on the size of tire, some ATV front tires use as little as 3.5 lb. of air in each tire. This means if a tire is 1 pound low, it has lost almost 1/3 of its air.

This creates a significant safety issue because the all-terrain vehicle will no longer handle correctly. Because the tires are part of the suspension, the tires interface with the ground and shock absorbers to create the most stable platform from which to operate the ATV.

Note: Because ATVs use tubeless tires, leaks can be created in many ways. Example: A slow leak can occur between the tire rubber / bead and the wheel rim. If a person has cornered really hard with low tire pressure, the tire bead can flex and allow the bead to open very slightly (like a mouth opening) and allow grit / dirt to get between the bead and the wheel rim.

Of course, over time, this can create a leak. I've also seen wheel rims begin to rust over time, thereby changing the bead's sealing surface and therefore creating a leak. This next example is not as common because ATV tires wear out with use in a very short time. It is still worth noting that, as tire rubber ages, it will become harder and thereby will not provide an effective seal between the tire and the wheel rim.

You might think that an all-terrain tire for a quad would be really tough. They are not. Depending on where the operator rides, different types of objects can puncture the 4-wheeler's tires. In desert country, a cactus thorn can enter the tire rubber and create a very slow leak that is difficult to locate.

If the operator rides in an area where a fire occurred and drives over what remains of burned brush, they will discover that small, fire-hardened stick points will break off in their ATV's tires (much like the cactus thorn). A slow leak will then emerge. Rocky areas with sharp fractured rocks can also puncture the all-terrain vehicle's tires. Even a stick stuck in the mud can go through the sidewall of an ATV tire. All in all, because a quad's tires can be fragile, operators need to select their travel paths carefully to prevent tire problems.

ATV riders should understand they can have a flat tire while riding away from their home or truck. They should go out prepared for that type of emergency with a way to put air back into their tire. With a plug kit, they can temporarily fix a tire and slowly ride back to the beginning point of their ride. Safety training classes cover this type of pre-ride inspection issue that can prevent accidents and injuries.

ATVs do not operate efficiently with a flat tire. If the flat tire comes off the bead of the rim / wheel, the operator will be stranded. The operator can plan to stay safe by maintaining the correct handling characteristics for the 4-wheeler, by maintaining correct tire pressures. Of course, before proceeding with a temporary plug repair, they must discover where the slow or fast leak is located. The video demonstrates the plugging process.

Another safety issue related to ATV riding is the fact that they over-steer. Low or uneven tire pressure exacerbates the over-steering characteristics of an ATV. Click here to read more information about ROV (recreational off-highway vehicle) over-steering.

NOTE: This article is not intended to be all inclusive, It is designed to provide a foundation for the reader to learn from.

Bill Uhl is a Safety Trainer and Court-Qualified Expert Witness for cases involving all-terrain vehicles (ATVs), utility vehicles (UTVs / side by sides / SxS /ROVs),

snowmobiles, motorcycle dirt bikes, dual sport bikes and off-road bicycles trails. Uhl has completed over 75 cases while serving as an Expert Witness, including trial testimony. Click here for more information.

Balanced Tire Pressures and Tire Repair

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Tire #1 Notice the difference between the tire pressure on each gage.

Tire #2


6
9
3
12
0
15
GUARANTEED ACCURATE
GRADUATIONS
ACCU-GAGE
MADE IN U.S.A

Tire #3

Tire #4 The correct tire pressure is critical for handling and safety.

1) The start of tire repair is finding the hole.

2) Reaming out the hole.

3) Inserting the plug.

4) Slowly pulling the inserting tool out.

5) After pulling the inserting tool out, this is what is left.

6) After cutting the excess off the plug so it does not get caught on anything and pull itself out.