

Trail Busters

Deconstructing ATV Accidents

Surely anything that brings a family together for an outdoor experience is a great idea. After all, the camaraderie, fun and shared memories of a family wilderness exploration play all the right notes. Pump up the volume with all-terrain vehicles (ATVs), or “quads” as they are nicknamed, and that adventure takes on new dimensions. The trail-eating power and speed of ATVs level the playing field, making the wilderness as accessible as a backyard and delivering front-row experiences of Nature’s wonders.

It’s all good—right?

Well, ATVs certainly satisfy the urge for rip-roaring trail busting, but along with the entertainment

come caveats. Not everyone likes quads: environmentalists condemn all off-road riding because of the destructiveness of a riding minority, while physicians struggle with the high accident rates of young children who are the most vulnerable off-road riders. Ultimately, it is the gap between appropriate ATV usage and actual practice that challenges the insurers of these increasingly popular power sports vehicles. The key to managing the risks of ATV coverage is to understand these off-road machines: What is the ATV back-story and product array? What are typical ATV accidents? What are the elements of quad accident investigations? Lastly, are there public interest issues that affect insurance carriers?

See page 5 for the Top Ten Questions for Smart Claims Adjusters that can lead to successful ATV investigations.



By Peter R. Thom and Timothy A. Logsdon

The ATV Story

ATVs evolved in the 1980's from three-wheeled off-road vehicles developed by Japanese motorcycle manufacturers. The three-wheelers were instantly popular but so unsteady that they were soon replaced by revamped versions that fused motorcycle ergonomics with the more stable four-wheel configuration.

Annually, the ATV industry sells about 800,000 units. Primarily designed for single-rider use, quad models fall into four marketing segments: recreational, sport, utility and youth models with hybrid quads blending characteristics of the other categories.

Recreational ATVs These quads range in size from 250cc to 700cc. Typical features include appealing ergonomics, two- and four-wheel drive options and independent rear suspension for higher ground clearance and added turning stability. Abundance in manufacturer and after-market accessories makes customization popular.

Sport ATVs Sport models are high-performance vehicles suitable for racing or more aggressive use, especially on sand dunes and closed-course riding. Sold in 250 cc and up to 700cc two-wheeled drive size classes, these light and nimble ATVs attract younger riders who modify suspension and exhaust systems and add high-performance rather than comfort enhancements. While not the largest segment in ATV sales, sport models are popular choices among scofflaw riders.

Utility ATVs Although used extensively non-recreationally, utility quads are becoming popular among day-trippers and hunters as well. Eminently useful for traversing challenging terrain, these powerful machines feature luggage/storage racks, four-wheel drive and low/high-range transmissions. They can travel jeep trails and fire roads plus ATV trails when the quad does not exceed the 50-inch trail-width standard.

Farmers and ranchers are the traditional users, but utility ATVs are also showing up in commercial settings, even biting at the tires of the iconic golf cart. Functional accessories outsell performance features here. Accident rates are typically lower among utilities as a consequence of their extensive commercial rather than recreational use.

Youth ATVs At present, youth ATVs fall into two classes sorted by age group: Six to twelve year olds ride 50cc models while twelve to sixteen year olds use 70 to 90cc models. Under debate is the addition of an intermediate class for older youth riders which manufacturers suggest would reduce a described "power gap" at the top end of the age brackets.

Despite segment differences, ATV models share design and operational characteristics. All are childishly simple to drive—thus the thriving youth segment—with operational controls that mimic motorcycles, although side-by-side quads copy automobiles. Their primary shared feature is low-pressure tires (5 to 7 PSI compared to 30+ PSI for automobiles) that offer more flotation or traction in off-road riding. Trail guzzling power with cushy float is a great quality, but it comes at a price for inexperienced riders. ATVs with low PSI tires and high centers of gravity are susceptible to rollover on challenging terrain.

Also notable for all ATV models is the huge industry for after-market upgrades. Even though top-tier original equipment manufacturers (OEMs) adhere to Consumer Product Safety Commission (CPSC) environmental and product quality standards, ATV owners frequently customize their rides with after-market products that do not conform to mandated specifications and quality. Such unregulated accessories may be incompatible with the original equipment and cause reliability and safety issues.

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A User Problem

Human factors invariably play a role in vehicular accidents, but once a driver chooses transport without a protective steel cocoon like an ATV, driver actions become more significant. A rough sport that really does imperil life and limb, off-road trail riding requires skilled maneuvering and a head's up attitude when the ride gets physical. Consequently, rider behavior often trumps equipment issues for safe ATV usage. Safety training certainly reduces accident risk, but it is frequently ignored.

Wearing riding gear and adhering to maintenance and servicing checklists also improve rider safety. Ultimately, successful outdoor adventuring on four-wheelers is about enforcing safety gear use by all participants at all times. Department of Transportation (DOT) approved safety equipment appropriate to age and size of rider is especially important among youth. Although a drain on the wallet, that means replacing protective clothing and helmets as children mature.

As for the ride itself, pre- and post-ride maintenance is essential to safe ATV operation. Incidental damage, which is easily sustained on dusty, rocky trails and rough, muddy waterways, can cause operational failure. Most defect claims can be traced to user deficits in maintenance and repair, much to the dismay of ATV owners.

On The Trail

Accidents and breakdowns do happen frequently on the trail. Unless they lead to trauma center visits or property loss claims, most of these events are unreported. However, there are notable ATV accident patterns that correlate to rider skill level, trail conditions, and product failures.

Typical beginner accidents result from driving too fast for conditions or exceeding abilities. Novices are already more susceptible to exercising poor judgment, but when they travel with experienced riders, they characteristically overreach their abilities in order to keep pace. Handlebar kickback—losing hold of the handlebars after colliding with obstacles—is particularly challenging for beginners. In contrast, intermediate riders are vulnerable to trail arrogance; a no-dune-too-steep or stream-too-deep delusion that has them barely in control when tackling steep hills, traversing rutty and rocky terrain, and coping with emergency maneuvers or on-trail breakdowns.



The flip side of trail arrogance: a no-dune-too-steep or stream-too-deep delusion.

Heedless off-road adventuring results in collisions with obstacles and in rollovers as riders turn abruptly or veer off steep trail edges. Unfortunately, ATV rollovers are commonplace and present pinning hazards when using heavier models. Overly ambitious riding is clearly foolhardy, but the worst transgression is to take a passenger along for a disastrous ride—no matter the OEM warnings and trail rules, invariably there are those who tempt Darwinian twists of fate when they invite passengers on their single-rider vehicles.

Product failure accidents too can be traced to human input much of the time. What ATV component is most susceptible? Tires. Already vulnerable to sudden failure because of their characteristic low pressures, an overly aggressive turn can dislodge the tire bead and trigger an instantaneous blow out. The best safeguard, aside from skillful driving, is consistent pre- and post-ride tire pressure monitoring with a gauge designed specifically for ATVs.

An ATV Accident Investigation

As a rule, most seasoned vehicular accident investigators can tackle ATV accidents, but there are sufficient differences between on- and off-road vehicles to warrant the attention of an engineer with a deeper understanding of four wheelers and their use. Familiarity with land management practices is a requirement because trail type can play a role in off-road incidents.

Public lands and fire roads are maintained to meet off-road access and usage standards whereas anything goes on private terrain. Accessing the accident scene can be challenging to investigators if the events took place on closed roads, those with prohibited access, or private property.

The initial steps of an ATV investigation mirror a standard accident scene examination with its evidence gathering and photo documentation, but once that material is gathered, the engineer focuses attention on the affected vehicle(s) and specific issues associated with quads. A popular examination tactic is to follow an OEM priority maintenance list known as "T-Cloc." The "T" corresponds to tires and wheels: The engineer will check tire pressures first and then bead separation from the tire rims indicating impact or high cornering speeds. Damage to item "c" (controls like levers, cables, pedals and throttles) can be extensive because such systems take a beating on the trail. Although "l" means lights, the category also includes the kill switch (a primary safety feature) mirrors and wiring too. Here the "o" means oil. The engineer will check fluid levels and examine the quad for evidence of leakage because such systems are susceptible to terrain damage. Finally, "c" repeats as chassis or the frame, suspension, and final drive (chains or gear). A telltale sign of frame issues are cracks in the paint near welds.

The Public Interest

Public interests are significant in off-road recreational vehicles and result from the lack of licensing requirements for vehicle use and the light-handed regulatory role of the CPSC as the power sports industry gatekeeper. Top-tier manufacturers have effectively co-opted draconian Federal policy-making by working cooperatively with the CPSC and responding quickly when problems develop. Witness the compliance agreement that saw the replacement of three-wheeled ATVs with quad models. The recent voluntary recall of the Yamaha Rhino side-by-side quad for design defects that expose users to limb injuries upon rollover is another such example. The economic reality that utility ATVs like the Rhino are the largest segment of the quad market compelled a pro-active response by Yamaha. Unfortunately, the increasing numbers of cheaper Chinese-manufactured ATVs sold by non-franchised dealerships strains that status quo and undermines the CPSC which wields authority by persuasion rather than enforcement. Many

Chinese ATVs are sold without vehicle identification numbers and, as a result, franchised dealers are endorsing mandatory state registration of ATVs (thus requiring VIN numbers) which could effectively ban most Chinese models.

While a no-license-required marketing strategy has been a boon to the power sports industry, the cradle-to-grave sales approach is problematic. The American Academy of Pediatrics decries off-road vehicle usage by any child who does not have a driver's license simply because of the high trauma numbers suffered by children—37% of ATV-related injuries from 1985 to 2002 were for youth under sixteen, according to Children's Safety Network. Very young riders do not have the developed motor skills or judgment to handle quads safely in all situations. Too-young riders as well as those who ride above their designated engine size pose significant problems for the ATV industry. Even though a CPSC/OEM alliance spearheads efforts to shutdown ATV sales to under-aged riders, dealers have trouble enforcing the standards when faced with outright duplicity by adults purchasing quads for children.

Beyond the quasi-regulatory environment, ATVs stir controversy at the community level. Rogue riders pose problems for the larger body of ATV users because they disregard trail etiquette, rules and signage and they follow reckless and destructive riding habits. Often intoxicated, they foment more trouble when they whip through trails on illegally modified ATVs or Chinese models without spark arrestors, damaging habitat, shattering noise levels and intensifying fire danger. ATV user groups work tirelessly to draft and follow quad etiquette guidelines so that trail access remains open to all off-road vehicles. However, careless riders discredit the greater quad-riding community and sabotage cooperative agreements among off-road enthusiasts, environmentalists and recreational area authorities. As a result of perceived abuses and habitat destruction, more and more trails are closing to off-road usage.

Peter R. Thom is principal of Peter R. Thom and Associates Inc., a national firm of consulting automotive engineers. Associate **Timothy A. Logsdon** is a 30-year power sports industry veteran. They may be reached at (800) 874-1664; www.prtassoc.com.

ATV Damage Control

Smart claims adjusters know what questions to ask following an ATV accident. Here are the top 10 inquiries that can lead to a successful investigation:

- Were there any witnesses to the accident? Are their stories consistent with those of the involved parties? If the rider was with a group, be sure to interview the other riders. Can they confirm riding speeds?
- Were police and emergency personnel called to the scene? Identify responders and obtain reports and photographs.
- What day of the week and time of day did the accident occur? For accidents occurring between 6:00pm Friday and 6:00am Monday, there is a higher likelihood of alcohol and/or drugs being involved.
- What were the weather conditions (precipitation/temperature/wind)? Did the weather affect trail conditions?
- Was the terrain undulating or uneven? Note blind turns, rocks, vegetation and water hazards. Was the rider ascending, descending or navigating a side-slope?
- What was the year, make, and model of quad involved? Thoroughly document the condition of the vehicle, noting any aftermarket accessories. Mechanical failures can be a causative factor or can occur during the accident. Failures caused by the accident will appear "fresh" with bare metal exposed or broken parts with telltale impact failure evidence.
- Are the tires in good condition? Lower than normal inflation pressures can trigger bead-seat failures, or blow-outs, at excessive speeds.
- Are maintenance records available for the ATV? Examining the rider's maintenance practices may reveal a lot about their concern for their own safety. Check dealer records for any recalls or technical service bulletins.
- Was the rider trained in quad safety? Were there passengers and was the ATV designed to carry them? Note any protective apparel worn by the rider and passenger(s) and document any crash damage. If a permit was required for the trail, was the ATV properly registered? Compliance with off-road riding protocols and permits reveals the rider's commitment to safe-riding practices.
- Did the accident involve a rollover? ATVs involved in lower speed side-slope rollovers typically incur minor damage even though riders frequently suffer leg injuries. Quads involved in higher speed side-slope rollovers (often multiple rollovers) on dunes or off-trail riding sustain damage to controls, fenders, handlebars and seats.