



Tow Story

Trailer your car: guide and anecdotes

Most gearheads can recall an encyclopedia of sports car knowledge. If you were like me, that car IQ didn't necessarily extend deeply into towing. Granted, the act of driving a truck down the road with a trailer attached is not the difficult part. UHaul rents big, clumsy box vans to anyone with a driver's license and a pulse. The blind spot is knowing enough about equipment and preparation to do it right.



Why I tow

Trailer your race machine is a luxury not all of us have. It took 14 years of motorsports involvement before I could financially swing a truck and trailer. I had to prioritize my moneys over buying fun stuff like driving-sim rigs and more motorized toys. So why bother?

- **Fatigue.** As I increased my involvement in the club, preparing my car for competition on race day became more of a crunch. Packing up and driving home in buzzy, cramped car was also tiring. When you have a long drive to any event, staying fresh keeps racing from becoming a chore. Adult stuff like marriage and home ownership make you more careful in the way you parse your free time and energy.
- **Safety.** I RallyCross a Nissan Sentra from 1992. It never had airbags from the factory, and the remaining protection measures were built to a price. Some racing categories allow airbag removal, alternate seats, and other restraints to be disabled on even brand new cars. On public roads, that leaves us at the mercy of people eating cheeseburgers while taking a selfie of it.
- **Spares.** Bringing an extra mounted race tire and toolbox is smart, so I figure bringing even more junk is smarter. My best ever finish at RallyCross Nationals was salvaged because I brought an extra alternator with me.
- **Vehicle wear.** Every undulation in the road cycles your dampers and bushings, and every mile driven is one more for the drive train. If your car has been out of production for decades, that anxiety is lessened when the car is strapped motionless to a trailer.

Truck 101

I have seen a variety of vehicles yank racecars to events, with road worthiness ranging from “imminent danger” to “romanesque overkill.” Wallet width is usually the deciding factor. Plenty of competitors claim their minivan or barely-midsize crossover is a dynamite tow machine, but then you see them pull into the event overloaded with the rear bumper scraping the ground. I’m in the camp that believes a merely marginal rig is not enough.

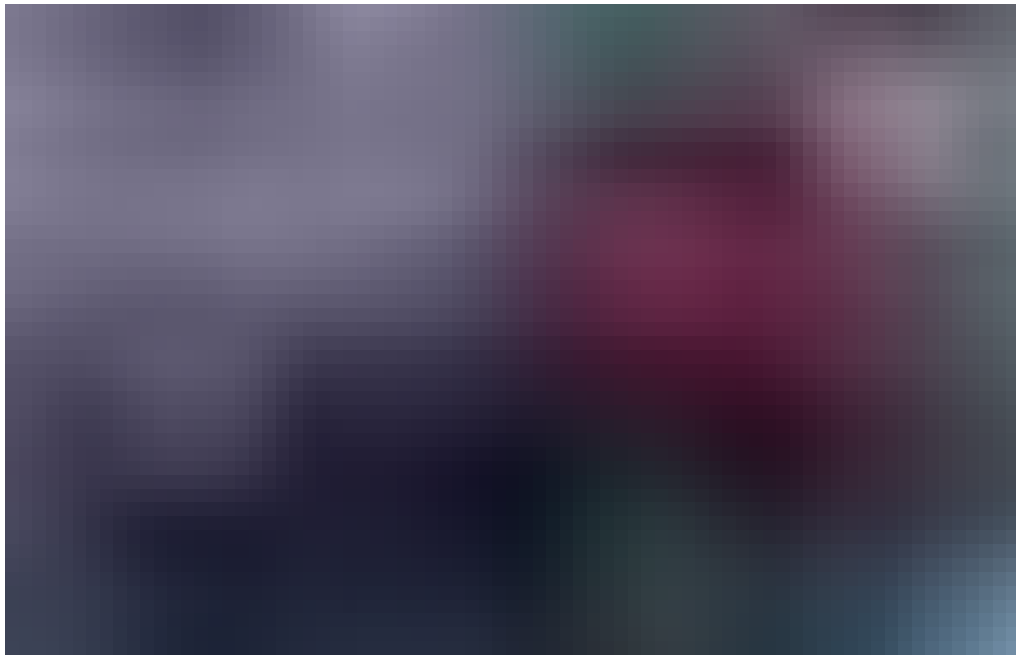
I have competed with folks who have written off their whole setup, both tow vehicle and race car. I recall an example where a V6 mid-size sedan pulling

small hatchback on a dolly rolled. Another time a first-gen Tundra pulling a 3,000 pound car on a steel car hauler trailer went upside down after correcting against a stiff crosswind. Modern vehicles are seeing power output that makes them punch above their weight, which enables them to pull a surprising load. The scare factor is braking suddenly or performing evasive maneuvers with 6,000 pounds on the hitch of “just enough” tow vehicle.

Heavy-duty full-sized pickup trucks are the bread and butter of weekend warriors. Many of these are three-quarter-tons from the Big Three, which are bulked up versions of their volume half-ton trucks and SUVs. For example, the 3/4-ton Ford F-250 is visually similar to the 1/2-ton F-150, but is equipped with a host of uprated mechanicals (brakes, transmission, tires) more suitable to vehicle towing. These are great for the steel open car trailers and small enclosed car haulers that fit grassroots budgets.

That’s not to say that modern half-tons trucks are incapable. In fact, they have seen an arms war of towing capability over the last few generations. The newest F-150 and Ram and Silverado 1500s ape the performance (and bulk) of their three-quarter-ton predecessors from not many years ago. Incremental improvements to the Tundra and Titan have improved their prowess, as well. Is something smaller like a Nissan Frontier or V8 4Runner enough, though? They have fierce supporters, but I favor capability to spare over “just enough.”

After a few years of towing among the dim bulbs that haunt our roads, I feel like a 3/4-ton truck is my “just right.”



Pick the right tow vehicle for the task.

My Choice of Tow Vehicle

I bought a 2004 Chevrolet Silverado 2500HD crew cab gasoline 2WD several years ago from a retiree. I'll break down the nomenclature if that helps increase your truck IQ.

- **2004 Silverado:** in GM geekery, this is an example of the GMT800 family or New Body Style (NBS) generation of Silverado that ran from 1999 through 2006 (and 2007 "Classic"). A GMC Sierra of like vintage is almost identical mechanically.
- **2500:** a three-quarter ton model. Compared to a half-ton "1500," major upgrades include bigger brakes, bigger engine, bigger transmission, torsion bar front suspension instead of coils, stiffer rear leaf springs, bigger/stronger rear end, standard Posi-traction, oil cooler, and taller ride height. It also has uprated tires in load range "E" that are reinforced to hold higher air pressure.
- **Crew cab:** a full cab with four real doors. The chassis is longer than a single cab, but the extra wheelbase makes for more stable towing. The extra room is also nice. A neat trick of the GM crew cab is that the rear seats fold flat into a dry, lockable storage shelf. The downside is that a truck this long has a silly big turning radius, and takes an incremental fuel economy loss.

- **Gasoline:** 3/4-ton trucks offer you the choice of gasoline or diesel engine. Diesels have more towing grunt for better fuel economy while loaded, but they command a handsome price premium new or used. Would I tow enough to justify the economics? Probably not. The gasoline engine has the bonus of needing no special treatment beyond, say, a regular sedan.
- **Two-wheel-drive:** if you have to tow anywhere but pavement, 4WD is a major advantage. Even a little wet grass and mud can hobble a 2WD drive truck with limited-slip and regular tires with good tread. If I had to daily-drive my truck on mud or ice, 4WD would be mandatory. Instead, I chose the simplicity and MPG advantage of RWD. However, I must use my RallyCross car for safety steward and setup duties if I need to drive around a soggy field.

Why the Chevy

First of all, I knew I wanted a 3/4-ton pickup, which meant buying American. This had the added advantage of wide and cheap parts availability if you break down anywhere in the country. That narrows it down to three brands.

Chrysler, Ford, and GM have manufactured a kazillion full-sized trucks, and Americans love them. Surprisingly, none of them had figured out how to build one without flaws by the 21st century. In my price range, Ford had spark plug bore problems and an uninspired V10 (IMHO), GM had piston slap and broken exhaust manifolds, and Dodge had steering and transmission problems. Not that any were a poor choice, but any truck that I could afford had potential warts of some kind. Being a used buyer means picking the headaches that would least annoy *you*.

I drove all of the trucks from the Big Three, and GM made the one I found the most livable for the early-2000's. The interior on all old trucks is dowdy and plasticky, but the GM seats are the most comfortable and I found the ergonomics most likable. Also, the period drivetrain on the 3/4-ton gas GM trucks is also comparatively stout, with an iron-block 6.0L "LQ4" cousin of the beloved LS1 V8 as standard. The transmission is also a known quantity: the venerable, but dubiously fuel-efficient 4-speed 4L80E.

Change my budget or needs even slightly, and the answer might change. The truck market is a game of constant one-upsmanship, and trucks come in

myriad configurations. Before you buy, be ready to study.

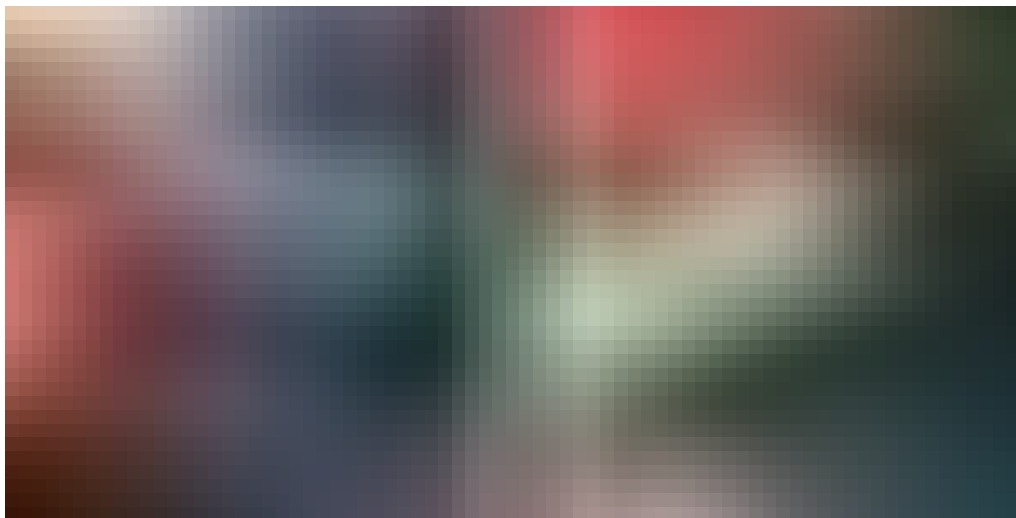
Trailer Picking

Choosing a trailer (a “car hauler,” specifically) turns out to be more involved than just picking a slab with wheels. Weight and construction, price, condition, and features introduce a lot of variables during the shopping experience.

- New versus used: car haulers are a specialty item, and you may not find many quality used examples in your area at a reasonable price. Try Craigslist, Racing Junk, and local motorsports Facebook pages and forums. Trailers are not typically pampered like a new sports car. Used examples may need attention in the paint, bearings, tires, wiring, etc. Do-it-selfers may snag a deal if they know what they are getting into. Less hands-on types may want to buy new.
- Open versus enclosed: a simple flat deck for the car is obviously going to be cheaper than adding four walls and a ceiling. Enclosed trailers offer a secure, weather-tight space, and often get reasonably affordable on the used market. The downside is that enclosed haulers on a mortal budget tend to be hefty and not terribly aerodynamic, a real hit to tow vehicle fuel mileage.
- Steel versus aluminum construction: this is a simple question of bank account. Aluminum is lighter and less prone to rotting in the elements, and it also saves at the pump. However, the initial price difference is significant, and they are harder to find new or used.
- Wood versus steel deck: budget open car haulers typically offer the choice of wood planks or diamond plate steel. The initial cost of wood is lower, and it is easy to mount extra hooks and accessories. Steel can be slick when wet, and hot to the touch in summer. Still, painted steel will weather much more slowly if you have to store the trailer outside.
- Dimensions: unless shopping custom-made trailers, most car haulers are churned out in a standard length and width. Open haulers are commonly 16–20 feet long and around 83 inches between the fenders, which is plenty for most passenger cars. Enclosed trailers typically get bought in 24-foot length and bigger to satisfy racers with tools and paddock bikes to carry around. The extra space is nice, but longer

trailers are harder to maneuver and store, and you may want to start thinking about a diesel tow vehicle at that point.

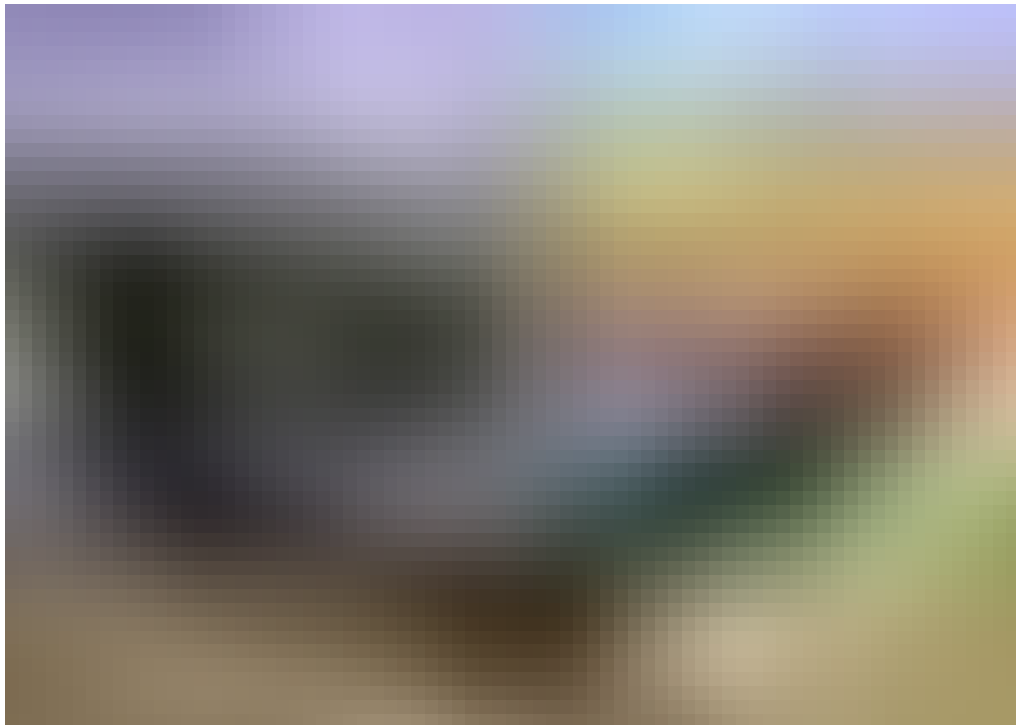
- One or multiple axles: some lighter duty trailers only have one axle. This is fine if the car is pretty small and the axle is rated for the load being carried. Expect most car haulers of common length to sport two axles, though. Having four tires on the ground is also more stable in the event of a blow-out.
- Tires: most budget trailers come with cheap bias-ply tires that will wear fairly quickly compared to a passenger car tire. Upgrading to radial trailer tires, especially in a higher load range, will make them last a lot longer. If buying used, be wary of worn or dry-rotted tires, as they are more likely to invite a blow-out.
- Design considerations: be wary of cheapo trailers with axles shoved all the way back to the edge of the deck, rather be mounted roughly a third of the way forward. A good trailer helps center the vehicle's weight on the trailer axles rather than the hitch of the tow vehicle.



Wide, flat slide-out ramps are a major convenience, but open ramps made of angle stock can work fine if the length is appropriate for the car's ground clearance.

- Ramps: budget trailers come with heavy, open ramps made of L-shaped angle stock that perch on the lip of the deck. They can be a pain to wrestle into place, and the approach angle is sometimes sharp enough to require helper ramps for lower cars. Other haulers have flat pull-out ramps that don't bounce off their perch, and slide right into a pocket.

- Dovetail (or “beaver tail”): a lot of car haulers differ from a utility trailer of same length in that the back few feet of the deck slope downward. This reduces rear ground clearance some, but it greatly eases the approach angle of a car.
- Lighting: most cheap trailers have incandescent bulbs wired with thin-gauge wiring and crimp joints. They can last a while if in good condition, but upgrading to higher quality wiring and LED lights is worthwhile as the years pile on.
- Fenders and rails: if you can’t open your door with the car sitting on the trailer, towing becomes a lot less fun. Low-slung cars benefit from removable or hinged fenders. Check the deck-to-fender height on any candidate to see how that works in your car.



My trailer: a Big Tex brand “70DM” 18-foot steel car hauler. It is sturdy, but heavy at approximately 2,100 pounds unloaded. The dovetail and slide-out ramps are handy. However, the original tires were bias-ply load range C and wore quickly. Load range D radials improved longevity greatly.

Buying the Trailer

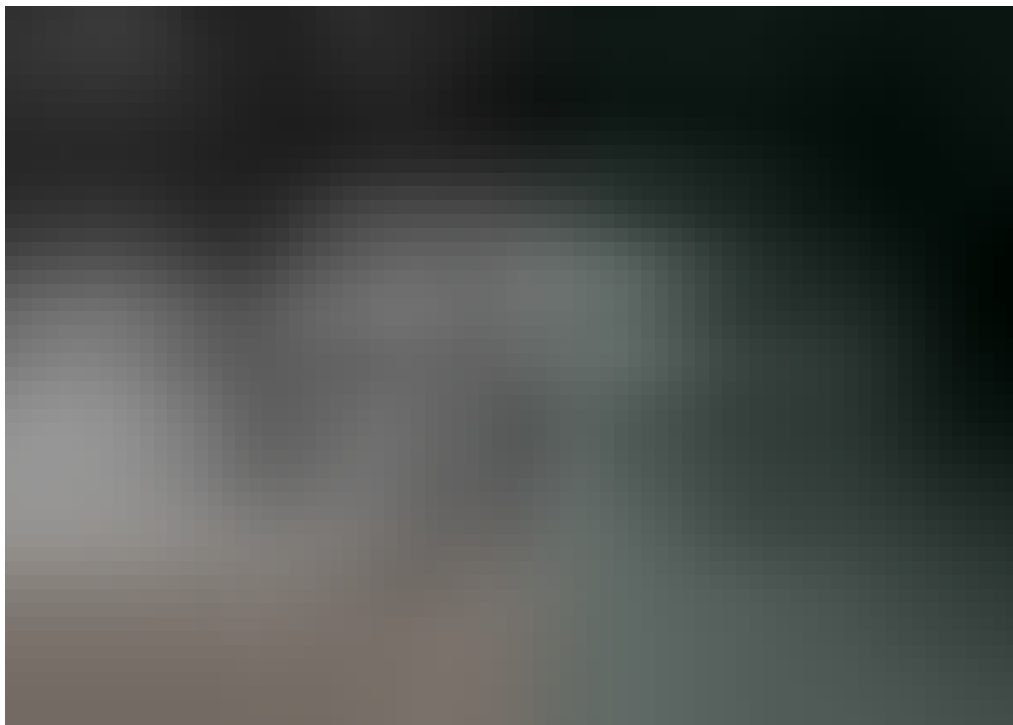
New or used, a trailer is a licensed road-going vehicle that is titled and registered. Even the little Harbor Freight utility trailers that you build like a box of Ikea furniture must have a title (and a license plate in most states). If the seller’s paperwork is suspiciously absent, walk away.

Don't be afraid to walk away from a bad deal either. Even new trailer dealers have a little wiggle room. Granted, the margins are relatively thin, but sometimes you can sweeten a deal by providing a competitor's price. I was able to haggle in a free drop hitch and spare wheel and tire from my local dealer. Comparison shop.

Tow Vehicle Necessities

Provided that your tow vehicle is in good running order and rated to pull the trailer size, here is the absolute minimum preparation necessary:

- Brake controller. Unless equipped with a brake controller from the factory, just plugging in the wiring connector to the truck is not enough. You need a separate little box to control the electrical current that activates and modulates the trailer brakes. Some name brands sell a make/model-specific wiring harness that plugs their controller right into your truck, no splicing necessary. UHaul rents small car haulers with self-activating "surge" brakes, but most of the time you're looking at a trailer with electric drum brakes on at least one axle.



The Tekonsha P3 is widely liked brake controller with direct-fit wiring harnesses available for a lot of trucks.

- Proper hitch. A lot of trucks already have this, but make sure the hitch has the right class (load rating) to pull a car hauler. The little bar that

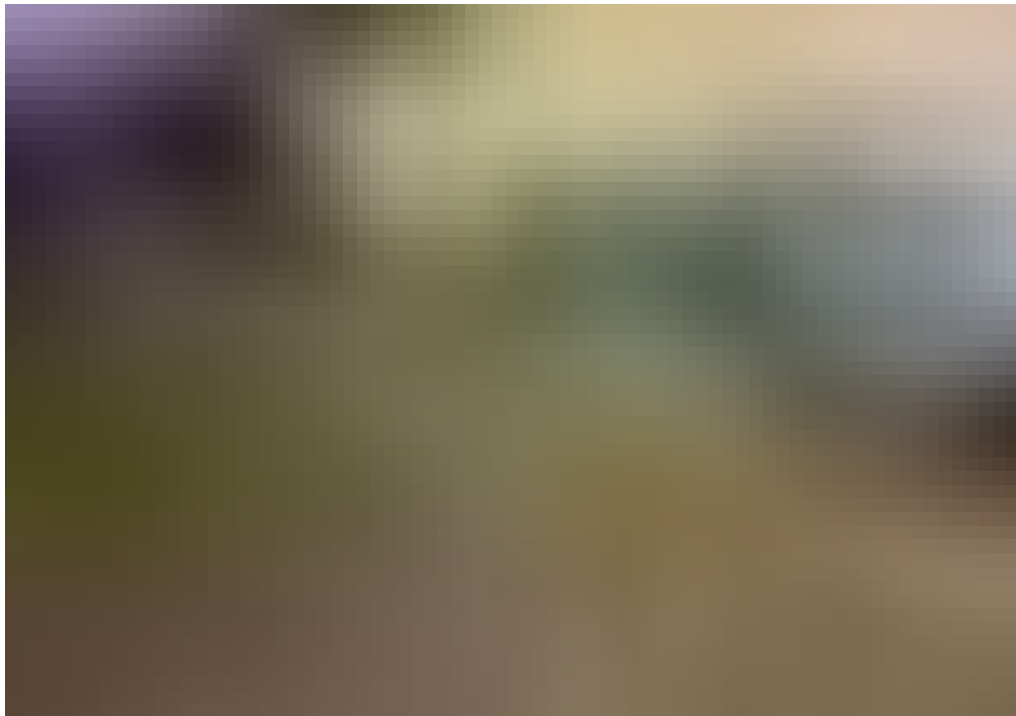
slides into the hitch tube is call the shank, and the ball will need to be the right size for the trailer coupler (usually 2-inch). A trailer store or online outfit like eTrailer can help you find a shank in the right size and amount of drop to tow the trailer nice and level.

- Trailer title in the glovebox. Some states have police that are very picky about having your towing affairs in order. You want to be able to show that you own the equipment for the obvious reason, but also to prove that you are not transporting in a for-profit/for-hire capacity.

Hookup Time

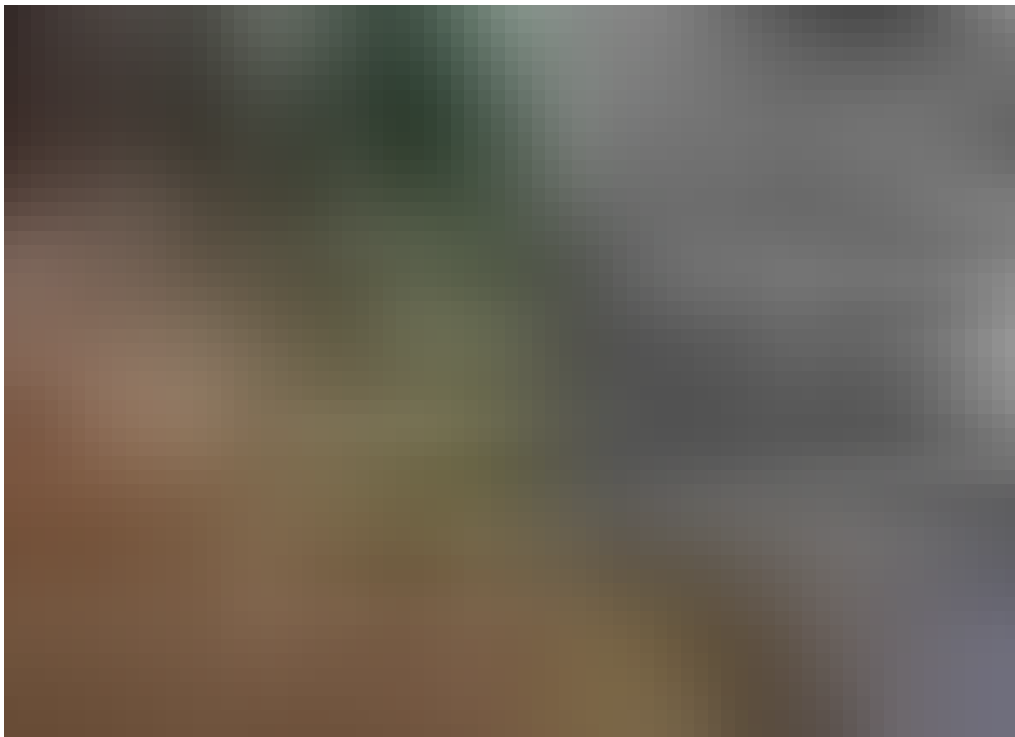
The pointy end of the trailer goes on the hitch ball. What else?

- Make sure the trailer coupler is fully seated on the ball, is closed (latched), and the pin is in place. Forget any of these, and you will have a bad time. Your first indication might be when your unlatched trailer coupler javelins through your tailgate as you pull your car onto the ramps.
- Plug in the wiring connector and check that the lights work. If the connector is not seated correctly, the brakes won't work, either.



Pretty straightforward stuff, but not always a given at dark-thirty before the caffeine kicks in.

- Cross the chains. Most trailers come with two chains of slightly different length, so make sure they are hooked up to the hitch and cross each other in a 'X' shape. If the trailer detaches from the hitch for any reason, the chains help cradle it until you can safely stop.
- Run the brake-away controller lanyard to the truck. Your trailer should in theory have a little battery-powered box that activates the brakes if it becomes separated from the truck. The lanyard yanks the pin out of the brake-away box, and it powers the brakes. In fussy states, the state trooper may ticket you for a missing brake-away wire if you get pulled over.



This little box makes turns a disaster into a slightly smaller disaster.

- Make sure the trailer jack is in its “up” position.

Loading the Car

- Set the parking brake on the truck and double-check again to see if the trailer is latched.
- Get the trailer ramps secure and centered for the car's track width before driving onto the trailer deck. The car's weight should be centered over the trailer axles, with a touch of bias towards the hitch

side to prevent sway and longitudinal bucking while towing. The internet explains ways to measure if you want to get the hitch weight exactly right. A wheel chock or reference marker will help you get parked repeatedly.

- Set the parking brake in the car, or put it in gear if no parking brake. I don't especially like leaving the car in gear myself, as the drivetrain internals can be rocked slightly throughout the trip. I rely on a well-adjusted parking brake and bitchin' straps.
- Straps should be overkill, any single one rated to the car's curb weight if the others fail. Unless you have no other option, strap the car down using chassis hooks instead of the wheels. The car's suspension still moves and gets wear cycles unless you strap down the chassis. Some domestic cars have little tabs in the frame rails for your straps instead of eye-hooks.
- Strapping technique is a matter of debate, lengthwise versus crossed straps. I prefer to run straps lengthwise to the front hooks to control longitudinal movement, and the rear straps in a crossing pattern to control lateral movement. Keep them taut, not the least bit slack.

Towing 101

Driving around with a trailer attached is fairly easy when the road is wide and traffic is light. Like I said, UHaul will rent to anyone able to fog a mirror. It's the jams caused by limited space that will challenge a towing novice.

When you're rolling down the road, find a point of reference on the hood of the tow vehicle in relation to the road stripes, and compare to the location of the trailer fenders in your mirrors. You will quickly figure out where to track the steering wheel to avoid scrapes in tight clearances at speed.

Know where you are going to park once you get somewhere. Urban centers are rarely trailer-friendly, so you're often stuck with fuel and food stops on the sprawling fringes of road trips. If in doubt, Google Earth is pretty telling on where to find trailer-friendly pavement.

Backing up a trailer is not fun. It's counter-intuitive, low-visibility, and unwieldy, but you need to get proficient. Trailers have live axles that scrub the tires when turning sharply, so start out practicing maneuvers on a gravel parking lot. Pick a steering-to-trailer visualization that works for you and get

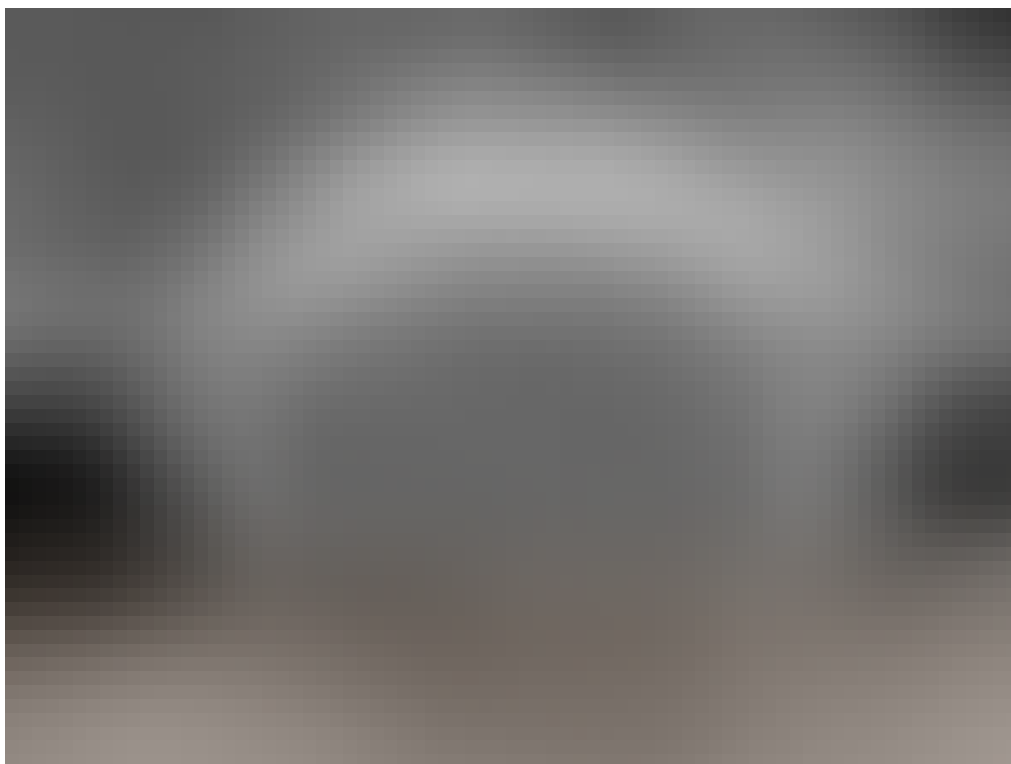
good at it. Generally, small steering inputs lead to more predictable outcomes. If you get the angle wrong, pull forward and start over.

Increased following and braking distances are mandatory, and no motorists will behave differently because it takes *you* longer to stop. Likewise, merge lanes will not be any friendlier just because you're driving something three times longer. Manage space and your mirrors constantly. Sometimes a slightly longer route to avoid tricky paths is worth your time.

Check bearing temperature, connections, and tie-down straps regularly. Hover over the center of each wheel with your hand as soon as you stop to check for tell-tale worn bearing overheating.

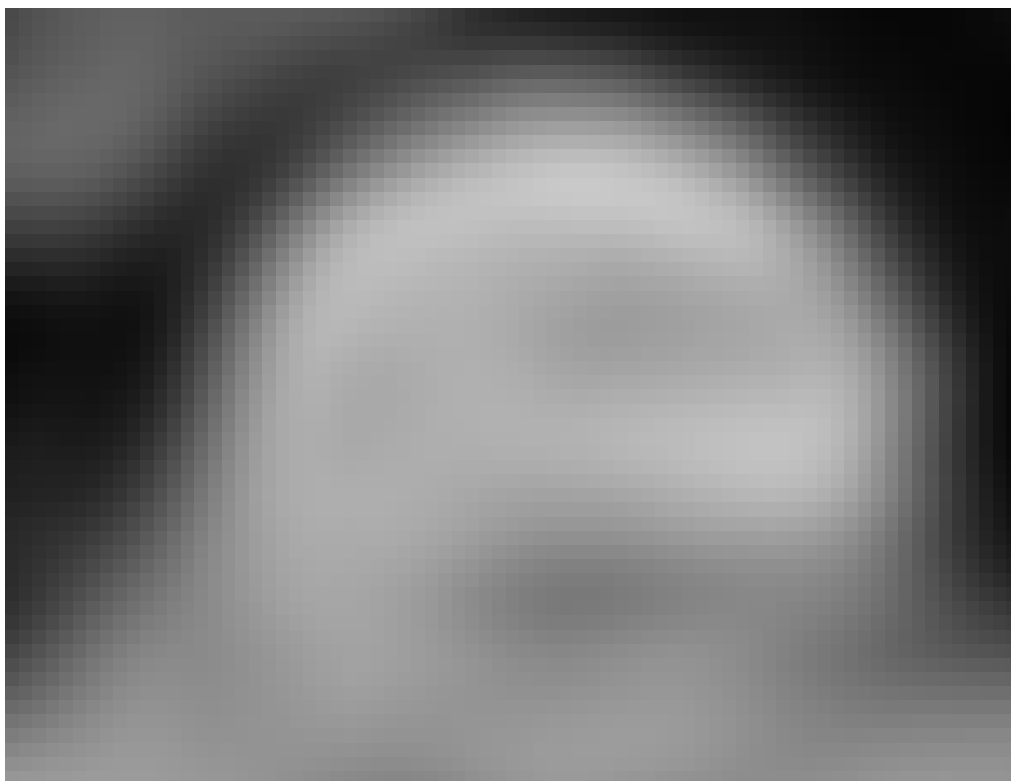
Towing Accessories and Upkeep

Since your trailer will be idle most of the time, security is important. Trailers, especially enclosed, are a regular theft target. Even a pit stop is enough time for someone to unhitch your trailer from your tow vehicle and disappear. At minimum, you will want to own three locks: shank-to-receiver tube, trailer coupler, and trailer pin. You can buy sets with a single key for all three. Really dedicated owners also use cable locks and sometimes even remove the wheels.



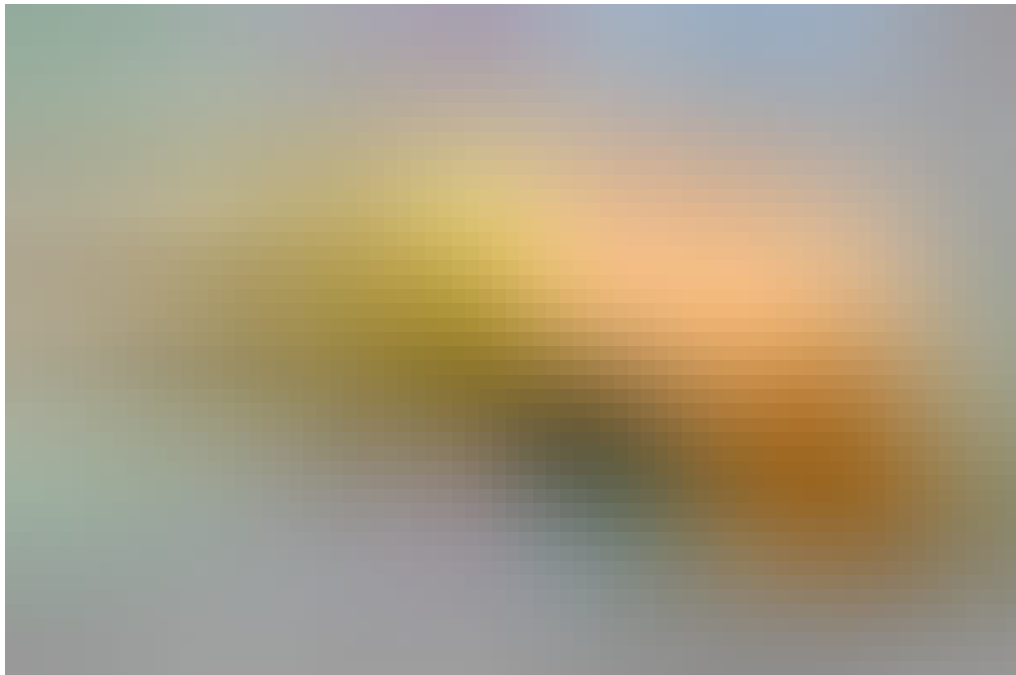
If your spare sits outside, cover it up to keep it fresh.

Weather and UV rays are also damaging when parking outside may be your only choice. RV tire covers are a must, as seldom-used tires often “time out” from dry rot before they wear out the tread. For longer sits during the off-season, consider removing the tires and storing them indoors in opaque bags to prevent flat spots and rot. Valve stems can also become brittle. It doesn’t hurt to cover any exposed wiring connectors, too. Touch up any scrapes to delay rust. When I bought my trailer, the first thing I did was to add spray undercoating on the inner fenders, taillight pods, and welds underneath most vulnerable to rust and rock chips.



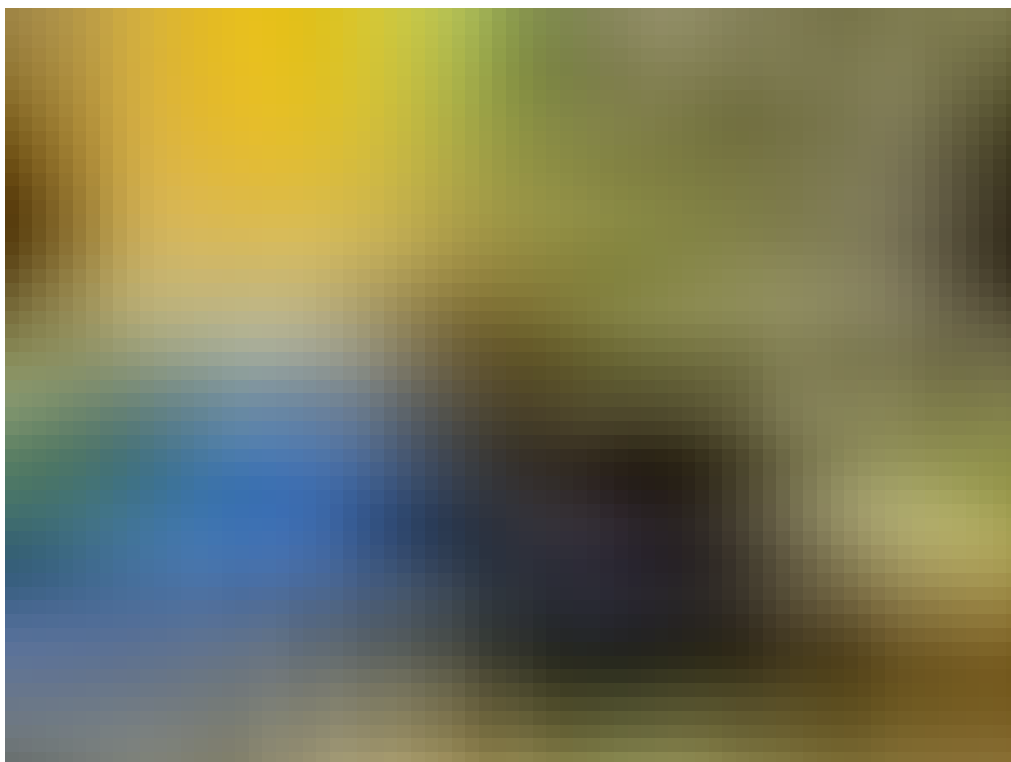
Ultraviolet rays will cause many trailer tires to age out before they wear out.

Carry a Trailer-Aid ramp or a suitably tall jack at all times. Flats are a fact of life, so have all the tools necessary to change a tire. You want to bring sockets and wrenches that fit the trailer wheel bearing nut, trailer lug nuts, hitch ball nut, and tow vehicle lug nuts. Your spares list should include a trailer wheel and tire, wheel bearing and hub, towing strap, light bulbs, wire, wiring connectors, and a crimper/cutter. It also might be smart to own an electric winch or a cable puller (“come-along”) if your racecar breaks down at the event.



Simple, but useful for dual-axle trailers.

Spend a little time on periodic trailer maintenance. They are simple devices, but they are less robust than some passenger car parts. Trailer tires wear at different rates, so rotate them every so often. It's an easy opportunity to re-grease the wheel bearing and check for seal leaks at the same time. Wheel bearings need to be tightened periodically, as well. Give every wheel a shake test once you get home. At any sign of a wobble, pull the wheel and dust cap, and tighten the bearing nut just enough that the wheel rotates freely. Also, lubricate the trailer coupler regularly to keep it moving freely.



If your maintenance regimen fails you, at least bring the parts necessary to fix something in the field.

Check tire pressures before every tow, including the spare. An under-inflated tire reduces its load capacity, and can overheat and permanently damage the sidewall. Unlike your car, a flat tire on a trailer will probably not make the truck's steering shimmy or feel strange. Your first sign of a blowout may be a honking motorist if you're not careful.

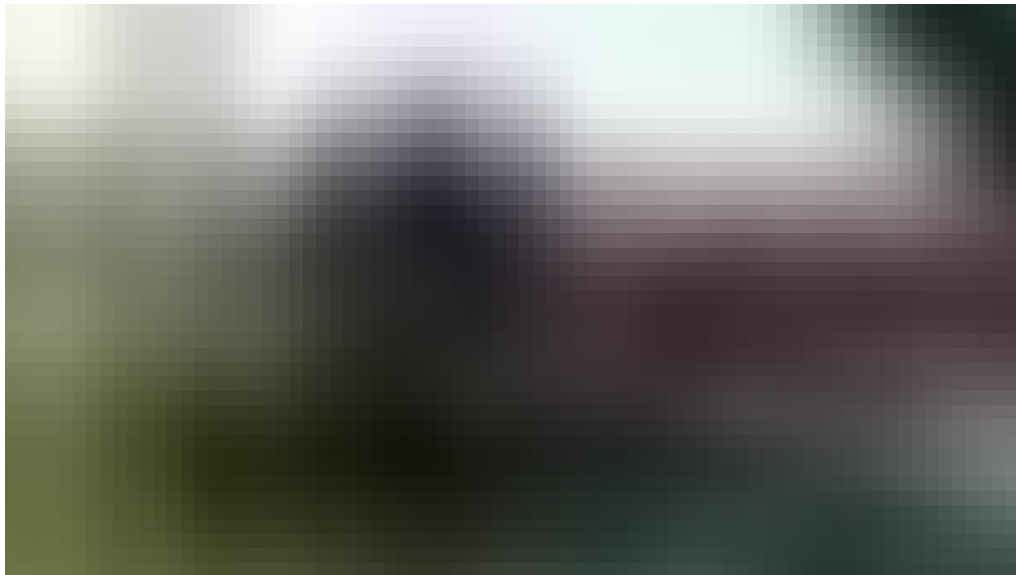
Towing Screw-Ups

To err is human. Just try to screw up less than the other guy. Here are a few foul-ups I have seen first-hand:

- Forgot to latch the coupler, and the trailer dented the back of the truck while pulling the car onto the ramps. I've seen this one more than once, and it's an expensive embarrassment.
- Neglected wheel bearing maintenance and got to replace it on the side of the road. This is an annual occurrence in my Facebook feed among racing buddies. One time, my co-driver's trailer seized a bearing so badly that it popped a tire and required a new axle. I learned to re-pack bearings often.

- Getting stuck. This is one from experience. If you are unfamiliar with the terrain of a RallyCross paddock or the moisture content, look before you leap. I drove my rig into foot-deep soup hidden by grass, and had to wait for a tractor bail-out after the event. Luckily I had a recovery strap.
- Lost lynch pins. Most ramps are stowed in place with locks or lynch pins, and you'll get to buy a few before you wise up and attach them to the trailer with a length of chain.
- Unintended slides while loading. RallyCrossers have to especially pay attention to uneven and wet surfaces. If the trailer is tilted to the side, the car can potentially put a wheel over the edge. Only park on level ground, and be careful in the wet.
- Ramp follies. Cheap ramps can bounce off the lip of the trailer or slip their helper blocks. Even nice ramps can be improperly extended. Don't bend your racecar over a silly ramp mishap.

With the right preparation, anyone can tow safely and keep it shiny side up.



Don't be this guy.

