

Trailer-Boating Safety: Lessons Learned

Hitch: Check over the coupler to make sure all parts are there and lubricate it so the closure works smoothly. 30-weight oil works well. Check the adjustment to fit the ball that you're using with a slight amount of play. Usually there is a nut beneath the movable part of the coupler to set the clearance for the common lever-type couplers. Do you use a safety clevis pin to secure the lever down after you close it? You should. Safety chains should cross beneath the tongue to make a basket to hold the tongue up if the coupler fails. If you have S-hooks on your chains, hook them up through the holes in the hitch with the opening facing backwards so they are less likely to bounce out. Modern usage is to replace S-hooks with positive-closing, threaded quick links.

Tires: A close visual inspection will give you some confidence that you're ready to roll. Make sure the tire pressure is up to sidewall specs for the tire type. If your tires are over-rated for the load, you may run a little lower pressure, but be careful. The tread wear pattern gives hints on axle alignment, and often if you look closely, especially with dual axles, you can actually see misalignment of the wheels. A typical failure is for a wheel on the front axle to be bent back (toe out) and up (negative camber) from hitting a pot hole or obstruction. If wear and/or position look off, you can unbolt the axle from the springs and take it to a trailer shop to be bent back.

Make sure that you have a spare, the correct lug wrench, and a suitable jack. On Romsø, we use an old GMC $\frac{3}{4}$ -ton mechanical screw bottle jack under the axle. You will need the spare. More often than not, we need one tire replaced on a cross-country trip. So far, the spare has always made us able to reach a tire shop on our own. Boat-trailer tires work hard when pulling 7200#. We have found it useful to have some sort of road-assistance help available by cell phone to find the nearest tire-repair facility. One such service found the owner in the office and willing to sell and mount a new trailer tire on Memorial Day.

Bearings: Wheel bearings work hard, too, especially for salt-water launches and retrieves. The best way I have found for a quick check is to jack the axle enough to allow the tire to spin freely. Spin it. Any grinding noise or roughness is a sure sign of trouble. Shake it in and out from top to bottom and from side to side. Any looseness beyond what you set it to the previous year means rusted rollers or a chewed-up roller cage. If in doubt, remove the hub or integral brake drum and check it. When apart, I usually add some grease of the same type (lithium or aluminum base) as already in the hub. Types don't mix successfully. Based on Jerry LeCocq's recommendation, I like to use the blue Sta-Lube marine grease.

I carry a spare hub (without brake drum) with mounted bearings and lug bolts to allow us to get off the road and possibly to a shop (slowly, without brakes) in case of a bearing failure. So far, we haven't needed it, so I can't verify that it works. We have needed a spare bearing dust cap a couple of times, so we carry spare caps.

Lights: Check operation before starting out. If they're working, that's good. If not, it's a safety hazard that needs fixed. One thing separating novice trailer boaters from experienced ones is that the old hand usually remembers to disconnect the trailer lights before backing the trailer into the water. Hot brake bulbs break when they hit cold water. Irrespective of experience, trailer light failure is the most common, and usually easiest to fix, trailer problem. Most common in my experience is a bad ground, either to the trailer

frame or in the plug itself. Often the symptom is all lights blinking with the turn signals and low intensity in general. If it's rust around the connection of wiring lug to frame, clean the lug and spot on the frame with sandpaper, grease, and reconnect. If that doesn't fix the problem, open up the back of the plug and check for rust and corrosion on the screw terminals. Often they're so bad that plug replacement is the only option. A bad connection at the plug can result in failure of a single light function. Failure of a single light is often corrosion in the associated socket. Clean with steel wool, grease, and reinstall.

Suspension: A good visual check is necessary to see if everything is in order. Be especially alert for a broken or rusted, soon-to-be-broken spring leaf and for worn holes for the spring bolts. One seasonal check revealed that we had a broken equalizer link, which happened at an unknown time and place. The spring ends settled up against the frame rail with no accident, but the trailer listed to starboard. Another BVSPS member found a broken main spring leaf. After doing the inspection, it helps to oil between the spring leaves.

Winch and winch stand: Check and lubricate the winch, much as you do for the hitch coupler. Be especially careful to check the condition of the winch stand and bow stop structure and its attachment to the trailer tongue. Ours was nesting square tubes that rusted through from the inside out. It failed while loading on at the New Bedford Yacht Club ramp, which kept us from pulling fully on the trailer. This is a safety issue because improper placement means reduced hitch weight, which means reduced sway stability on the road. We compensated by filling the (forward) water tank to increase hitch weight.

3" wide winch straps are now available. We changed out our 2" strap for 50% more strength. Fortunately, our old drum was 3" wide, so we could eliminate the side filler block that was needed for the narrower strap. While you're at it, check the attachment of the strap at the hub of the drum. Our flat bar with #10 screws broke under full load and was replaced by a 5/16" through bolt and spacer sleeves to keep the first wraps of the strap round.

Brakes: For hydraulic brakes, the first step is to check that the brake actuator (master cylinder) fluid is full and clear, not cloudy or rusty. If the level is way down, there is likely a leak in the lines or a wheel cylinder that needs repair. Electric brake actuators are usually checked by looking at the built-in readout of applied current to the magnets or an open circuit indication. Both types of brakes need a check of the shoes and an adjustment every few thousand miles, but disk brakes do not need adjustment.

Whenever the drum is removed for bearing checks, for example, make a visual check that return springs and hold-downs are OK and that wheel cylinders are not leaking. An important functional check can be made whenever a wheel is lifted for a bearing spin test. Loop the safety chains below the hitch coupler and make an apply lever from a 2x2 about 4' long. Hook the bottom of the lever in the loop, use the coupler as the fulcrum, and push the top of the lever aft to apply the brakes while an assistant spins the wheel. The wheel should stop promptly, and you should sense the actuator spring allowing the coupler to move aft to the mechanical stop without over-pressurizing the wheel cylinders. This test allowed us to diagnose a rust-frozen wheel cylinder that was not otherwise apparent by just inspection.

On the road: Make it a habit to do a quick but thorough walk-around inspection every time you stop. Feel every hub and tire for temperature. Tires often give us warning of low pressure or impending tread separation by heating up. Hot hubs mean dragging brakes or

bearing troubles. Listen carefully. One time we could hear air leaking from a failing valve stem in time to make it to a tire shop before needing to put on the spare. Another time it was a puncture, caught before a full flat (though we needed the spare). Not necessarily every stop, but frequently check the torque on the lug bolts with your wrench. I only guess at the torque (not maximum strength), but that's way better than not checking at all.

Also check the boat. Are the transom tie-down and winch strap tight? Are the mast supports and rigging ties in place and secure? Is the rudder restraint snug? Give the hitch coupler a good kick and check the safety chains for security and absence of dragging.

Further information: Champion trailer has a number of useful technical articles at <http://www.championtrailers.com/technical-information-articles/>.

When trailer-boating, the road is an important part of the overall trip. As we say, "55 MPH, dead to windward." It deserves the same level of attention to safety as the water-borne part of the trip.

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