

Arizona Swimming

Trailer Rental and Towing Guide



Information on towing vehicle requirements, trailer hitch requirements, driving while towing protocols, handling of trailer sway, handling brake failure and handling tire changing situations was drawn from U-Haul trailer towing guides, from Ford Motor Company truck and SUV owner manuals, from the Arizona Department of Transportation Motor Vehicle Division Driver License Manual and from the Texas Driver Handbook.

Photos for Figure 3, Figure 4 and Figure 5 courtesy of Sandy Lee and Phoenix Swim Club

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WELCOME TO THE ARIZONA SWIMMING TRAILER WORLD!

Arizona Swimming, Inc. is delighted that you have chosen to rent its timing equipment for your swimming event! It is our pleasure to furnish your team with the gear necessary to help ensure that all swimmers who compete in the meet(s) your team will host have a fair chance for an accurate start and an accurate official time.

We encourage you to spend some time between your scheduled check-out and subsequent check-in of the Arizona Swimming Trailer to thoroughly review this guide. It will help familiarize you with the trailer (including the equipment loading patterns), the proper protocol for connecting it to and disconnecting it from the towing vehicle, the protocol for safely towing the trailer and storing it at the venue and the protocol to follow for any irregularities.

Should you have additional questions, please do not hesitate to contact the Equipment Chair at equipment@azswimming.org. (Note the helpful contact information listed below.)

Please keep this guide handy throughout your rental, and be sure that you return it with the equipment at the end of your rental.

HELPFUL CONTACT INFORMATION:

Arizona Swimming Office:
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I. WHAT YOU WILL NEED FOR TOWING THE TRAILER

Many of us have seen a good number of print and/or TV ads showing an average person towing a trailer behind a vehicle. Or, we have seen vehicles towing trailers behind them while on the road. Such can supply the idea that “there’s nothing to it”. However, **this is far from the truth. Towing any trailer places additional responsibilities on the motorist driving the vehicle that tows the trailer and the other motorists that must share the road with the former.**

If your rental includes the Arizona Swimming Trailer, you must first make sure that the vehicle that will tow the trailer not only is in good condition but also meets the following requirements:

- The vehicle **must** be capable of handling a trailer mass of **3,500 pounds**. *
- The vehicle **must** have a trailer hitch and hitch ball assembly that has connection points for safety chains and that can handle both a 3,500 pound trailer mass and a **350 pound trailer tongue mass**. * (**CAUTION: The hitch and ball assembly must be properly installed on the vehicle’s chassis—never on the rear bumper.**) Additionally, the hitch ball must be a size 2.
- Vehicles with automatic transmissions should be equipped with a **transmission fluid cooler** (a miniature cooling fin assembly between the front grille and the A/C condenser).
- The vehicle **must** have a properly installed trailer lighting wiring harness connection port. (If not, seek professional assistance for the correct wiring, relays and port. **Do not connect the trailer’s lighting system directly to the towing vehicle’s lighting system.**)
- The vehicle should **NOT** be carrying excess cargo. *
- The vehicle should have a spare tire jack assembly and lug nut wrench stowed on board.
- ***The vehicle must have an insurance policy that will also cover the trailer.***

* To determine if the vehicle can handle these masses plus cargo, consult the vehicle owner manual’s specifications section for the axle ratio and the corresponding trailer mass maximum, tongue mass maximum, GVWR, GAWR and GCWR. (**NOTE: For a vehicle equipped with a diesel engine, consult the vehicle’s Diesel Supplement manual—as the specs can be different.**) If the manual lists multiple axle ratios, contact the service bay of a dealership of the vehicle brand and provide them the vehicle’s VIN so they can locate this vehicle’s specific axle ratio.

If the vehicle has a **Trailer Towing Package**, this is an extra plus. If you are not sure if the vehicle has this, contact the service bay of a dealership of the vehicle brand to first determine whether it has a factory-installed one—and, if so, its specifications. If your research shows none, look for multiple items such as a transmission fluid cooler, Class III towing bar and hitch, lighting wiring harness connector or port, in-cab trailer brake controller, extended side rearview mirrors, etc.

We also strongly suggest you have a pair of heavy-duty work gloves with you. This will help protect your hands while coupling/uncoupling the trailer and while loading/unloading.

IMPORTANT: Before, during and after the rental, make sure all tires on both the towing vehicle and the trailer are properly inflated to the **maximum cold inflation pressures** specified on the tires. (Check tire pressures when the vehicle and trailer have been parked for at least three hours fully in the shade.) Also, remember—tire pressure will increase with long distances and with increases in ambient temperatures. **Do not bleed off any such tire pressure increase.**

II. PACKAGING OF MATERIALS IN TRAILER BEFORE AND AT END OF RENTAL

FRONT COMPARTMENT (is small in volume; accessible from side door on right front of trailer):

- A. 1 8-lane or 10-lane prime harness (hanging on garden hose coil bracket in **right front interior** of trailer) (NOTE: If needed, 8-lane backup harness will also hang on this bracket—and will be behind the prime harness.)
- B. 2 50-meter-length prime lane harness extension cables (hanging on garden hose coil bracket in **left front interior** of trailer)
- C. AZ Department of Transportation Motor Vehicle Division Trailer registration document (inside transparent hard plastic sleeve in **center front interior**)
- D. Keys (on purple lanyard—one for padlocks, another for trailer tongue lock-out device; hanging on hook to left of trailer permit sleeve) (**NOTE: Do NOT store these in the trailer during the rental! Keep them in a location to which only you will have access!**)
- E. Black Start System Case ** (Base has two wheels at one end and extendable grip handle at other end to roll case when standing vertically—is foam rubber-cushioned inside):
 - 1. 1 Colorado Time Systems Championship Start System module
 - 2. 2 Start System microphones (each has a male end tri-pole plug)
 - 3. 1 6-ohm black speaker (mounts on matching speaker bracket on Start System module—also has bolt and nut to secure brackets and has short yellow banana plug black cable)
 - 4. 1 Colorado Time System Class 2 block power supply (has long thin DC output cable)
- F. Tan Printer Case (has two wheels on base at one end and extendable grip handle on base at other end to roll case when standing vertically—is also foam rubber-cushioned inside):
 - 1. 1 black & white laser printer
 - 2. 1 3-prong 115 V AC power cable (male plug at one end, female connector plug at other)
 - 3. 1 parallel port data cable
 - 4. 1 multi-outlet 3-prong grounded 115 V AC power strip
- G. Silver Gray Timing System Case
 - 1. 1 Colorado Time System System 5 Timing module mainframe
 - 2. 1 Class 2 block power supply (has short DC output cable; AC input is 3-pronged plug)
 - 3. 1 9-pin data connector cable (to connect timing module to PC with Hy-Tek software)
- H. Black Stopwatch Case (smallest of cases—may have two)
 - 1. 12 to 14 single-function stopwatches or dual-function stopwatches in each
- I. 1 medium sized dark-gray case
 - 1. Eight distance freestyle final lap warning hand bells
- J. 1 trailer lighting harness connection adapter (to connect parallel harness to circular port—will be in small plastic box on **right rear** part of **front** compartment)
- K. 1 30-foot length iron chain (to secure trailer to fixed or heavy object at location)
- L. 1 padlock (for use with chain—also in small plastic box on **right rear** of **front** compartment)

- M. 1 trailer tongue lock-out bar (also in small plastic box on **right rear** of **front** compartment)
 - N. 4 to 6 wooden wheel chocks
 - O. Colorado Time Systems Start System Tripod – with male bracket on to which Championship Start System with matching female bracket slides for mounting
 - P. Event Parade Signs—for parading championship final heat swimmers to blocks (supplied only with rentals for State Championship meets or for Sectional Championship meets)
 - Q. 1 four-spoke tire lug nut wrench (in the event of a need for changing a tire)
 - R. 1 or 2 black canvas bags with “upside down U” metal touchpad mounting brackets.
 - S. 1 touchpad test/repair kit (near front on far right side of top deck)—contains vacuum pump kit, wire insulation stripper, touchpad/cutoff pushbutton test device, banana plugs
- ** The Start System will always go in last—and on the day of checkout and on the day of return. This is to keep the batteries inside the Start System connected to a charging source.**

REAR COMPARTMENT (is large in volume and accessible from double doors on rear of trailer):

- T. 11 Plexiglas 6 foot-long touchpad mounting brackets (will be on far right side of top deck)—for use at pools where gutter is wide and/or at deck level
- U. Up to 8 touchpads lying across four slots on middle deck, with each slot holding a maximum of two pads (**NOTE:** In each slot, touch-pads will lie face up. Additionally, the first touchpad inserted in will have its top edge facing left. If another touchpad will be placed atop this one, its top edge will face right.)
- V. 2 touchpad caddies—one placed on far left of lower deck, the other placed on far right of lower deck; each has steering end in first and is pushed in up to limit of rear compartment:
 - 1. 6 touchpads placed across 5 slots
 - 2. 1 caddy cover (**NOTE: See diagram on top for correct way to place touchpads in caddy.**)
- W. Large black chest (has two wheels and horizontal extendable grip handle; will be between touchpad caddies and pushed all the way to front of the rear compartment):
 - 1. 3 to 4 three-prong grounded 115 V AC extension cords (some will be on reels, some not)
 - 2. 3 large rectangular horn audio speakers (connection cables have yellow banana plugs)
 - 3. 1 200-foot long start system microphone extension cable
 - 4. 4 to 5 yellow-/black-colored banana plug black jumper cables
 - 5. 1 red-colored or black-colored banana plug black jumper cable
 - 6. 1 or 2 male-end dipole plug black scoreboard data cables
 - 7. 1 8-lane or 10-lane prime harness
 - 8. 1 set of lane identifier cones numbered 1-10
- X. Yellow chest with black cover (has two wheels and vertical extendable grip handle; will be between touch-pad caddies and placed directly behind large black chest):
 - 1. 24-32 cut-off push buttons (AKA pickles or plungers)
 - 2. 1 8-lane or 10-lane prime harness

The caddies, the black chest and the yellow chest will all be held in place via a buckled strap pulled tightly across the back way of the lower deck. (See **Figure 10** on page 21.)

EXTERIOR OF TRAILER:

- Y. Spare tire (secured on the outside left front of the trailer with two lug nuts and plate)
- Z. Two padlocks (one to secure rear double doors, the other to secure right front door)

IMPORTANT: The trailer must always be loaded in the above pattern, with no deviation. This is to ensure that the distribution of the mass of the trailer's contents follows **the 60/40 rule:**

- **60% of the mass in a trailer must be EVENLY DISTRIBUTED across the trailer's front half**
- **Remaining 40% of the mass must be EVENLY DISTRIBUTED across the trailer's rear half**
- Heavier items go towards the floor of the trailer and lighter items go towards the top

For the AZ Swimming trailer, the delineation between the front half and the rear half is roughly the virtual horizontal axis formed between the **front** of the trailer's two wheel wells.

FAILURE TO FOLLOW THE 60/40 RULE CAN RESULT IN TRAILER SWAY (especially if more of the mass is in the rear half) **AND/OR TRAILER OVERTURNING** (especially if loaded unevenly or with heavier mass toward top)—**WHICH CAN CAUSE A CRITICAL OR FATAL ACCIDENT!**

DANGER: PREVENT ENTRAPMENT INSIDE THE TRAILER!!!

When renting the Arizona Swimming trailer, ALWAYS take extra precautions during unloading (and later during re-loading) to eliminate the risk of anyone (yourself included) becoming trapped inside it either by accident or by nefarious acts!

- 1) Once you unlock a padlock and open a trailer door, immediately re-lock that padlock like so:
 - a) MAKE SURE THE DOOR(S) IS (ARE) OPEN.
 - b) For the front compartment door, lock the padlock through the outside door jamb hole.
 - c) For the rear compartment double doors, fit the two door latch handle holding tabs on the **left** door together and lock the padlock through the holes of each.
- 2) **NEVER, UNDER ANY CIRCUMSTANCES, ALLOW ANYONE (ESPECIALLY CHILDREN) TO PLAY INSIDE THE TRAILER!**
- 3) ***ABSOLUTELY NO PRACTICAL JOKING OR HORSEPLAY ON, IN OR WITH THE TRAILER!***
- 4) When storing the trailer, open the roof vent—especially when storing in hot ambient temperatures. (**Fully close this vent before towing the trailer.**)
- 5) Before closing and re-locking the trailer compartment doors, **always thoroughly inspect each compartment to be sure no one** (adult or child) **is inside**. If necessary, use a flashlight or use the interior trailer lighting for illumination. (For the latter, you will need a 115-volt AC outlet nearby to connect the power strip to which the lights are connected.)
- 6) **Always know where the key to the padlocks is—and never loan it out to anyone else!**

III. CONNECTING THE TRAILER TO THE VEHICLE

A. Prepare the Vehicle

1. With someone guiding you, carefully back the vehicle up to the place currently housing the trailer. Stop when the rear of the vehicle is three feet away from the trailer tongue.
2. Place transmission in PARK (automatic transmission) or 1st gear (manual transmission).
3. **FIRMLY AND FULLY SET THE VEHICLE'S PARKING BRAKE. NEVER rely solely on the transmission to hold the vehicle in place.** (Doing so can damage the transmission.)
4. **STOP ENGINE AND REMOVE KEY!** (Do this especially when you are picking up the trailer from the storage locker or from any enclosed space. *Failure to do so will cause exhaust fumes to accumulate in the enclosed space and pose a dangerous asphyxiation hazard!*)

B. Move Trailer to Vehicle Hitch

1. Make sure the trailer is loaded properly with all contents listed in Article II above **and that the roof vent hood is completely closed.** (Towing with the vent hood open can risk damage to the hood due to wind turbulence or contact with foreign objects.)
2. Remove all wheel chocks applied and stow them in the front compartment of the trailer.
3. Make sure rear leveling legs are completely retracted and locked in "transport" position.
4. Make sure that doors to rear compartment are properly secured in the closed and latched positions, with the padlock secured in place.
5. Level the trailer via turning the hand-crank on the tongue jack assembly either clockwise (to raise the tongue) or counter-clockwise (to lower the tongue).
6. Carefully move the trailer toward the hitch. (**WARNING: NO ONE MOVING THE TRAILER MAY WEAR OPEN-TOED SHOES!**) Adjust the height of the tongue with the jack as necessary until you can center the tongue over the hitch ball on the towing vehicle.

C. Connect Trailer to Towing Vehicle

1. Remove the tongue lock-out device and stow it inside the front compartment.
2. Slowly lower the tongue onto the hitch ball via turning the tongue jack assembly hand-crank **counter-clockwise**. Continue until the hand-crank will turn no further.
3. Latch the tongue hitch lock in the locked position, and test to be sure the tongue does not disconnect. Secure this lock via inserting the attached cotter pin through the matching holes and locking the cotter pin with its hook. (See **Figure 1** and **Figure 2**.)
4. Remove the wheel from the tongue jack shaft and store it with its cotter pin in the trailer front compartment. (***NEVER TOW WITH THE WHEEL IN PLACE!***) Make sure the tongue jack shaft is completely retracted. (See **Figure 3**.)
5. Connect the trailer safety chains to the specified points on the hitch. **NEVER connect safety chains to the bumper.** Cross the chains under the tongue, and leave only enough slack to avoid drag on the ground yet allow for turns. **NOTE: Avoid twisting a chain to take up excess slack.** Instead, loop each chain through its target hole hook first, pull the hook backwards and fasten the hook to a link on the respective chain. (See **Figure 4**.)
6. Connect the trailer lighting harness to the vehicle's matching connection port. (Use your own parallel-to-circular adapter or the AZ Swimming-supplied one if necessary).

D. Check the Following Security Points

1. Have someone watch the trailer lights while you test the following:
 - a. Stop/brake lights (via depressing foot brake pedal)
 - b. Turn signals (via turn signal lever) and hazard flashers (via switch)
 - c. Parking lights, side and high mount lights (via switching on vehicle's headlamps)
2. Make sure you have the key to the trailer padlocks in your possession. (If possible, hang around neck via the supplied lanyard.)
3. **Make sure front and rear trailer doors remain secured in the closed and latched positions.** Secure these with the padlocks—and **double-check all latching and locking!**
4. Double-check the trailer tongue connection, the safety chains connections and the trailer lighting wiring harness connection. (IMPORTANT: **Even if these are secure at this point, never be satisfied with that.** After driving 10 miles, stop and re-check all of these connections—and especially the tongue latch and the securing cotter pin. Additionally, **be sure no part of any safety chain can drag on the pavement. CHAINS THAT DRAG ON PAVEMENTS WILL GENERATE SPARKS—WHICH CAN EASILY START BRUSH FIRES!**)

E. YOU'RE ALL SET!



Figure 1
(Unsecured tongue latch)



Figure 2
(Secured tongue latch with cotter pin in place)



Figure 3
(Wheel removed from tongue jack; tongue jack pole retracted and trailer lighting harness cable above tongue)



Figure 4
(Safety chains crossed under tongue and connected to hitch with reduced slack via hooks connected to links on chains)

IV. DRIVING WHILE TOWING

A. Remember—YOU ARE TOWING A TRAILER. **THUS, YOU MUST:**

1. **Drive at slower speeds than usual.** (The trailer adds more mass to your vehicle, which will result in greater momentum during transit and more rapid acceleration on declines.)
2. Anticipate stops and brake earlier and more gradually than usual for them. (***WARNING: The trailer does NOT have brakes. Thus, stopping distances will be longer than normal.***)
3. Observe greater following and passing distances—**AND NEVER “RIDE” THE BRAKES!**
4. Turn wider on right turns (and even on some left turns—especially into narrow streets).
5. **Watch even more carefully for other vehicles (especially ones possibly in blind spots), pedestrians, adverse road or weather conditions and road warning signs.**
6. **Wear seat belts at all times. THIS INCLUDES PASSENGERS.**
7. **Periodically check the vehicle’s engine temperature gauge.** Be alert for overheating.
8. **PAY EVEN CLOSER ATTENTION TO YOUR DRIVING!** Do **NOT** allow **any** distractions.
9. Periodically stop and check to be sure that all trailer connections are still in place, tires remain inflated and are not going flat, safety chains are not dragging on the ground, doors remain secured, etc. (You must especially do this if you are towing the trailer over a long distance—including [but not limited to] from one side of the Valley to the other.)

B. When Ascending Inclines

1. Downshift to **next** lower gear (manual transmission) or turn off Overdrive or use Tow/Haul feature (automatic transmission).
2. **Turn off vehicle air conditioning—especially if operating in hot ambient temperatures.**
3. Keep speed reasonable—and **do not use the vehicle’s speed control.**

C. When Descending Declines

1. **SLOW DOWN to a reasonable speed well before the start of the decline.**
2. Before proceeding down decline, downshift to **next** lower gear (manual transmission) or turn off Overdrive or use Tow/Haul feature (automatic transmission).
3. **Do NOT “ride” or excessively use brakes.** Only gradually and briefly apply as needed.
4. Keep speed low—and **do NOT use the vehicle’s speed control.**
5. **NEVER COAST IN “NEUTRAL”!!** Doing so is **both dangerous and illegal!** (ARS 28-895)

D. Be Prepared for Trailer Sway—If It Happens:

1. **Do NOT punch or pump the foot brakes.**
2. Gradually slow down via letting off the accelerator pedal and slowly applying the brakes.
3. Hold the steering wheel straight and tight.
4. Keep the vehicle speed at least 5 MPH below the point at which the sway began.
5. Pull into a safe spot off the street or road as soon as possible.
6. Check trailer compartments for proper distribution of loads according to 60/40 rule. Redistribute if necessary—and consider moving any items stored on the top shelf or in the center of the rear compartment to the front compartment (touchpads excepted).

- E. If Any Wheel (whether vehicle or trailer) Runs Off the Pavement:
1. **DON'T JAM ON THE FOOT BRAKES.** Let off the accelerator and slow down to 25 MPH.
 2. Hold the steering wheel straight and tight.
 3. Once you slow down enough, gradually steer back onto the roadway.
- F. If Brakes Fail or Overheat
1. **Take your foot off the accelerator.**
 2. Turn off Overdrive (automatic) or downshift to next lower gear (manual). (**WARNING:** To avoid skidding and/or causing serious damage to your vehicle's transmission or engine, downshift only one gear position at a time. Also, **never shift into PARK while the vehicle is moving, and never shift into 1st gear if traveling faster than 10 MPH.**)
 3. Turn on your vehicle's hazard flasher system. (Don't run these for too long.)
 4. SLOWLY AND CAUTIOUSLY apply the vehicle's parking brake.
 5. Look for a short incline (or runaway truck lane—if available) and try to drive up incline.
 6. When vehicle and trailer finally stop, **firmly and fully apply parking brake and shift into Park** (automatic transmission) **or 1st gear** (manual transmission). **Stop engine.**
 7. If brakes have overheated, let them cool for at least 30 minutes before resuming driving. (If brake failure is the problem, find the cause of the failure before resuming driving.)
- G. If Engine Overheats
1. Pull off the road into a safe spot as soon as possible.
 2. Firmly and fully set vehicle's parking brake and place transmission in PARK (automatic transmission) or 1st gear (manual transmission).
 3. **Stop engine immediately!** (Otherwise, serious engine damage or fire may result.)
 4. Carefully open the hood. Look for:
 - a. Steam escaping from the radiator, radiator cap, radiator hoses, thermostat housing, engine block, water pump, coolant recovery tank, etc. (**DANGER: Do NOT remove the radiator cap or the coolant recovery tank cap!** Critical injury can result!)
 - b. Leaking radiator, hose(s) or block
 - c. Collapsed radiator return hose (usually runs from top of engine to top of radiator)
 - d. Loose, slipping or missing drive belt(s)—especially on fan and/or water pump
 - e. Cooling fan not operating or not turning
 - f. Multiple and/or large foreign objects on front grille
 - g. Coolant in recovery tank boiling, showing low level or absent
 5. Review troubleshooting section of vehicle owner manual regarding engine overheating.
 6. If you find no visual cause for the overheat condition, wait at least 30 minutes for the engine to cool down, and then resume driving. (HINT: If air conditioning was running at the time of the overheating, keep it turned off for the remainder of the towing.)
 7. If you find any of the items listed in IV.G.3 above have occurred, call 911, your motor vehicle club (if you are a member) or other available motor vehicle service for assistance, and notify the Equipment Chair.

V. SPECIAL SITUATIONS

- A. If Accident Occurs (e.g., collision with object or other vehicle, trailer overturning, etc.)
1. STOP—AND REMAIN CALM. Do not leave the scene.
 2. Make a call to 911. (Do this especially if any injuries or casualties have occurred.)
 3. If the accident involves another vehicle or a property, exchange information (e.g., driver license information, insurance information, etc.), and get as much as detail as possible (e.g., date, time, location, vehicles/persons involved, etc.). **MAKE NO COMMENTS REGARDING FAULT OR BLAME.**
 4. Notify the Arizona Swimming Office and the Equipment Chair as soon as possible.
 5. Take photos of any damage that has occurred—REGARDLESS OF SIZE OR LOCATION.
 6. If law enforcement is involved and inquires, the Arizona Swimming trailer registration document is in a hard plastic sleeve located inside the front compartment on the wall near the hinge side of the front compartment door.
 7. If law enforcement is able to print a copy of the accident report (if one is drafted) at the scene, hang on to this copy. (If not, ensure a means of obtaining such a copy.) Forward a copy of it to the Arizona Swimming Office and the Equipment Chair as soon as possible.
- B. If Trailer Tire Fails or Rapidly Goes Flat
1. **DO NOT JAM ON THE FOOT BRAKES!** Take your foot off the accelerator.
 2. Pull off the road as soon as possible—and into a firm level place that is free of traffic. **(Never attempt a tire change on a heavily traveled street, road or highway.** If you are not able to get completely off the road and into a safe level spot, call 911.)
 3. Place the vehicle's transmission in PARK (automatic transmission) or 1st gear (manual transmission)—**AND FIRMLY AND FULLY SET THE VEHICLE'S PARKING BRAKE.**
 4. Turn on hazard flashers. (NOTE: **Avoid leaving these on for more than 10 minutes.**)
 5. STOP ENGINE—AND REMOVE KEY FROM THE IGNITION OR DISABLE THE IGNITION!
 6. After you first make sure the area is safe to do so, have all passengers exit the towing vehicle. (If it is not safe or you opt to wait for assistance, have everyone remain inside.)
 7. Immediately contact the Equipment Chair to report your situation.
 8. **DO NOT ATTEMPT TO USE TIRE SEALANTS** (e.g., "Fix-a-Flat", etc.) **IN THE TIRE!** These will not work for a completely shredded tire. Additionally, **such sealants are flammable.** Thus, they will not only risk damaging the tire (especially in hot weather) but also subsequently pose a fire or explosion hazard to a technician repairing the tire.
 9. Unlock and open the front compartment of the trailer. Take out the six wheel chocks.
 10. Using the chocks, block the following wheels in both directions (2 chocks each wheel):
 - a. The trailer wheel opposite the wheel with the disabled tire
 - b. The vehicle rear wheel diagonally opposite the trailer wheel mentioned in V.B.9.a.
 - c. The vehicle front wheel diagonally opposite the vehicle wheel mentioned in V.B.9.b. (EXAMPLE: For a disabled right trailer tire, block the trailer's left wheel, the towing vehicle's right rear wheel and the towing vehicle's left front wheel.)
 11. Remove the towing vehicle's tire jack assembly from the vehicle, and remove the four-spoke lug nut wrench from inside the trailer's front compartment.

12. Position the jack such that it is in front of the wheel well of the disabled tire with the top of the jack platform centered on the metal edge of the trailer. (See **Figure 5**.) Do NOT place the jack directly beneath the floor of the trailer. (Otherwise, the jack will puncture the wooden floor during raising.) **Also, make sure the jack is on a firm level surface that cannot shift or change!** If the jack or trailer should ever slip, critical injury can occur.
13. On the trailer's spare tire, remove the stabilizing plate via first removing the cotter pin that secures the plate. Then, using the four-spoke lug nut wrench, loosen and remove the lug nuts on the spare tire via turning each **counterclockwise**. (**Place the plate, cotter pin and lug nuts in a secure place so you will not lose them.**)
14. Remove the spare tire from its mounting point and lay it against the trailer.
15. Using the same four-spoke lug nut wrench, loosen the lug nuts on the disabled wheel via turning each lug nut at least a full turn **counterclockwise—but do not remove them yet.**
16. Using the jack, **slowly and carefully** begin raising the trailer side with the disabled wheel until the wheel just clears the ground. While doing so, continue to ensure that the jack does not change position and does not punch through the underside of the trailer. (**DANGER: NEVER GET BENEATH THE TRAILER WHILE IT IS RAISED ON THE JACK!**)
17. Remove the lug nuts from the disabled trailer wheel, and place them where you will not lose them. (NOTE: Do not mix these lug nuts with the spare tire mounting lug nuts.)
18. Carefully remove the disabled tire from the trailer and lay it against the trailer's front.
19. Place spare tire on the wheel assembly. (**Make sure the air valve stem faces outward.**)
20. Re-install the wheel lug nuts (cone side in) and tighten them via turning clockwise **first by hand** (to avoid cross-threading) and next with the lug nut wrench until the wheel is just snug against the hub. (NOTE: Have someone carefully hold the wheel steady when you tighten the lug nuts.) **Do NOT attempt to fully tighten the lug nuts until you fully lower the trailer on both its wheels.** Otherwise, you could force the trailer off the jack.
21. Using the jack, slowly and carefully lower the trailer completely back to the ground. Fully retract the jack's pole and remove it from its position.
22. Using the lug nut wrench, firmly tighten the lug nuts in an opposite sequence of each (i.e., after you tighten one lug nut, tighten the one that is directly opposite it, and continue as such with each one until the lug nut wrench will turn no further on any of them). **To avoid stripping the bolts on the wheel assembly, do NOT over-tighten.**
23. Stow the disabled wheel on the spare tire mounting assembly, and secure via re-installing and tightening the lug nuts via turning clockwise first by hand and then with the lug nut wrench—taking care not to over-tighten or cross-thread. Follow with placing the stabilizer plate over the hub of the wheel and securing with the cotter pin.
24. Stow the jack and its components back in the towing vehicle, and stow the four-spoke lug nut wrench in the front compartment of the trailer.
25. Unblock the aforementioned wheels and return the chocks to the front compartment of the trailer. Close and secure this compartment with the padlock.
26. If time permits (whether before or after the meet), take the trailer to a Discount Tire Company store (www.tires.com) to allow them to assess the disabled tire.
 - a. If Discount Tire determines that the tire is repairable, they will usually do so at no cost. (They will also re-balance the wheel, re-install it on the trailer and re-torque the lug nuts plus re-install the spare tire back to its original mounting point.)

- b. **If you will incur any cost, or if the tire is not repairable, contact the Equipment Chair and the Arizona Swimming Office before proceeding any further.**
 - c. Save any receipt that Discount prints (whether or not a cost ensues). You will need to forward this to the Equipment Chair and the Arizona Swimming Office later.
- NOTE: If you are a member of a motor vehicle club (e.g., AAA, etc.) and you and/or passengers with you do not feel comfortable changing the tire yourself or accepting the help of a bystander, skip steps V.B.8 through V.B.25 and contact your club for assistance. (Make certain your club membership covers repairs to trailer tires.)



Figure 5

(Jack placed under trailer base rim in front of wheel well)

- C. If Theft, Vandalism or Other Loss or Damage (e.g., Fire, Flood, etc.) Occurs
 - 1. **IMMEDIATELY CALL 911 AND REPORT THE SITUATION!** Be ready to supply law enforcement/fire department as much information as possible (e.g., date, time of day, location, trailer license number [AZ: AZSWIM 1], sequence of events, whether you witnessed the theft or vandalism in progress, description of subjects and vehicle, etc.).
 - 2. If law enforcement officials and/or fire department become involved, be sure to obtain a copy of the police report or fire investigation report or a means of securing one. Also retain a written record of the name(s) of the public service officer(s) who handled the case, their badge number(s), the department of affiliation (e.g., city police, county sheriff, highway patrol, fire department, etc.) and a means of contacting them.
 - 3. For Vandalism or Act-of-God damage (e.g., fire, flood, etc.), take photos/videos of the damage and/or vandalism in progress. (**WARNING: If you or anyone witnesses vandalism in progress, under no circumstances should you risk your or anyone's personal safety by attempting to halt the vandalism if civilian intervention appears dangerous.**)
 - 4. Contact the Equipment Chair and the Arizona Swimming Office as soon as you can. Provide the same details as you did to the public service officials handling the case as well as the information from V.C.2 above. Send the copy of the police report/fire investigation report and photos to the Equipment Chair and the Arizona Swimming Office as soon as possible—and keep copies for yourself.

VI. PARKING TRAILER AT VENUE

A. Find Secure and Logistic Location for Trailer

1. The location should be inside the venue or near an area where the trailer can be secure.
2. The location should be as close to the pool as possible.
3. **The trailer CAN NOT block critical structures or entry ways**—e.g., fire hydrant, fire lane, circuit breaker panel, electrical disconnect, electric power transformer, gas meter, etc.
4. The trailer should be near a solid fixed or heavy bulky object. (**NOTE: Gas meters/pipes, water meters/pipes, electrical conduits and transformers, etc. do NOT qualify for this.**)
5. The location must be such that not only can the trailer's compartment doors be fully opened but also enough space is available for unloading long items (e.g., touchpads and touchpad caddies, etc.) from these compartments and moving them to pool area. (Hence, neither the rear of trailer nor the right side of the trailer can be against a wall.)
6. LOCATION MUST BE ON A FIRM, LEVEL SURFACE. **Avoid parking on an incline or decline!**
7. **Always check with facility management to be sure they approve of the location where you will park and secure the trailer—and that it is okay for you to secure the trailer to a fixed or heavy object on the grounds with the padlock and chain.**
8. If renting the trailer during the summer, look for a shady area away from any sunlight.
9. **During the summer monsoon season, avoid parking the trailer close to or under trees.** Heavy winds during storms can cause tree branches to break off or trees to fall—risking severe damage to or destruction of the trailer and its contents.

B. Move Trailer into Location

1. **Be sure the location is clear and well lit.** There should be no obstructions, no animals, no persons, etc. in the way.
2. With someone guiding you and in your line of vision, carefully back the trailer into the location. (HINT: Place your hand at the steering wheel rim's base and move it in the same direction you want the rear of trailer to go. **To reduce the chance of jack-knifing, avoid sharp or wide motions on the wheel and/or sudden accelerations.**)
3. **Always watch for hard and/or fixed objects to be sure the trailer does not strike them!**
4. When the trailer is at the desired point (or when you can no further back it in using the towing vehicle due to safety limits), stop.
5. Place the vehicle's transmission in PARK (automatic transmission) or 1st gear (manual transmission)—**and FULLY and FIRMLY set the vehicle's parking brake. (NEVER RELY ON THE VEHICLE'S TRANSMISSION ALONE TO HOLD THE VEHICLE AND TRAILER IN PLACE.** This puts unnecessary strain on and can risk damage to the vehicle's transmission.)
6. STOP ENGINE—AND REMOVE THE KEY OR DISABLE THE IGNITION.
7. Unlock and open the trailer's front compartment door. Remove the tongue jack shaft wheel assembly, the padlock and chain and at least four wheel chocks.
8. Slightly extend the tongue jack pole via turning the hand crank counter-clockwise until you have enough length to reattach the wheel assembly. Secure the wheel assembly cotter pin via the clip.

9. Disconnect the trailer wiring harness from the vehicle's connection point. (If you used Arizona Swimming's circular-to-parallel connection adapter, stow this back in the small black plastic bin in the right side of the trailer's front compartment.)
10. Disconnect the safety chains from the vehicle's trailer hitch assembly and loop them loosely across the arms of the trailer tongue.
11. Remove the trailer tongue latch lock's cotter pin and lay it back towards the arms of the tongue. Release the tongue latch lock via first pushing forward and then pulling upward on the latch handle until the latch handle is straight and vertical. (Refer to **Figure 1**.)
12. Carefully raise the tongue jack off the trailer hitch ball via turning the hand-crank **clockwise** until the tongue clears the top of the ball.
13. Partially move the trailer back from the vehicle, or move the vehicle away from the trailer. Once this is done, re-level the trailer via the tongue jack.
14. Carefully move the trailer into its final storage position. Have others help you if possible, taking care to keep all toes away from wheels. (**REMEMBER—NO OPEN TOED SHOES!**)

C. Secure Trailer in Position

1. Using four of the wheel chocks, block the front and rear of each trailer wheel. Be sure to push each chock firmly against the treads of each tire. Use the remaining wheel chocks to block the wheel of the tongue jack assembly.
2. If desired, lower the leveling legs at the rear of the trailer until they are completely on the ground, locking each one securely in place. (**CAUTION: DO NOT PLACE ANYTHING UNDER THE FOOT OF ANY LEVELING LEG.**) Make sure the left and right pitch of the trailer will remain level.
3. If necessary, adjust the front and rear pitch of the trailer via turning the tongue jack assembly hand-crank in either direction until you obtain levelness on this dimension. (NOTE: If you opt for the leveling legs, make sure the trailer wheels remain firmly and evenly blocked with the chocks.)
4. Attach and secure the tongue lock-out device to the tongue—taking care to secure the tongue latch in place as you do. (See **Figure 2** and **Figure 6**.)
5. If facility management permits, secure the trailer to the aforementioned fixed solid or heavy bulky object via the chain and padlock. (NOTE: If facility management does not permit this, or if you cannot find a close solid or heavy bulky object to which to secure the trailer, loop one end of chain through the spokes of one of the wheels, and loop the other end through the arms of the trailer tongue. Take up as much slack as possible, and then secure these two ends of the chain with the padlock.)

D. Unload Start System from Trailer

1. If you will not be setting up the equipment on the same day you park the trailer, make sure to at least unload this item from the front compartment of the trailer. (Close and re-lock the trailer's front compartment once this is done.) Take this item to a secure area that has a **working** 115-volt 60 Hz AC power outlet. (**NOTE:** The interior of the trailer has lighting connected to a power strip, which you can use for this power source. You will need a working 115-volt 60 Hz AC outlet nearby to which to connect the strip.)

2. Unpack the Start System main module and the matching block power supply from its case. Connect the power supply to the AC power outlet, and connect the power supply's DC output cable to the correct point on the left side of the Start System.

E. Unload Equipment from Trailer

1. **NO ONE UNLOADING THE TRAILER MAY WEAR ANY OPEN-TOED SHOES!**
2. **Make sure the trailer is secure with the wheels chocked as instructed in VI.C.1 above.**
3. Unlock and open the rear compartment doors of the trailer. (Make sure these doors are open as widely as possible during the unloading.)
4. Release the strap from across the touchpad caddies and place it on the top left shelf.
5. Remove the yellow and large black cases via carefully pulling each straight out from between the two touchpad caddies and lowering them each to the ground—taking care to not let any part of either one catch on either of the caddies. **(Have someone help you with the large black case—it will be quite heavy.)**
6. Depending on the number of lanes you will use at the meet, carefully remove either or both of the touchpad caddies from the rear compartment and transport them to the pool site. **(CAUTION: Each caddy by itself is even heavier than the black case—so be sure to have assistance and that everyone involved lifts carefully and exercises proper ergonomics during the removal. Also, when removing the left caddy, take care to not damage the electrical cable that runs from the trailer interior to the left door.)** When moving a caddy, **have the steering end** (which has the swiveling wheels) **go first.**
7. Remove all the other necessary equipment from the front compartment of the trailer. Take these to the pool site or to a secure place.
8. If renting the trailer during the summer months and you are not able to store the trailer in a shady spot out of the sun, fully open the trailer's roof vent hood. (If you can park the trailer in a shady spot out of sunlight, you should still at least partially open the roof vent—especially in hot ambient temperatures.) This is to prevent a build up of heat inside the trailer and reduce the risk of touchpad warping.
9. After you make sure that no one is inside the trailer, close and securely latch the doors of the trailer compartments and lock with the padlocks. **(Make sure you have the supplied key with you before you lock the padlocks! Always know where this key is, and give the meet personnel a means of reaching you in the event any or all of the padlocks need unlocking!)**



Figure 6

Tongue lockout device installed on tongue

VII. THROUGHOUT THE RENTAL

A. Periodically Check Trailer

1. Make sure the trailer compartment doors remain closed and padlocked. (If you need to access the trailer's compartments, re-secure the doors as soon as possible afterwards.)
2. Be sure trailer has not shifted in its position.
3. Make sure tires have not been subject to any punctures and/or have not begun losing pressure or gone flat. (If this has happened, notify the Equipment Chair immediately.)
4. Make sure no damage has occurred to trailer. (If damage or vandalism has occurred, refer to item V.C listed above.)
5. **During the summer, if there is a chance that rain, dust storms or thunderstorms will occur either during the meet or during storage overnight, partially close the roof vent such that only a 1 inch gap remains between the lid and the frame.** (This is to reduce the risk of water entering the trailer yet still provide ventilation to the interior.) Fully re-open the roof vent once the rain or storms pass.

B. Be Ready to Re-Locate Trailer

1. If facility management mandates that you move the trailer to another location, be prepared to follow through on the request.
2. Also be ready to move the trailer if you determine that its current location becomes unsuitable for protection of it and/or its contents.

VIII. AT THE CONCLUSION OF THE EVENT

A. Contact Equipment Chair

1. You will need to contact the Equipment Chair to arrange for meeting at the storage locker to return the trailer.
2. If someone other than you will be towing the trailer back to the storage locker, be sure to provide the Equipment Chair with this person's name and phone number.

B. Re-pack Equipment

1. Consult the *Arizona Swimming Equipment Rental Guide* section VI, items A through L for the procedures to close down and repack all the timing equipment in the respective containers and/or compartments.
2. Take care to properly handle touchpads and follow the proper patterns when re-packing the touchpads in the trailer's horizontal slots and/or in the touchpad caddies.
3. **In re-packing the materials and reloading the trailer, be sure to refer not only to the Inventory Tracking Sheet (provided to you at check-out) but also to Article II (Packaging Of Materials In Trailer Before And At End Of Rental) of this guide.**

C. Prep Trailer for Reloading

1. Using the key, unlock all padlocks.
2. Fully open front compartment door and unlatch and fully open rear compartment doors. **Once you do this, immediately secure the padlocks on the hole of the door tab and on the two latch holding tabs on the left door, respectively.** (This is to help prevent accidental closing and latching of the doors and trapping anyone inside.)

D. Reload Touchpads, Touchpad Caddies and Plexiglas Touchpad Brackets

1. If any touchpads presented trouble or suffered damage (e.g., cable separating from connector block, visible puncture, Aqua-Grip surface peeling completely off, etc.), carefully lay these on the left side of the top shelf with the surfaces facing down and one on top of another. **Be sure no other objects are on the shelf on which you are sliding the touchpads.** Keep cables off any sharp points, and return any broken cables.
2. Follow Steps 8 through 13 in sub-section VI.C of the *Arizona Swimming Equipment Rental Guide* for the procedures to reload the touchpads and touchpad caddies. **(CAUTION: When reloading the left caddy, take care to not damage or break the electrical cable that runs from the trailer interior to the left door.)**
3. After loading touchpads into the horizontal slots, re-install the vertical stops on both the left and right slot bays to help hold the touchpads in place. (See **Figure 10.**)

E. Reload Black Chest and Yellow Chest

1. Make sure that both touchpad caddies are completely flush against the side walls of the trailer. (The black chest will be difficult to reload otherwise.)
2. With someone helping you, lift the chest onto the trailer with its wheel end in first.

3. Carefully slide the chest along the floor of the trailer evenly between the two touchpad caddies until the wheel end is flush with the caddies' front ends. (Someone may need to enter the front compartment of the trailer to pull on the wheel end to guide it through.)
4. Carefully reload the yellow chest behind the black chest such that it goes all the way in flush against the black chest.
5. Be sure no one is in the rear compartment of the trailer.
6. Re-install the strap between the hooks from the far back of each side of the trailer's interior so that the strap is horizontally across not only the rear of both touchpad caddies but also the space between each caddy. **Fully tighten this strap.** (See **Figure 10.**)
7. Fully close and latch doors to the trailer's rear compartment, and secure with padlock.

F. Reload Front Compartment (except for Start System)

1. Load the printer case such that it stands on end (tote handle end up) and is on the left of the front compartment as close to the front of the left touchpad caddy.
2. Place the canvas bag of metal touchpad brackets on the far left of the front compartment. (If the rental includes another canvas bag of metal brackets, place it on the right of the front compartment.)
3. Load the System 5 case with it standing handle end up in front of the printer case.
4. Load the case containing the 8 final lap warning bells in front of the System 5 case.
5. Load all the stopwatch cases in front of the bell case.
6. Load the collapsed Start System tripod somewhere in the front compartment.
7. If the meet used event parade signs (for parading out swimmers in the championship finals at Senior and Age Group state championship meets), load the box containing them on top of the cases mentioned in VIII.F.1 through VIII.F.5 above.
8. Be sure no one is in the front compartment of trailer and that you have the padlock key.
9. Close and secure the front compartment door with padlock.

G. Reload Start System Case in Front Compartment

1. On the day you will return the trailer, repack the Start System and its accessories in its case—taking care to follow the correct procedures for placing each component inside the case. Close and securely latch the case.
2. Unlock and open the front compartment door. (**Secure padlock on door jamb.**)
3. Load the Start System case such that it stands on end with the toting handle end up and that it is directly adjacent to the printer case. (If you need to temporarily move some of the items in the front compartment to load the case, make sure to move them back to their original places after loading.) **Be sure that both the Start System case and the printer case are centered side by side at the rear of the front compartment.**
4. Make sure that the System 5 case, the final lap warning bell case and the stopwatch case(s) are loaded in that order in front of the Start System case and the printer case.
5. If you used the interior lighting and/or the power strip for any AC power needs, make sure to disconnect the extension cord from the AC power source, coil it neatly and stow it in the front compartment.

H. Prep and Connect Trailer to Towing Vehicle

1. Unlock the padlock used on the chain that is securing the trailer in its location.
2. Carefully recoil the chain into loops, and secure the aforementioned padlock to the chain. Stow the chain and padlock inside the front compartment.
3. Unlock and remove the lock-out device from the trailer tongue. Stow inside the trailer.
4. Verify that everything is loaded in the trailer as described in Article II of this Guide. (See **Figure 7**, **Figure 8**, **Figure 9** and **Figure 10**.)
5. Follow the procedures outlined in Article III (Connecting The Trailer To The Vehicle) to connect the trailer to the towing vehicle.



Figure 7
(Front compartment)



Figure 8
(Front compartment)



Figure 9
(Front compartment)



Figure 10
(Rear compartment: vertical stops installed across horizontal slots, yellow chest far in against black chest, red strap tight across touchpad caddies)

I. Tow Trailer Back to Storage Locker for Check-In

1. Be sure to bring both the Inventory Tracking Sheet and the padlock key (provided at Check-out) with you.
2. Refer to Article IV and Article V for information regarding driving while towing and any special towing situations.

THANK YOU!