

Safe Work Procedure: Towing a Ball Hitch Trailer

Department/Area:	Approved by:	Date Created:	Review/Revision Date:
Maintenance	Workplace Safety and Health Committee	May. 6, 25	Annually

Potential Hazard	Risk level
Accidents (personal injury or property damage) due to improper towing procedures.	High
Injury to driver or assistant while hooking up the trailer.	Medium
Trailer breaking free of the tow vehicle.	Medium
Trailer rolling and injuring personnel or doing damage to equipment.	Low
Pinch points	Low
Risk of falling	Medium

Risk control devices, personal protective equipment, and other safety considerations	Training/Reference info
<ul style="list-style-type: none"> Approved safety shoes 	<ul style="list-style-type: none"> Driver's license Trailer towing training

Note: Common signs and symptoms of a musculoskeletal injury (MSI) can include pain, burning, swelling, stiffness, numbness/tingling, and/or loss of movement or strength in a body part. Report these to your supervisor.

The direct supervisor must ensure that employees who report to him/her are trained and follow this safe work procedure.

Steps to complete this task safely:

Pre-trip Planning:

1. Ensure staff has received appropriate training
2. Ensure the vehicle, hitch and trailer are compatible and sized properly and.
3. Inspect the trailer to ensure it is safe to use:
 - Depending on the size of trailer and vehicle an equalizing hitch may be required.
 - Ensure the hitch coupler mechanism is free from dirt or rust and the parts move smoothly and freely.
 - Check the coupler pins and fasteners for signs of looseness or excessive wear.
 - Ensure safety chains are in good condition.
 - Ensure safety chains are of the proper size and length, i.e. strong enough for the weight of trailer and long enough to cross but not to drag on the ground.
 - Ensure the attaching devices at the end of the chains are not damaged and work easily.



- Ensure the trailer is structurally sound: check that braces, struts, spring hangers, fenders, tailgate hinges, etc are securely welded or bolted in place.
 - Ensure the axle springs are solidly attached to both anchor and pivot points.
 - Ensure the wheel bearings and spring pivot points are adequately greased.
 - Check the tires (including the spare) for wear, cracks, cuts, bulges and for proper inflation.
 - Ensure the wheel studs/nuts are tightened to specifications.
 - If so equipped, ensure the electrical brakes work on all wheels.
 - If so equipped, ensure the emergency break-away brake mechanism works.
 - If so equipped, ensure the rip cord for the break-away brake switch is of the proper length (if the trailer comes loose, the cord will activate the trailer brakes before the safety chains come tight).
 - Check the trailer electrical cable and plugs for cracks, fraying or wear.
4. Inspect the tow vehicle to ensure:
- It has sufficient power and adequate cooling system to safely haul the trailer (see Appendix A)
 - The suspension and tires meet or exceed the vehicle's gross combined weight rating.
 - It has adequate side-view mirrors and they are properly adjusted.
 - If the vehicle is equipped with a receiver type frame hitch with a removable steel ball block, ensure the pin and cotter key holding them together are in good condition and in place.
 - Check the frame hitch for signs of bending or twisting and signs of cracked or broken welds.
 - Ensure the ball and socket are the same size.
 - Ensure the ball is the correct height for the trailer coupler.
5. Properly load the trailer.
- Never exceed the maximum gross trailer weight (includes the load and the trailer itself).
 - Ensure the trailer is loaded so that 10% to 15% of the load weight is on the hitch.
 - Ensure all cargo is secured to prevent shifting.
 - If covering the load with a tarpaulin, ensure it is strong enough and adequately tied down.

Hooking up the Trailer:

1. When assisted in hooking up and un-hooking a trailer ensure that:
 - The assistant can be seen at all times by the driver;
 - That both the driver and assistant understand the hand signals to be used;
 - The assistant is not caught between the vehicle and the trailer;
 - The driver makes no attempt to move the vehicle while the assistant is connecting the trailer tongue to the tow ball;

2. Attach safety chains to the diagonally opposite point on the hitch.
3. Ensure all trailer lights work and that they are sufficiently bright.
4. Remove tires blocks after the trailer is hooked to the tow vehicle.

Driving Techniques:

1. When towing a trailer, you must be fully aware of the restrictions on manoeuvrability, visibility and acceleration. You should also know that the way your vehicle brakes changes considerably with the added weight of a trailer. Here are some other points you should pay attention to:
 - Never go over 80 km per hour.
 - Allow extra distance for passing and take care when returning to the driving lane.
 - When turning drive beyond the normal turning point of conventional vehicles to ensure that sufficient clearance is allowed to make the turn safely.
 - Signal well in advance of any move.
 - When following another vehicle, keep back at least one full length of the vehicle plus trailer for each 16 kilometres per hour of speed.
 - Before reversing, leave the vehicle and check for hazards. If someone is available, ask them to stand outside the vehicle to direct the backing manoeuvre.
2. Trailer fishtailing, with the resulting loss of steering control, is a major cause of trailer accidents. Fishtailing is usually caused by:
 - poor load distribution on the trailer;
 - excessive speed;
 - an overloaded trailer;
 - the towing vehicle being too light or having inadequate suspension;
 - the effects of wind from passing vehicles;
 - improper tire inflation or defective tires; and/or
 - improper application of the brakes (the trailer brakes should always be applied before hitting the brakes on the towing vehicle).
3. If your trailer is fishtailing, slow down immediately and pull over when it is safe to do so. Stop your vehicle, assess the problem and take corrective measures.

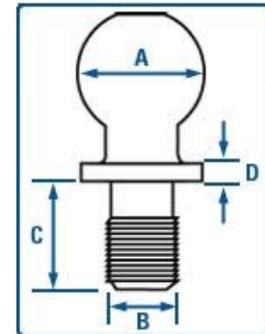
Parking and Un-hooking the Trailer:

1. Ensure the ground or surface where the trailer will rest is firm and is not on an unreasonable incline.
2. Ensure both trailer tires are blocked front and back to prevent movement.
3. Ensure there is a solid surface on which the tongue support can rest.
4. If so equipped, ensure that the pivoting front trailer jack is securely locked into place.

Appendix

Table 1: Equipment Checklist

Tow vehicle	Make sure the tow vehicle has sufficient power and an adequate cooling system to safely haul the trailer. In addition, the drive train, suspension and tires must meet or exceed the vehicle's gross combined weight rating, as specified by the manufacturer.
Electrical connections, signal lights, mirrors	Make sure the trailer is equipped with lights that conform to federal, provincial and local regulations. Trailer lighting systems should never be connected directly to the lighting system of the towing vehicle. Check that signal lights are working properly and adjust rearview and sideview mirrors.
Trailer hitch	Trailer couplings for passenger cars, light-duty commercial vehicles and multi-purpose passenger vehicles that are used to tow utility, boat, camping, travel or special-purpose trailers should conform to SAE specification J648D.
Ball hitch and socket	<p>Make sure the ball hitch and socket are the same size by checking the size stamp on both units. If the size is not stamped on the unit, lock the ball in place and raise the front of the trailer using a castor jack. If the tow vehicle can be lifted above its normal level without the ball breaking away from the socket, the connection is safe.</p> <p>A. Ball Diameter B. Shank Diameter C. Shank Length D. Standard Lift</p>
Torsion bars	If you have an equalizer hitch, make sure the torsion bars are properly attached and adjusted. The torsion bars must be adjusted to maintain a level connection between the tow vehicle and trailer. If the tow vehicle is low in the back, raise the chain one link at a time, until the tow vehicle and trailer are level.
Safety chains	<p>Always use safety chains (single- or double-linked) as a precaution in case the trailer becomes unhitched. Use only enough chain to permit a full turn and never attach chains:</p> <ul style="list-style-type: none"> • to the bumper; • to anything that is common with the socket; or • to the towing vehicle's ball assembly. <p>Make sure the chains are in good condition; never use chains that have been welded. If you use a double chain, cross the chains before you make the attachment.</p>



<p>Trailer tires and brakes</p>	<p>Trailer tires must meet or exceed the tire load rating specified by the manufacturer. Make sure trailer brakes are locking on all braked wheels. The brakes can be tested by pulling ahead slowly, with the trailer brakes applied, and then observing if all braked wheels are locked and skidding. This test should also be performed on trailers with break-away switch systems, with the brakes disconnected from the towing vehicle to ensure the break-away system is functioning. In this system, brakes are activated if the trailer becomes detached from the tow vehicle.</p>
<p>Trailer load</p>	<p>The trailer load should always be distributed so that the trailer tongue load is not less than 10% nor greater than 15% of the loaded weight of the trailer. The trailer load should never exceed the rated trailer gross vehicle weight.</p>

Trailer capacity

1. The weight of the loaded trailer must never exceed its registered capacity. Overloading can cause tire failure, broken springs and shackles, and general structural failure.

Security of cargo

1. The trailer load should be adequately secured to prevent shifting.

Loading

1. To ensure proper positioning of a load on the trailer, have about 10 percent of the weight of the trailer on the hitch. You will have found the proper balance when the weight on the hitch allows the trailer to remain in a level position when attached to the towing vehicle. An improper hitch weight and improperly placed loads will cause the trailer to fishtail. Where the tongue weight exceeds 907 kg (2 000 lbs.) (10% of the trailer and the load), you must use a weight-distributing or equalizing hitch.

While towing a trailer

1. To handle trailers properly, drivers must acquire new skills. Therefore, all employees chosen for this duty should be given special training and be tested to ensure they are competent to do the job.

The driver

1. If you are required to operate a vehicle that is pulling a trailer, either you should be well-experienced in the driving skills required or you should be given special training to acquire these skills.
2. You should be aware that your ability to drive safely can be seriously affected by emotional and physical impairment resulting from fatigue or poor health, or from consumption of drugs

or medication. Your fitness to drive is crucial to your safety and the safety of others. To avoid the dangers of fatigue, take the following precautions:

- make sure you are well-rested before starting out;
- on long trips, stop for a 10-minute rest every two hours;
- try to avoid heavy foods;
- keep plenty of fresh air passing through the vehicle; and
- in bright sunlight, wear good-quality sunglasses with anti-glare protection;

Trailer inspection, maintenance and repair

1. Trailers in regular use should be inspected thoroughly in accordance with the instructions provided by the manufacturer. The following steps should be followed in the inspection:
 - Check for structural damage.
 - Check for damaged, worn or corroded trailer hitches.
 - Check for worn or damaged springs and shackles
 - Check for inoperative signal lights.
 - Check for worn or damaged rollers, chocks and bunks.
 - Check for defective brakes and worn brake bands.
 - Check for worn or damaged tires and proper inflation.
 - Tighten bolts to the recommended torque.
 - Grease or oil bearings, winches and moving parts.
 - Repack wheel bearings with the proper waterproof lubricant. Wheels that have been immersed in water should be inspected and repacked more frequently. In replacing wheel bearings, tighten the hub nut until no end play on the wheel can be detected and the nut is slightly more than hand tight. The hub nut should then be backed off sufficiently to allow you to insert the cotter pin through the hub spindle. The wheel should rotate freely, with little or no end play on the wheel. Bearings that have not been properly tightened may overheat and disintegrate.
 - When defects are noted, have them repaired immediately.
 - Keep a record for each trailer that shows when inspection and maintenance has been carried out and details of repairs.