



Trailer Safety and How to Pack

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Why We Are Here



Agenda: Safety is our Focus

- Know Your Weight
- Hitch Components
- Balls and Hitches
- What Makes it Roll
- Lights and Mirrors
- Loading Properly
- How a Trailer Turns
- Trailer Sway
- Braking
- Driving and Parking
- Backing
- Roadside Emergencies
- Maintenance
- Title, Tag, and Insurance
- Theft
- Lots of interjections of accumulated learning
- Real Driving Practice
- And anything else we can fit in
- Disclaimers

Know Your Weight - GVWR

- **GVWR stands for gross vehicle weight rating.** It is the maximum loaded weight of your vehicle as determined by the manufacturer. GVWR isn't just the weight of passengers and cargo but also the vehicle itself.
- This is shown on the door jamb of the vehicle, and a trailer should have this on a plate attached to the trailer frame.

GVWR
Gross Vehicle Weight Rating



Look inside your door panel



Look on your trailer

MANUFACTURED BY
HORTON VANS INC.

130 COLEMAN DRIVE, EATONTON, GA 31024
1-800-714-7961

MODEL	HY6125A		DATE OF MFG.	OCTOBER/2010	
GVWR	1356	KG	(2990)	LB)	
	CAMP			TIRES	
ALL AXLES	1356	KG			
	(2990)	LB)	ST205/75D14 G		
			RIMS		
			14 X 5.5 J		
				COLD INFLATION PRESSURE	
				3.05 KPA SINGLE DUAL	
				(50) PSI	
THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE					
V.I.N.	5E2B11240B1041751		TYPE	TRAILER	
				HV1001	

Know Your Weight – Towing Capacity and Payload Capacity

- **Towing Capacity** is the maximum weight capacity of the vehicle, specifically in terms of how heavy of a trailer it can tow. This information is found in your tow vehicle owners manual.
- **Payload capacity** is the maximum amount of weight a truck can haul, in terms of cargo and passengers, specifically in the truck cab and truck bed.



Know Your Weight - GCWR

- **GCWR stands for gross combined weight rating.** It is the maximum weight of your vehicle with a fully loaded trailer attached, as determined by the vehicle manufacturer.
- This should be in your owners manual; if not, call your manufacturer (you may need the VIN to get specific)

GCWR
Gross Combined Weight Rating



Know Your Weight – GTW

- **GTW stands for gross trailer weight.** It is the total weight of the trailer and its cargo. It can be determined by putting the fully loaded trailer on a vehicle scale.
- This is the GVWR of the trailer
- To safely tow, GTW needs to be less than the towing capacity of the tow vehicle. And be safe – say 20% under!

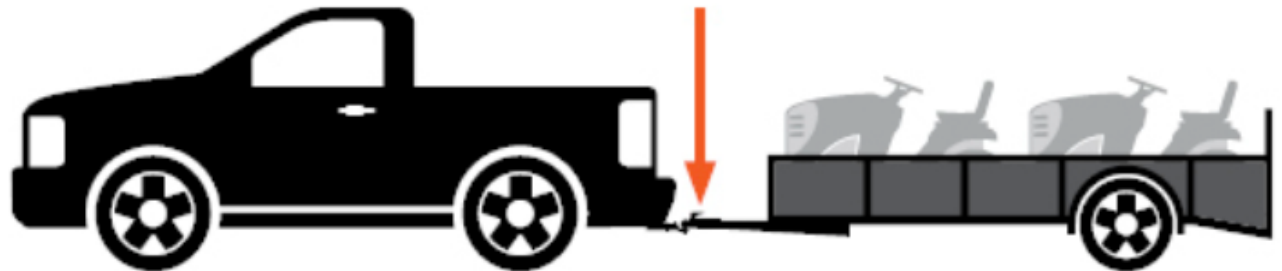
GTW
Gross Trailer Weight



Know Your Weight – Tongue Weight

- **Tongue Weight** is the downward force exerted on the back of a tow vehicle by a trailer or towable load. The tongue weight is greatly affected by where cargo is positioned in a trailer and is important for maintaining good control of the vehicle

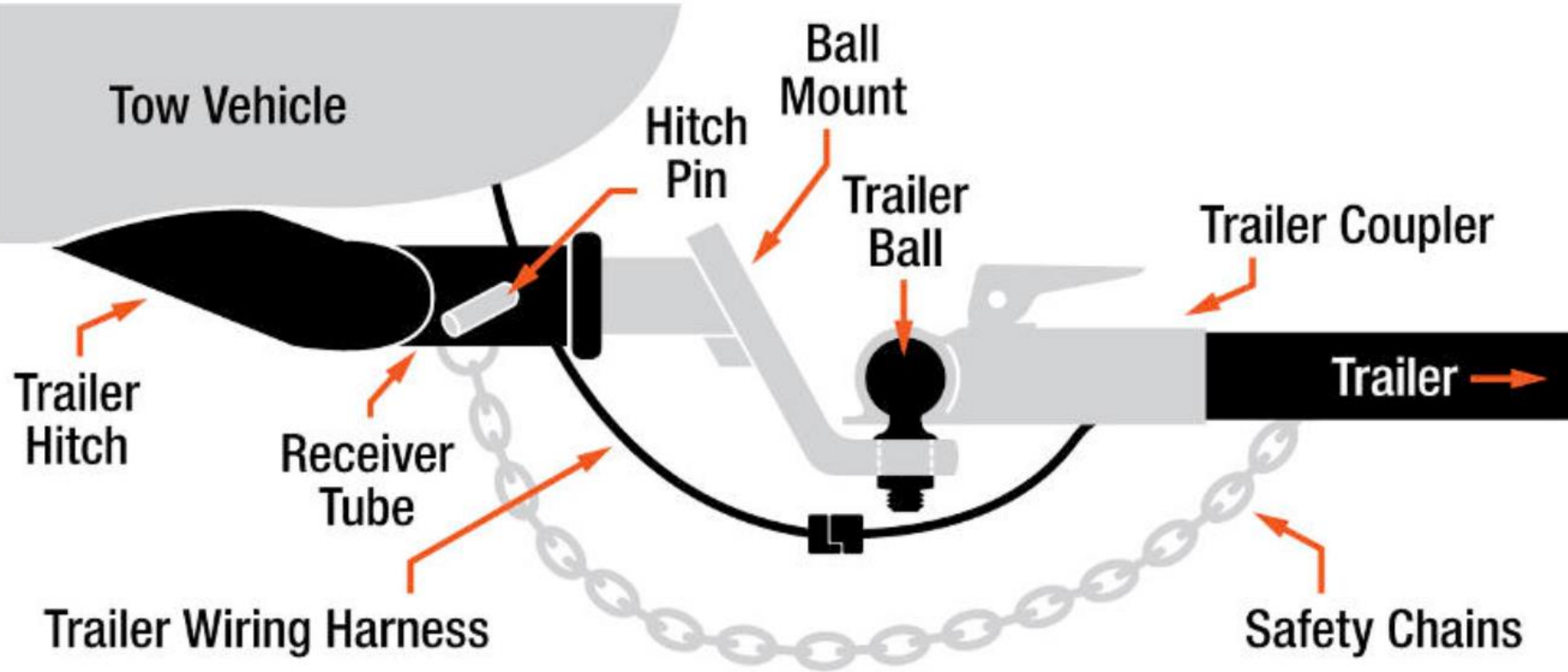
TW
Tongue Weight



Where can I weigh my trailer and tow vehicle?

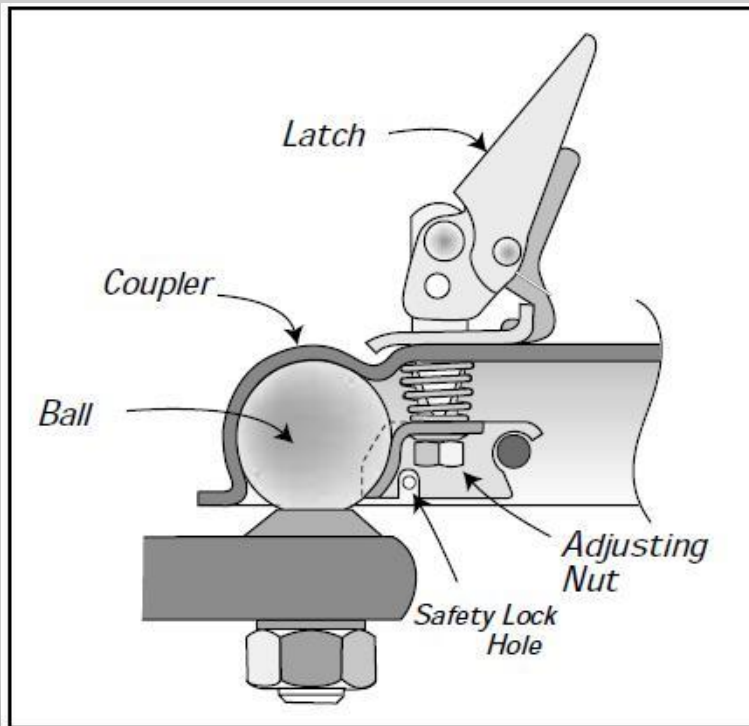
- Commercial dumps have scales – call and ask
- Many truck stops do as well – call and ask
- Cat Scales is a company in this realm:
<https://catscale.com/how-to-weigh/>
- Weigh your tow vehicle and trailer together, then weigh the tow vehicle separately (then do the math to figure out the loaded trailer weight)
- To figure out tongue weight, put bathroom scale on a cinder block, and lower the tongue on to the scale

Hitch Components



Coupler and Pin

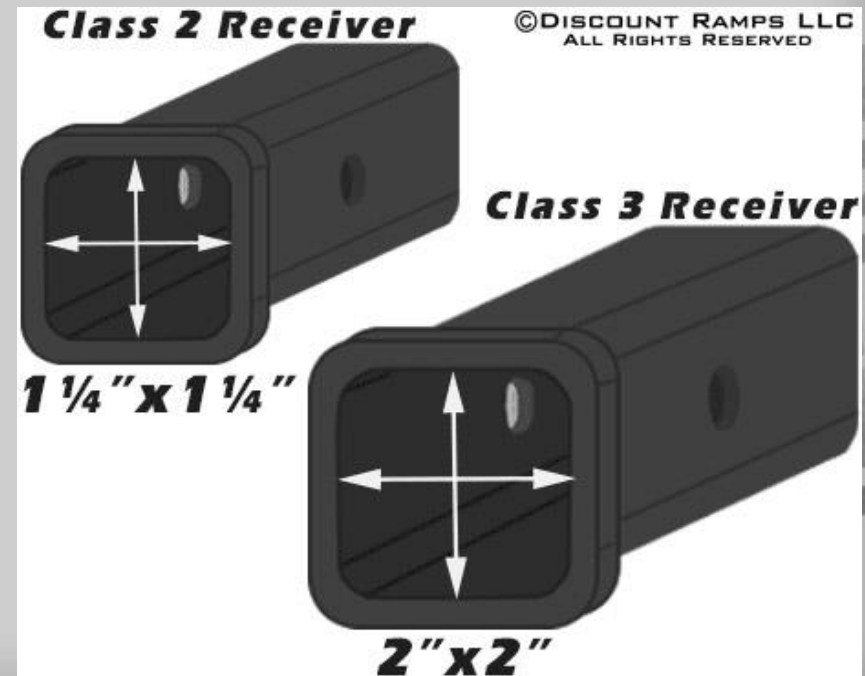
- The coupler comes down and latches on the ball
- A pin is used to keep the latch from coming up accidentally



Balls and Hitches

- Trailer balls come in a few standard sizes (1 7/8", 2", 2 5/16"), with 2" being the most standard – always use the correct size ball for the trailer

Class	Receiver Tube Size	Gross Towing Weight	Tongue Weight
1	1.25"	2,000	200
2	1.25"	3,500	350
3	2"	8,000	800
4	2"	10,000	1,000



What Makes it Roll

- Trailer axles have a load weighting (typically 2,500 – 3,000 lbs)
- At each end of the axle is a hub, which has bearings that must be periodically greased
- The hub attaches to the wheel via lug nuts which must be properly torqued
- On each wheel is a tire; these tires are not car tires, and have specific load ratings

Load Rating	Capacity (lbs)	Air Pressure (PSI)
C	2,150	50
D	2,540	65
E	2,830	80
<i>Verify specifics of your trailer and tires!!</i>		

Safety Chains

- Crossed so that the hitch lands on it in case the coupler fails
- Mounted to the trailer frame and hooked to the tow vehicle frame
- Do not let drag on ground
- Leave enough slack for turns
- North Carolina N.C.G.S.A. § 20-123

Chains must have strength to hold the gross weight of the trailer

Results of Improperly Torqued Lug Nuts



Results of Improperly Torqued Lug Nuts



Results of Tire Failure



Lights

- Lights are all about YOU being seen, and you being able to tell where your trailer is when towing at night
- Be sure all bulbs are good – check lights and turn signals every time you start up the vehicle
- Most common problem with trailer lights is a bad ground wire
- Carry spare bulbs and fuse. Know what fuse location on your tow vehicle is for trailer lights

Lights

- Most common are 4-way flat and 7-blade round



Mirrors

- Most vehicle mirrors are insufficient – consider getting bigger mirrors and/or fish-eye mirrors
- Instead of replacing mirrors you can get clip-on or slide-on safety mirrors
- You will have to use mirrors to backup and safely turn and make lane changes
- Make sure you have these properly adjusted BEFORE getting on the road

Mirrors



2 Piece



Loading Properly

- Load heavy to the front! But hitch should not dip down. Tongue weight needs to be 10-15%.
- Balance weight on the axles
- Secure everything so it won't fall out of shelves, etc. You want a stable load
- Liquids should be on the floor and centered. You don't want sloshing water to cause you to lose control.
- Make sure nothing falls out if the doors come open
- Be sure the spare tire and jack and all items to change a flat are easily accessible

How a Trailer Turns

- When turning a trailer, it always cuts to the inside of the turn



Trailer Sway



What To Do About Trailer Sway

- Take foot of accelerator
- DO NOT BRAKE
- Steer straight – do not try to steer out of the sway
- If you have electric brakes on the trailer, use the manual override to brake the trailer ONLY
- Once you slow down enough to recover from the sway, pull over and re-adjust your load to put more weight forward

Braking

- All the weight and momentum of the trailer is relying on your tow vehicle for braking and requires a longer stopping distance
- There are options to have brakes on your trailer – I would suggest you get them. This will require a device called a brake controller
- If you have trailer brakes you really need to consider adding a battery and breakaway switch

Driving

- Accelerating is slower – think about that with respect to pulling out in traffic and lane changes, etc
- Watch your speed – scout trailers aren't mean to go 70 MPH
- Braking takes longer – there's just more mass and momentum
- Use your mirrors and give extra room for lane changes
- Try to find pull-through parking, away from other vehicles (remember how trailers turn)
- Turn off Overdrive

Parking

- Try to find pull-through parking, away from other vehicles (remember how trailers turn)
- When parking, keep hitched to vehicle if possible and stabilize back-end of trailer
- If not hitched, lower jack and be sure to chock wheels

Backing the trailer

- Use your mirrors to be sure you can see the rear of the trailer
- Take your time and think-through the route
- In general it is easier to back towards the drivers side
- Turn the front wheels opposite the direction you want the rear of the trailer to go
- Do not back up too far, as you will jack-knife the trailer
- If needed, pull forward and re-correct and try again
- Take your time and use a spotter. Agree on hand signals and voice signals

Roadside Emergencies

- Get safe
- Safety cones and lights
- Wheel chocks
- Scissor jack / lug wrench / properly-inflated spare tire
- Fuses and bulbs
- Wire and crimps for bad ground
- Who has the keys?

Maintenance

- Checklist for every outing (lights, tires, brakes, springs)
RECHECK AT EVERY STOP!
- Repack/grease wheel bearings every year
- Check brakes (visually inspect when servicing bearings)
- Lube door hinges and locks
- Check roof for leaks
- Replace tires every 2-3 years
- Check floor and all structural stuff every year
- Wash the trailer
- No food in trailer between outings

Title, Tag, and Insurance

- Title is held by the chartering organization
- Vehicle registration (tag) can be permanent for a one-time fee. Worth it over the lifetime of the trailer
- Liability insurance is the tow vehicle driver's insurance!
- Chartering organization could face liability as secondary party
- Discuss this with your COR and consider getting a supplemental liability insurance policy!

Theft

- Locks (hitch pin, coupler, door, wheel)
- Marking trailer to make it distinctive
- Lo-jack / vehicle trackers
- Theft of trailer and contents are separate policies



Resources and Disclaimers

- [https://www.uhaul.com/files/equipment/Safe Trailering Book et.pdf](https://www.uhaul.com/files/equipment/Safe%20Trailer%20ing%20Book%20et.pdf)
- <https://www.curtmfg.com/understanding-towing>
- I am not a lawyer nor professional trailer expert. I am offering the best advice, research, and experience I can. There's a lot at stake when getting on the road, even more so with other people at stake. Be informed, be ready, and Be Prepared