enlightened boating

IMPORTANT

WEIGHTY THINGS TO CONSIDER WHEN SETTING UP TO TRAVEL

by Enlightened Boating

Introduction

In this guide you'll learn the steps to take weigh your vehicle, caravan or camper and travelling accessories, in order to help make sure your vehicle is safe, legal and you are covered by insurance

Over many years of building rooftop boats with a focus on weight and from years of travelling Australia, we have learnt some valuable lessons when it comes to car and caravan/camper setup for travelling this great country. In the past vehicle, caravan and camper weights we're mostly a second thought. However recently the Australian government has started putting the 'hammer-down' with scaly's being setup to weigh travellers. And vehicle insurance agencies are also putting the foot down and refusing insurance claims if vehicles are over weight. Overall an overloaded vehicle and caravan or unevenly distributed weight in a caravan pose a dangerous threat to yourself, other travellers and your vehicle.

So whether you're a seasoned traveller or just starting to think about travelling our great country with a caravan or camper, keep reading to discover some helpful things to consider when setting up to travel.

(Disclaimer – the author does not in any way claim to be an expert and encourages people to do their own research and checking. This list hopefully provides a starting point and what questions to ask).

1.

Find out the manufacturer weights and carry capacity of your travel vehicle. The best starting point is the manufacturers specifications. These weights and capacity can be found is the user handbook of your car.

Vehicle

- Tare
- Total carrying/load capacity (GVM)
- Roof load limits / roof carry capacity
- Tow ball weight limit and towing capacity (download limit and towing capacity)
- Gross Combination Vehicle Mass (GCVM)

Caravan / Camper

- Aggregate Trailer Mass (ATM)
  (and what is / isn't included (gas bottles, spare tyres, etc). ATM is basically the total weight of the van while not coupled to a tow vehicle).
- Gross Vehicle Mass and maximum load that can be carried (GVM).
  This number is always larger than the ATM as some load is transferred to the tow vehicle.
- Boat/loading systems (stated weights)
- Portable trailer and fittings (stated weights)

2.

Check by personally having each weighed over a weighbridge. Remember your insurance cover is based on the manufacturers stated capacities and it is your responsibility to stay within them. It is also illegal to go over stated limits. As an example, when a client checked his ATM and weighed the van himself, he found (in the fine print) the **ATM of his caravan did not include the gas bottles, the spare wheel or even the mattress on the bed!** Their available load capacity was reduced by over 100kgs or 25% before they started putting anything in the van.

Weighing your Vehicle

If have already added parts fitted to your vehicle then your load capacity has already been reduced. The load capacity is usually from the bare vehicle, so weigh the vehicle with full fuel, towbar, bullbar, canopy etc. Then compare to the manufacturers TARE and GVM to determine what load you can safely carry.

Load Capacity = GVM - current weight

Now deduct any items planned on adding and passengers

- Towball weight - down-ward weight from caravan
- Passengers
- Items carried in vehicle
- Roof bars/boat loader
- Boat
- etc

Example on a Nissan Navara D40

GVM	3000
TARE	- 1965
Load Capacity	1035
Towball load	-200
Passengers	-160
Bullbar + acc	-95
Long range fuel	-75
Water	-100
Misc. Items	-80
Roofbars	-6
Boat	-80
Remaining Capacity	**239kg**

Weighing your van/camper

You may need to do this a number of times:

1. **Normal setup** - Weigh the van with the gas bottles, water and spare wheels. Subtract this value from the GTM (gross trailer mass).
2. **Fully setup** – weigh the van when it is fully setup and ready to go. It's worth while to record the weights of major items (use bathroom scales) so you know the weight of the most important items. One client had a spreadsheet setup for both his van and vehicle with capacity overall and weights of items carried, along with a priority of each item. So at any time he knew his load and capacity.

Vehicle roof capacity

Again, capacity is specified by the manufacturer for each make and model. For example a Toyota Prado has 100kg roof capacity (depending on model, sunroof less). From our experience it is important to have your boat and boat loading system independently weighed.

We have weighed a number of tinnies that are up to 40% heavier than specified. Also all boats are weighed as bare, before a 8mm wooden floor or any custom work has been added to the boat.

Boat loaders should also be accessed and weighed. And finally the weight of the roof racks and bars must be taken into account

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Your total rig

Its very important to weigh your total setup to have a Gross Combination Vehicle Mass (GCVM). This way your are insured you are okay overall and you can enjoy your adventure knowing you are covered by insurance and not breaking the law.

This checklist is also useful when looking to setup for the big adventure. We have met numerous people who bought a vehicle only to find the roof weight limit restricted the size of the boat they could carry and even limited the size of their caravan.

Happy and safe travels
The Enlightened Boating Team

General recommendations

3m barra

Suited to almost all vehicles

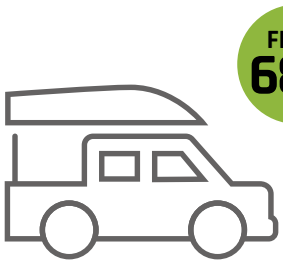
3.7m barra

Suited to almost all vehicles

3.7m lite

Suited to almost all vehicles

Larger vehicles recommended



3.7m ultimate

Suited to four wheel drives

Re-inforced canopy recommended

4.1m outside

Suited to four wheel drives

Re-inforced canopy required

4.3m outsider

Suited to four wheel drives

Re-inforced canopy required. Up to 120kg roof capacity.

4.5m island hopper

Suited to four wheel drives

Re-inforced canopy required. Up to 120kg roof capacity.

3.7m Barra on a small car

3m Barra on a small car

4.1m on a Triton

4.1m on a Landcruiser

4.5m on a Ranger

Reinforced carrier - Custom built by Enlightened Boating

Vehicle weight checklist

Vehicle

Load Capacity = GVM - TARE

TARE

GVM

Load / Carry Capacity

Extras
Passenges, bullbar, accessories, etc

Towball load from caravan 220kg

Total extras

Vehicle Leftover Capacity

Remaing Capacity = Load Capacity - Total Extras

Remaining Capacity

Caravan / Camper

Load / Carry Capacity = GTM - TARE

TARE

ATM

GTM

Load / Carry Capacity

Definitions

Failure to abide by the towing regulations, including maximum loads, may result in a fine, or in the case of an accident, refusal of the insurance claim, and the possibility of further legal action.

Tare Mass or Weight
This is the weight of an empty standard vehicle with all of its fluids (oils, coolants) but with only 10 litres of fuel in the tank. We assume 10 litres was chosen as an industry standard to allow otherwise empty vehicles to be driven to and from a weighbridge.

Gross Vehicle Mass (GVM) or Weight (GVW)
This is the maximum your vehicle can weigh when fully loaded as specified by the manufacturer. You will usually find this GVM figure on the vehicle's weight placard (generally found in the driver's door opening) or in the owner's manual. So GVM is the TARE plus driver, passengers, luggage, pet dog, esky, tool kit and whatever else you're taking with you. And if you're towing something, GVM also includes the Tow Ball Download.

Payload
This is simply the maximum load your vehicle can carry as specified by the manufacturer. Just deduct your vehicle's Kerb Mass from its Gross Vehicle Mass (GVM) and what's left is the amount of stuff you can load into it. Don't forget this includes all passengers and their luggage, which can seriously bite into your payload. For example, if your vehicle has a 1000 kg (1.0 tonne) payload, five big blokes will use up about half of that before you even start throwing in their luggage and a couple of cold slabs!

Aggregate Trailer Mass (ATM)
The ATM is an easy one – it is the most your caravan can weigh, with everything in and on it, as it stands, unhitched. It is the weight that each wheel and the jockey wheel impose on the ground all added together, at the very most.

Gross Trailer Mass (GTM)
The GTM is the maximum weight that the caravan wheels can collectively impose on the ground. In other words, the wheels' share of the ATM figure (remembering that the ATM is the coupling download weight and the weight of the wheels imposed on the ground added together).

Tare Mass
Tare mass is the weight of the caravan as it leaves the factory, without water in the tanks, any gas in the cylinders, any luggage or personal effects whatsoever. It is also without the weight of dealer-fitted extras, such as an awning, air conditioner and so on. If you subtract the Tare from the ATM, this leaves you with the maximum payload weight you can use to load your van.

This is another area where caravanners can and do trip up. The weight of those optional extras fitted to the van after its Tare weight has been measured at the factory can amount to hundreds of kilos and if you're also filling two 95L water tanks (remembering each litre of water weighs 1kg) you're suddenly reaching a point where you have little legally permitted payload left for your gear.

Towball Mass/load
The final measurement is towball mass; this weight is now being quoted on caravan compliance plates, but on earlier compliance plates you can work out this figure by subtracting GTM from ATM.