

PBO guide to towing and launching

If you have a small boat, a trailer provides the freedom to sail far-flung waters – but there's more to it than simply hooking up and driving off.

Ben Meakins explains the regulations and demystifies the towing jargon



A loaded trailer can double your overall weight, meaning slower acceleration, reduced hill-climbing ability, lower overall speed, greater fuel consumption and significantly longer braking distances,' warns the Highways Agency. So it's perhaps no surprise that many drivers and boat owners approach the subject of towing with some trepidation. But if your boat is small enough to tow, the ability to take to the road means that you can save on yard bills, explore new cruising grounds and expand your sailing horizons.

But before you start, be warned – there's a minefield of confusing information and misleading advice out there. Contravening the regulations can invalidate your insurance and vehicle warranty, as well as increasing wear and

tear, so it pays to make sure you won't be doing something illegal.

There's a lot to be said for first appearances. The Highways Agency warns: 'Just a quick look can tell you if a towed vehicle has been prepared properly for the trip.' PBO's trailer-sailing expert, Colin Haines, agrees.

'The way the rules have evolved seems to make them deliberately confusing,' he said. 'My way around this is to make sure that my boat looks smart and seaworthy, and that the trailer is likewise obviously roadworthy.' To totally understand all the ins and outs of legislation relating to trailing, you would need to read the 1986 Road Vehicles Act (available for £26 from www.tsoshop.co.uk) and all its relevant amendments – a difficult exercise. Here, instead, is PBO's distilled version of the regulations covering most of what you can – and cannot – tow on the road.

WHAT DOES IT ALL MEAN?

- **KERB WEIGHT:** sometimes called unladen weight, this is the weight of an empty vehicle. Kerb weight in the UK is different to EC kerb weight, which includes fluids, tools, a spare wheel and 75kg notional weight for the driver. Check your owner's manual.
- **MAXIMUM AUTHORISED MASS (MAM):** this is your vehicle's maximum permissible weight, also known as the gross vehicle weight.
- **MAXIMUM COMBINATION WEIGHT (MCW):** the total permissible weight of the fully-laden tow car and trailer combined. Also known as gross train weight (GTW).
- **NOSE WEIGHT:** the weight pushing down on the towbar. There will be a maximum quoted in your car's owner's manual. An easy way to check nose weight is by using bathroom scales and some blocks of wood – or head to a nearby weighbridge.
- **PAYLOAD:** the weight your vehicle can carry, calculated by taking the difference between MAM and the kerb weight.



A great combination: Land Rover Discovery 4 towing a Cornish Shrimper

Location photos: Anthony Butler

DRIVING LICENCES – WHAT YOU CAN TOW

Driving licence categories

- B:** Vehicle up to 3.5 tonnes MAM and eight passenger seats
- C1:** Goods vehicle 3.5 tonnes to 7.5 tonnes MAM
- E:** Entitlement to tow trailers

Trailer categories

- 01:** Trailer up to 750kg MAM. Does not require brakes
- 02:** Trailer of 750kg to 3,500kg MAM. Must be braked



Driving licences – before and after 1997

Your driving licence

Before we look into whether your car can legally tow your boat, let's see if you are licensed to drive it. If you passed your driving test before 1 January 1997, you're probably OK. Check your driving licence – it's likely that you're entitled to drive up to a Category C1E – a vehicle and trailer combination of up to 8.25 tonnes MAM. It doesn't matter if the trailer's unloaded – it's the MAM that counts.

If you passed your test on or after 1 January 1997, the weight you can tow is much lower. You can drive a Category B vehicle (with a MAM of 3,500kg), and a trailer with a MAM of up to 750kg, provided the combined MAM does not exceed 4.25 tonnes. You may also tow a trailer with a MAM over 750kg, as long as it does not exceed the kerb weight of the towing vehicle and the combined weight does not exceed 3.5 tonnes.

Anything over 3.5 tonnes MCW/GTW and you'll need to take a practical test in order to upgrade your licence to Category B+E, which covers vehicles up to 3.5 tonnes MAM and trailers with a MAM of 750kg and above, providing the combination does not exceed 8.25 tonnes.

Choosing a vehicle to suit your boat's size and weight

Whatever you're licensed to tow, you need to make sure your car is capable. Many people assume that their family car will suffice – but this may not be the case. Anything involving legislation is enough to make you want to tear your hair out, and this is no exception. But using

given information you can work out whether your car is big enough to tow your boat and trailer combination.

Using the Land Rover Discovery 4 as an example – we used the TDV6 model in our photo shoots – the vehicle has a MAM of 3,240kg and a MCW of 6,740kg (weights and specifications are easily obtainable on the Land Rover website www.landrover.co.uk). This leaves us with a towing capacity of 3,500kg (MCW minus MAM), the maximum weight permitted by the towing regulations.

It is possible to tow more than this with certain vehicles, but you will need to fit close-coupled brakes and an uprated hitch. Standard 50mm ball hitches are only rated to 3,500kg, and this is also the limit on the hitch-operated overrun brakes used on most boat trailers.

Trailer considerations

So you've worked out that your car can legally tow your boat, but which trailer should you pick?

By and large it depends on the boat, and any trailer manufacturer should be able to advise you. Boat trailers come in a wide variety of guises – some have rollers, some have a 'break-back' function that allows them to tip up to help launch and retrieve your boat, and there's a wide variety of construction materials available.

Some trailers can be completely immersed for launching, while others can be ruined by a dip – ask before you buy.

Single axle trailers are generally used for loads of less than 1,500kg. They are very sensitive to nose weight, so must be loaded carefully.



Weight figures will be on a stamped plate or sticker somewhere on your vehicle, usually under the bonnet or inside a door frame. In this example on the Land Rover Discovery 4, the Maximum Authorised Mass (MAM) is 3,240kg and the Maximum Combination Weight (MCW) is 6,740kg



Double axle trailers are usually employed for loads over 1,500kg, and are slightly less sensitive to weight distribution. The keel of a boat will generally be right over the axles of a well-designed trailer. It's important to keep all the tyres at the same pressure. For more on towing heavy trailers, turn to page 34.

Braked or non-braked?

Trailers with a MAM of more than 750kg must be braked. In addition, you cannot use an unbraked trailer which exceeds 50% of the kerb weight of the towing vehicle.

For trailers up to 1,500kg laden you can use a secondary coupling, usually a wire strop that hooks over the tow hitch which, in the event of separation, will keep the trailer attached to the towing vehicle, prevent the nose of the trailer from touching the ground and provide some residual emergency steering of the trailer.

Trailers over 1,500kg MAM must be fitted with a device to stop the trailer automatically in the event of separation – this is normally achieved by a breakaway cable, which will apply the brakes if the trailer becomes detached from the towing vehicle.

Trailer dimensions

If the towing vehicle has a MAM in excess of 3.5 tonnes, the maximum

width and length of the trailer are 2.55m and 12m respectively. If a MAM of 3.5 tonnes or less, it is 2.3m and 7m. This does not include the coupling or drawbar. In both examples the overall length of the towing vehicle and trailer must not exceed 18m. The load can overhang the trailer by 305mm at the sides and 3.05m at the rear. Between 1m and 2m of overhang, the end must be clearly visible – you can mark it with a brightly coloured cloth. If it overhangs between 2m and 3.05m, a marker board must be fitted and it must also be illuminated at night.

Trailer lighting

It goes without saying that the trailer lights should be in proper working order and with a matching number plate to that of the towing vehicle.

A lightboard should be no more than 1.5m from the ground, or 2.1m if the structure of the vehicle makes that impracticable.

Indicators must flash in unison with those of the towcar, and a dashboard warning light or buzzer must be fitted to indicate the trailer lights are working. In addition, boat trailers need the following: fog lights if over 1.3m wide, front reflectors if over 1.6m wide and front and rear outline markers if over 2.1m wide. Finally, trailers over 5m long (excluding drawbar) need side reflectors as well.

Preparing to tow

Before you go anywhere, give your car and trailer a thorough check of the following:

- Check the load balance to avoid snaking. Snaking is usually caused by loads with the centre of gravity too far back, which causes the trailer to yaw. This is a common problem for boats on trailers, many of which have heavy engines at the stern. As a rule of thumb, try to keep weight out of the boat's ends. By and large you want the centre of gravity to be around 10-20cm forward of the trailer wheels for best stability.
- Check tyre pressures of the car and trailer, and make sure you have got a correctly-inflated spare for both, too.
- Your engine will be working hard, so check oil and coolant levels.
- Check the trailer coupling – it should be securely attached to your car. If fitted, a safety strop or breakaway cable should be attached to the vehicle. Check trailer wheel nuts with a torque wrench.
- Make sure the boat is tied on, such that it can't move side-to-side, forwards or backwards, and that any knots or ratchet straps are tight and there are no loose ends trailing or flying in the wind.
- In particular, check brake cables, drums and linkages, if your trailer has them. 'These can seize up, lead to overheating and, ultimately, the wheel coming away from the trailer,' warns Inspector E Henley of the Dorset Police Traffic Unit. 'Finally, make sure any sharp or dangerous projections – like propellers and masts – are protected by buckets or reinforced orange bags.'
- Check that your lights work and also that the lightboard is securely attached.
- Finally, ensure the trailer jockey wheel is clamped in its 'up' position, and that the trailer's handbrake is released.

The basics

There's no great secret to driving with a trailer in tow – you just need to take care, take your time and think ahead

Before setting out, check your breakdown cover extends to trailer recovery, that your vehicle insurance covers towing and that your boat and trailer will be insured on the road. You may need an extra policy to cover this.

Remember that the law limits you to 50mph on single carriageways, and 60mph on dual carriageways and motorways. When towing you cannot use the outside lane when there are three or more lanes.

Your combined car, boat and trailer will weigh far more than you're used to, so stick to a reasonable speed, anticipate stops and brake early. Always brake in a straight line for maximum safety and control. It's a good idea to leave a four-second gap between you and the car in front – that's probably twice what you're used to in normal driving.

You cannot park a trailer without lights on a public road at night, irrespective of whether it's attached to a vehicle or not.

TAKE CARE AT CORNERS With what is now a much longer vehicle, you'll need to take a wide swing as you go round corners and roundabouts so your trailer doesn't clip the kerb. The same applies if you're overtaking another car or obstruction. This of course means you'll need extra vigilance for oncoming traffic.



Swing wide round bends or your trailer may clip the kerb

of towing



Use a low gear when going downhill to go easy on the brakes



Lower gears keep engines cooler uphill, when overheating is a risk



Make sure your boat is tied securely to its trailer

LONG CLIMBS Your engine will be working harder than usual, and on long climbs can be susceptible to overheating. Be aware of this, and be prepared to stop if necessary. Generally, lower gears will keep your engine running cooler.

LONG DESCENTS Use your engine as a brake by selecting a low gear when going downhill.

MOTORWAY DRIVING You're limited to a maximum speed of 60mph, remember, and cannot use the outside lane, so you'll need to accept that your journey will take longer and be more tiring. Plan accordingly.

STOP FREQUENTLY A few minutes' rest will help you get to your destination in one piece – and let you check the trailer. Check your boat is still tied on properly, and feel your wheel hubs to make sure they're not too hot. If it has been raining, ensure your boat isn't carrying excess water. Water is heavy and could tip you over the edge of being dangerously overloaded.

DEALING WITH SNAKING Horror stories abound about the dangers of snaking, where the trailer takes control. If you feel it start to happen, ease off the accelerator and keep steering straight. Don't, whatever you do, hit the brakes or try to correct it by steering – chances are you'll merely jackknife.

REVERSING TECHNIQUES

Practice makes perfect – the old adage is as true for the skill of reversing a trailer as anything else. If you've never reversed a trailer before, it's a good idea to practice in an empty car park, industrial estate or field before you head to a busy, congested slipway.



1 Start reversing with the vehicle and trailer in line. Make sure you can see properly – if it will clear the boat, opening the tailgate will improve visibility.

TIP
Place your hand on the bottom of the steering wheel – the way you move your hand is the way the trailer will go.



2 Slowly reverse the trailer, turning the vehicle in the opposite direction to that in which you wish the trailer to turn. As the rear of your vehicle turns away from the direction you want the trailer to travel, the rear of the trailer will turn in the direction you wanted. Make small corrections to keep the vehicle and trailer going where you want them.



3 Don't make large corrections to the direction of travel, or the vehicle will jackknife. If you get to the point where you're having to make large overcorrections, pull forward to straighten up and try again.



4 Once the trailer is moving where you want it, reverse the steering on the vehicle so it follows the trailer into the turn.



Towing heavy loads

Hauling loads heavier than the tow vehicle requires special care, says David Pugh

Hauling a trailer that weighs more than your towing vehicle calls for some special skills. Respected bodies such as the Caravan Club recommend that a trailer should not exceed 85% of the weight of the vehicle, while modern driving licences (issued since 1996) require an additional test for towing loads greater than the unladen weight of the tow vehicle.

For those of us with older licences however, there's nothing to stop someone who has previously never driven anything bigger than a Mini jumping into a Land Rover or other adequately rated vehicle and starting to tow a 3.5 tonne boat/trailer combination. The rules simply require that:

- You should not tow more than the maximum permissible trailer weight for the vehicle, as stated by the manufacturer, or exceed the maximum train weight

- The total weight of the tow vehicle, trailer and load should not exceed 8.25 tonnes on a standard driving licence (C1E category)

- The weight of the laden (braked) trailer should not exceed 3.5 tonnes (750kg unbraked)

Towing this kind of weight can quickly lead to complications if not correctly handled, with the inertia of the trailer overcoming the resistance offered by the lighter weight of the car.



Check your tow hitch, safety stop and wiring loom are in good working order

Problems

If you have a trailer with well-maintained brakes, it's not so much stopping a heavy load that presents a problem – the brakes should provide most of the effort required. The biggest issues are setting up the trailer and load properly, starting the rig moving, and avoiding the trailer starting to snake or sway.

Setting up

To tow with any level of stability your trailer must be balanced. That means placing the centre of gravity over the axles, just far forward enough that the weight is biased towards the hitch. The weight at the hitch is known as the nose weight,

and its ideal value is a great area of debate – the received wisdom is that the nose weight should be around 10% of the trailer weight, but for a 3.5 tonne trailer that's 350kg, which is heavier than the hitch and towing vehicle can handle.

Given that you're unlikely to reach the ideal, the next best rule of thumb is to set the nose weight at around 75% of the permitted value from the hitch manufacturer. For example, the 3.5 tonne version of the Bradley Doublelock hitch has a maximum hitch weight of 120kg, so

around 90kg seems a sensible value. This must of course also be well within the maximum hitch weight of your tow vehicle – if this is a problem you should probably think about a different vehicle.

Balancing the load is worth spending some time over, as too much weight can cause the hitch welds to fail, or the hitch pressure to lift the tow vehicle's front wheels off the ground. Too little, and you can lift the tow vehicle's back wheels and lose control that way.

Another reason for careful balancing is that twin-axle trailers need the load distributed fairly evenly between the axles, as each axle will have a maximum load rating which may not be much more than half the maximum laden weight of the trailer.

When you first get a new trailer, have the boatyard keep your boat in the slings while you get the trailer in the right position. Once you have it, make some marks where the keel sits so that you can put the boat in the same position next time.





Jockey wheel's adjustable column

Before setting off, ensure the trailer's jockey wheel is raised

Starting

Even in normal driving, it's disconcerting to watch the car in front roll back towards you as the driver messes up their hill-start. Now imagine watching a 6-tonne road train roll back towards you – not something you want to inflict on anyone. Doing this also causes considerable stress to your vehicle's transmission as you move the whole system from reverse to forwards.

Many towing vehicles have uprated clutches and gearing that will allow you start a load simply by using first gear and the handbrake. Some however require use of the low gear ratios to get started, especially on hills, which are accessed via a second transfer gearbox placed on the output of the main gearbox. Changing the transfer box from low to high might be as simple as pressing a switch when in neutral, but some vehicles such as the Land Rover Defender require a special gear change sequence, typically:

- Apply slight backwards pressure to the transfer gear lever in preparation for changing
- Depress the clutch, release the accelerator and pull the transfer lever into neutral
- Release the clutch pedal for around three seconds before depressing it again and moving the transfer lever firmly into the high position
- Select a suitable main gear, release the clutch and continue driving in the normal way.

This is a variation on the old-fashioned double declutch routine and takes some getting used to, but is effective once you have mastered the technique.

USEFUL LINKS The Highways Agency publishes a very useful guide to towing, called *Hitched*, which is available for free under the 'fit to tow?' section of its website at www.highways.gov.uk/knowledge/16293.aspx

- www.completetowing.co.uk has useful rules and regulations

Snaking

Snaking is the big hazard when towing any load, but it is much harder to control with a heavy trailer. The key, therefore, is to avoid it as much as possible, and there are two main ways to do this.

The first is to keep your speed down. Driving slowly makes your movements less abrupt, gives more time to think, and reduces the momentum of the vehicle and trailer. Most vehicle and trailer combinations will have a maximum stable speed, which will become obvious once you start towing.

The second is anticipation. Snaking is usually caused by abrupt steering and braking, but other factors can set it off, such as a gust of wind or a dip in the road. Watch the road ahead and behind for as far as you can so you can take avoiding action early by slowing down or changing lanes. Anything can be a hazard: traffic, animals, uneven surfaces, gaps through which the wind might funnel or high-sided vehicles which will have turbulent air around them. Steer with small movements of the steering wheel, and brake as gently as possible.

If your trailer does start to snake, the best you can do is to catch it early. Watch your wing mirrors like a hawk (at night you will need marker lights on the trailer so that you can see it in the mirrors), and if you spot the trailer starting to snake, back off the throttle to slow down gently. Don't back off completely, and if possible avoid touching the brakes.

Although in theory the old wives' tale of accelerating out of a snake could be effective, it needs a huge amount of power to do anything but make the problem worse – so don't try it!

Braking

When you have to brake, do so gently until the trailer brakes come on, after which you can apply the vehicle brakes more firmly. Try to brake when the trailer is in line with the vehicle, before entering a bend. Sudden braking on a bend risks a jackknife as the trailer may push the vehicle sideways before the trailer brakes come on. Similarly it's best to slow down and engage the trailer brakes before going over the brow of a hill.

Next Month

Part 2: Step-by-step guide to launching and retrieving your boat



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