

# Thinking of buying a towcar?



## Your easy guide towards choosing a towcar

- Outfit matching
- Choosing a towbar
- Which body style to choose
- Which engine to go for
- What to avoid

# Choosing and buying a towcar

If you're thinking of buying a towcar there'll be loads of questions you'd like answered. Well, we at The Caravan Club want to help you, so we've compiled some of the basics such as what to look for ...and what to avoid.



Considering buying a towcar is quite a big step, with a commitment to invest a fair amount of money.

And, if you've no experience of towcars, things like "What type of towcar should I buy?" and "How much will it be able to tow?" may seem like almost unanswerable questions. This leaflet probably won't tell you absolutely everything you've ever wanted to know about towcars, but we are sure it will point you in the right direction.

You can also find more detailed help on The Caravan Club website [www.caravanclub.co.uk](http://www.caravanclub.co.uk).

So, let's get you started on your first step to towcar purchase and an enjoyable future of trouble-free touring...

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- Choosing the right towcar will go a long way to ensuring that your towing experience is enjoyable and relaxed – as well as safe and legal of course. We'll steer you through the various options on pages 3 and 4.

### Matching your towcar to your caravan

- Outfit weight ratio, power to weight ratio, torque and gearing – All the variables that should be taken into account for matching your towcar can be found in pages 5-9.

### Go Green...go caravanning

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# Choosing the right towcar



Caravanning is a lot of fun, and part of the fun should be the journey, not just the destination. Choosing the right towcar will go a long way to ensuring that your towing experience is enjoyable and relaxed, as well as being safe and legal, of course.

The most important things to remember when choosing your towcar are to: match the weight of your towcar to your caravan carefully (outfit weight ratio). And, get a towcar with sufficient pulling power to tow a caravan (power to weight ratio).

If we all had unlimited funds (and little regard for the environment) the solution would be simple, just buy the heaviest most powerful car and both problems are solved instantly. However, in reality most of us need an economical, moderately sized car for daily use that can also be used as a towcar for touring. Hopefully once you've read this leaflet you'll be on your way to finding the perfect balance to fit both bills.



## Choosing a towcar couldn't be easier

In today's busy world anything that saves time is a real boon. We've put all the essential info you'll need in the first few pages of this leaflet. If you want to delve more deeply into the technical world of weights and power ratios you'll find more detailed help on pages 6 to 10.



## Towcar of the year

At The Caravan Club we've done all the hard work for you. The Towcar of the Year Awards were created to enable you to make informed decisions when choosing a towcar and to keep you up to date with the latest innovations and trends in car design.

The awards also encourage relationships between car manufacturers and The Club to benefit everyone. The 2009 awards saw 19 manufacturers enter 38 vehicles into the awards – all of which were tested rigorously by our team.

To find out the most recent winners just visit The Caravan Club website. You'll find all of our past winners there too, which you might find useful if you are considering buying a second-hand towcar.

*The Škoda Superb 2.0 TDI won the 2009 Towcar of the Year Awards.*



Go to [caravanclub.co.uk/practical](http://caravanclub.co.uk/practical) for courses and DVDs

## Outfit matching

If technical and mathematical calculations are not your thing The Caravan Club will do all the work for you. Outfit Matching is the term used to describe whether a particular car and caravan are suitable for use together. We use a computer database of car and caravan technical details, plus extensive archives of manufacturers' information and test reports, to provide detailed information very quickly. Just give us a call on: 01342 326 944. All you'll need to know is your:

### Car:-

Make \_\_\_\_\_

Model \_\_\_\_\_

Body Style \_\_\_\_\_

Derivative/Trimstyle \_\_\_\_\_

Engine size and type \_\_\_\_\_

Year or registration number \_\_\_\_\_

### Caravan:-

Make \_\_\_\_\_

Range \_\_\_\_\_

Model \_\_\_\_\_

No. of berths \_\_\_\_\_

Year of manufacture \_\_\_\_\_



## So I don't need to know anything else?

Well they do say knowledge is power, and with caravans and towcars, power is essential. Great as the outfit matching service is, we can't know everything about the weight of your caravan and car; particularly when fully laden with people, pets, food, the half dozen surfboards you're taking, or the number of golf clubs or fishing rods you'll need. With this in mind it's worth understanding some technical terms and some simple rules of thumb in relation to choosing the right towcar for you. We've put together a few of the most important.



Go to [caravanclub.co.uk/outfit-match](http://caravanclub.co.uk/outfit-match) for a **free outfit matching service**



# Matching your towcar to your caravan

## Outfit weight ratio

The ideal is to have the heaviest practical towcar for your caravan. The heavier the car, the less likely you are to experience a swaying or snaking caravan. Try and aim for an ALW (total weight of your caravan including what you add) of no more than 85% of the car's kerb weight and it's very unwise to exceed 100%. When you have established your caravan's ALW, multiply it by 1.2 as a guide to the kerb weight of the car to aim for.

It's worth noting that if you get The Caravan Club to do an outfit match assessment for you, they'll usually base it on a 'worst case scenario' of the car's kerb weight (i.e. the lightest the car can be) and the caravan's MTPLM (i.e. the heaviest the caravan can be). As we don't know exactly what you will be loading into your caravan and car, it's worth getting to know your Actual Laden Weight so you can better understand your towcar options.

## Power to weight ratio

Power to weight ratio is usually measured in brake horsepower per tonne (bhp/tonne). Many caravanners take great pride in working out the best possible balance between all the weight and power ratios and will go to great lengths to make sure every variable has been accounted for. Whilst this can be very satisfying, when you are just starting out in touring it can all be a bit overwhelming. The simplest rule of thumb to remember is to aim for 40 bhp/tonne of the train weight, i.e. everything in the outfit that the engine has to pull – laden car and laden caravan. This is a minimum target figure for allowing reasonable performance, not delaying other traffic and having sufficient power for overtaking. Of course the more powerful your car the easier and safer it will be.

There are other factors that you can take into consideration such as gearing, torque characteristics and aerodynamics, to name but a few, and if you feel you'd like to fully explore all the variables please read on.

## What is torque?

Torque is the turning power generated by an engine. Good torque at low engine speeds will allow easy pulling away, and towing with a minimum of gear changing. Manufacturers generally only quote maximum torque and the speed at which it is produced. However many engines nowadays produce 90%+ of maximum torque from 2500 to 4000 rpm, so a quoted maximum at 4500-5000 rpm need not necessarily be bad for towing. Even a high-speed maximum torque can be sufficient if first gear is low enough to pull away, subsequently the gear-change in this case will be light, so frequent changes aren't a strain. Alternatively, you can choose an automatic gearbox, where the torque converter usually solves the problem.

## Petrol, diesel or turbo?

It does seem that diesel engines are definitely the way forward in touring especially if you think you'll be touring a great deal. Most of the recent Towcar of the Year winners (and class winners) have been diesels, and 70% of Club members choose a diesel car.



Modern diesels are lively and refined, yet retain their inherent characteristics of good fuel economy and good torque delivery. The issue of 'turbo or not turbo' has become easier to solve in recent years too. Almost all cars with engine capacities under 2.5l tend to be turbocharged just like the larger engine diesel models. Diesels tend to have a longer life and hold their value better than petrol powered vehicles.

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The down side is that diesel and turbo diesel engines initially cost more than petrol. It's always worth checking the manufacturer's towing limit before buying too because occasionally the petrol version will be able to tow more.



## How gearing affects towing

More gears give improved ability to match the engine to the road speed in an optimum way, giving better fuel economy, improved emissions performance and quieter high speed cruising. It is also said that a vehicle showing good midrange acceleration times (normally 50-70 mph) should be a good towcar. Modern cars will regularly achieve times of under 7 seconds for this measure, but those which do so in 4th or higher gears are likely to be best for towing. Figures that only show good performance when in 3rd gear are probably best avoided, since this could be an indication of a 'peaky', inflexible engine.

A partial guide to a car's tow-ability is the road speed at which maximum torque is achieved for every 1000 rpm in top gear. If the figure quoted is 21 mph (in top gear) and maximum torque is quoted at 3000 rpm, then multiply 3 (thousand) by 21 = 63 mph. This suggests that at about the maximum legal towing speed on a UK motorway, such a car would be 'pulling' at its strongest – this should mean it will be able to maintain a steady speed in spite of moderate hills, for instance. Too high a figure for this calculation and the car will 'run out of breath' very easily in top gear, forcing you to change down at the slightest gradient.

## Is an automatic a good towcar?

One way to avoid problems created by less than ideal torque is to choose an automatic gearbox. They're ideally suited for caravan towing because their torque

converter allows crawling pace, where a manual's clutch would slip and wear. Also when starting off from rest the action of the torque converter gives a torque magnification factor approaching 2:1, i.e. when the converter output is at rest or turning slowly the torque is maximum and the output torque exceeds the input torque – ideal when towing.

Other benefits are less wear and tear on the transmission, easy re-starts on hills and reversing to hitch up, and perfectly adequate gear control with the selector. With all these advantages there must also be some disadvantages surely? One penalty with older three speed automatics is higher fuel consumption, loss of performance and increased heat production. However, with more modern five, six, seven (and soon eight) speed automatics these problems have virtually been eliminated. As there are occasionally exceptions to this, it is still worth checking the manufacturer's fuel consumption data. The manufacturer's towing limit is sometimes lower with automatic transmissions, however diesel models remain comparatively rare, but they are worth hunting out.



## Front, rear or four wheel drive?

The majority of cars under 3 litres are front wheel drive (fwd), although there are still rear wheel drive (rwd) types available, such as BMWs and some Mercedes. It has been said that rwd is preferable because no amount of loading and caravan noseweight (see noseweight section later on in this leaflet) can lift the driven wheels off the road. However most fwd cars tow very competently, you just need to check the car manufacturer's noseweight limit and rear axle limits are observed. Most experts would say they offer significant advantages, due to safer handling characteristics.

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Areas where fwd performance can be compromised while towing are on hill starts, or on wet grass/mud, where it is not uncommon for the front wheels to scabble for grip. However, the majority of more recent cars likely to be chosen as towcars now have traction control systems which largely address these problems.



For caravanning purposes, you can divide four wheel drive (4WD or 4x4) vehicles into three main categories: the true all-terrain vehicles (Range Rover, Discovery, Shogun, Trooper, Landcruiser etc), the 'lifestyle' off roaders, which are lighter and smaller-engined (Suzuki Vitara, Nissan X-Trail, Toyota RAV4, etc), and high-performance road going passenger cars (Audi, Subaru etc). Four wheel drive can either be selectable, just for slippery off-road moments, or permanent, leading to enhanced acceleration and cornering due to improved traction.



Increasing sophistication of the control systems for such transmissions means that many models now have multiple modes of operation, and variable degrees of automatic selection as to which wheel the power is directed. This is one class of vehicle where you should spend some time reading the handbook, if you want to

get the best out of the car. Thankfully, though, the days of being confused over which of the three gear sticks in your new off-roader you need at any particular time have largely disappeared, with most of the selection now being electronically controlled.

Traction control is great, but there is usually a button to turn it off. This is because it works by applying the brake, and sometimes reducing the power, to any drive wheel that's spinning. But in some circumstances (deep mud, or a slippery hill start, perhaps), you need the wheels to spin to let the engine rev high enough to produce enough power to get you moving.



Many caravanners see a 4x4 as the 'ultimate' towcar. Certainly, if you need a heavy car to match a large caravan, then this may be your only option. You might want to hold off from going straight to your nearest 4x4 dealer however, particularly if you passed your driving test anytime after 1st January 1997. If this is the case you can only legally tow an outfit with a combined maximum allowable mass of 3500kg (and the trailer MAM must not exceed the kerb weight of the car) unless you take an additional driving test. Unfortunately many 4x4s will exceed this limit with almost any caravan. For more info have a look at The Caravan Club's leaflet 'Driving Licences in a Nutshell'.

A large 4x4 will almost certainly deliver excellent pulling performance, great hill start ability, and the confidence of always being able to get off a muddy field after a weekend's rain.

Some small 4x4s are less competent, and may not have especially high kerb weights, towing limits or noseweight capabilities. It's worth being aware that just because it's called a 4x4, doesn't necessarily mean it's ideal for towing a large caravan. Of course 4x4s do have their

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disadvantages too. The high running costs (including high fuel consumption) are among the most problematic, while sadly, reliability and refinement cannot always be taken as read, for what are usually premium price vehicles. Interior space is sometimes compromised because you need to leave room for the heavy-duty mechanical bits and pieces. The turning circle is often limited too, making parking more of a challenge than normal.

The sheer size of some of the ‘proper’ off roaders can be a mixed blessing – while many owners like the feeling of safety and security that results from this, you may find you can’t get your new car into your garage.

Towing with an all-terrain vehicle may invalidate some caravan manufacturers’ warranty; you can check this in the caravan manual or by contacting the manufacturer direct.

Al-Ko Kober, one of the most popular caravan chassis manufacturers, issued advice some years ago about towing with an off-road leisure vehicle – in general terms, UK-market caravans are expected to be towed primarily on prepared roads, with a small amount of manoeuvring likely on softer ground such as caravan sites. In these circumstances, the use of leisure type four-wheel drive vehicles (those with car-like suspension) is fine, given usual careful driving. 4x4 versions of conventional passenger cars tend to be relatively heavy compared to their two wheel drive variants, which make them good matches for medium to heavy caravans. They’ll have many of the advantages of bigger 4x4s (improved traction for slippery roads and hill starts), but seldom have the real off-road ability of a true all terrain vehicle, because of limited ground clearance and ‘road’ rather than ‘off-road’ tyres.

## What body style should I choose?

The distance from your towcar’s rear axle to your towball is described as ‘rear overhang’. With towcars a short rear overhang is best. If your car has a long rear overhang, as some large saloons do, you may find you’ll need to use suspension aids to combat your towcar’s depressed rear end. You may also find that you’re pitching and swaying on the roads – ‘a case of the tail wagging the dog’.

Many estate variants have updated, adjustable or even self-levelling suspension to cope with their enhanced load-carrying capacity, and this can also benefit their

towing ability. Self levelling suspension is a great boon, but often a costly option or only found on the higher models. Citroën have been a notable exception to the rule in this regard, and their success over the years at Towcar of the Year must be due in some part to this. The need to add rear suspension aids (see our leaflet on the subject, ‘Rear Suspension Aids’ for more details) is rare these days. The choice between saloon, hatchback or estate will often come down to practicality – if you need to carry more luggage, especially odd shaped items like awning poles, deck chairs and all the other ‘essentials’ we find we need when going on holiday, then generally a hatchback will swallow more than a saloon, and an estate will take more than a hatchback.



‘Multi Purpose Vehicles’ (MPVs or ‘people carriers’) are now very popular. These often have a relatively high kerb weight and short rear overhang, which are great for towing. The high and flexible seating positions and good luggage space are also bonuses while touring or during normal use. You might find that some models are quite low-powered for the size of vehicle, and hence will not be especially lively when loaded or towing. Also, some manufacturers may consider that the high internal load capacity (often 7 people plus luggage) means that a relatively low towing limit and/or noseweight limit is appropriate for the car. Others quote variable limits – i.e. you can carry lots of payload in the car, or tow a heavy caravan, but not do both at once. As always, check in the car handbook before buying.

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## What is noseweight?

Noseweight is the maximum weight your caravan can put on a car's towball, as set by the car manufacturer.

You can measure your caravan noseweight (do this when it's laden) with a noseweight gauge, which you can pick up from an accessory shop for about £15.

It's important to have enough noseweight when you're stationary, research shows that noseweight decreases on the move because of aerodynamic loads on your caravan. This shouldn't cause stability problems provided you have sufficient noseweight to start with.

Car manufacturers quote a maximum permitted noseweight for each car model. Several factors may be taken into account when setting this noseweight figure, including the capabilities of the car's rear suspension, the traction of the car (particularly if front wheel drive) and the strength of the towbar mounting points (see section headed 'Towbars'). Therefore, it is important not to exceed the car manufacturer's recommended noseweight. However, from the caravan point of view, it is recommended that the target noseweight for stability of the outfit when towing is generally found to be approximately 7% of the caravan's actual laden weight (generally between 70 and 100 kg). You can see that those car manufacturers quoting a maximum noseweight of 70 kg or less will restrict the choices of compatible caravans quite considerably. Refer to the tables on pages 16-19 for car noseweights, but it's best to check again before you buy, as these figures are liable to change. If the car dealer seems unsure, ask him to find out! Caravan manufacturers sometimes quote a noseweight limit too – check this is compatible with the 7% recommendation.

## Choosing a towbar

Today's fuel-efficient cars are quite lightly-built and have metal panels designed to crumple in an accident. Attaching a rigid towbar to such a structure, to accept the considerable vertical and horizontal forces from the caravan, is now quite an art. Your car manufacturer will specify at what points the attachment should be made, and often provide pre-drilled and threaded points for the bolts. From 1st August 1998 most new cars have to be fitted with a towbar meeting European Directive 94/20/EC, which should guarantee the towbar's performance.

For older cars it's best to invest a few pounds when buying your towbar, – insist on one which states that the design has been tested to the British (BS AU114) or similar International (ISO3853) Standard. Any claim that a towbar is 'designed to' or 'meets' the Standard is bogus – it must have been tested to the Standard.

The noseweight limit marked on the bracket may sometimes be higher than the noseweight limit for that particular model of car (since the same towbar may be used on a range of vehicle models). Check in the car handbook, and work to the lower of any specified values. You'll find more info on The Caravan Club's website.



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# Go green.....Go caravanning



Touring is a wonderful way to get close to nature and at The Caravan Club we know it's important to ensure that future generations get the same opportunities to enjoy our beautiful countryside. We encourage everyone to tour because it really is one of the greenest options for a holiday!

We recently compared the effect of a caravan touring holiday with plane and coach trips and caravanning came out on top! Touring is far less environmentally damaging.

In a test to find out the petrol consumption of a typical car towing a caravan, (a Ford Focus 1.6 Econetic, towing a five-berth caravan from British maker Lunar Caravans) toured Europe covering over 1,500 miles. After touring 9 countries they discovered that the average consumption was a staggeringly efficient 36 miles per gallon or 7.85 litres per 100km, resulting in a much smaller carbon footprint than going on a fuel guzzling plane or coach!

There are various ways to increase your greenness when choosing your towcar. If you only tow a modest mileage a year, matching a small light caravan to your everyday car will save you money and be far more environmentally friendly than buying a second car or 4x4 for touring.

If you have decided to purchase a towcar specifically for touring it's worth knowing that generally the more modern a car is, the better its emissions, performance and fuel economy will be. Manufacturers are giving more

and more attention to these issues now, and tomorrow's cars will be better still.

You might want to consider alternative fuels. LPG (liquefied petroleum gas) remains a cost-effective way of running a larger-engined car, as the fuel is cheaper than petrol or diesel. If you can find an already-converted secondhand petrol 4x4, it could be a good buy, even for limited mileage use.

Hybrid cars (petrol/electric) are becoming more popular, and cars like the Lexus RX400h are very effective towcars. Their characteristic of lots of torque from an electric motor at low speed is ideally suited to hill starts or pulling away on a slippery field. It's worth checking hybrids for their suitability because some won't be able to tow a caravan. Just bear in mind that matching your towcar to your caravan is all-important and compromising stability and safety isn't an environmentally friendly option.

Of course one of the most important factors to increase greenness is employing some of the following driving techniques as suggested by The Act on CO<sub>2</sub> Campaign:

- Check and adjust your tyre pressures regularly, as under-inflated tyres create more resistance when your car is moving, which means your engine has to work harder, so more fuel is used and more CO<sub>2</sub> emissions are produced.
- Clutter in your boot is extra weight your engine has to lug around. By removing it, you could reduce your engine's workload. This will burn less fuel and cut your

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CO<sub>2</sub> emissions, so unload any items you will not need for your journey before you set out. Similarly, failing to remove a roof rack which is not being used causes unnecessary inefficiency.

- Every time you stop then start again in a traffic queue, the engine uses more fuel and therefore produces more CO<sub>2</sub>. Keep an eye on the traffic ahead and slow down early by gently lifting your foot off the accelerator while keeping the car in gear. In this way, the traffic may have started moving again by the time you approach the vehicle in front, so you can then change gear and be on your way.

- Modern car engines are designed to be efficient from the moment they are switched on, so revving up like a Formula 1 car in pole position only wastes fuel and increases engine wear. Using your gears wisely by changing up a gear a little earlier can also reduce revs. If you drive a diesel car try changing up a gear when the rev counter reaches 2000rpm. For a petrol car try changing up at 2500rpm.

- When the engine is idling you are wasting fuel and adding CO<sub>2</sub> emissions. If you are likely to be at a standstill for more than 3 minutes, simply switch off the engine.

- Try to avoid using your car for short journeys – use public transport, ride a bicycle or walk.

- Plan ahead – choose uncongested routes, combine trips, car share.

- Cold starts – drive off as soon as possible after starting, as it is more efficient to let the engine warm up while driving than on your driveway.

- Drive smoothly and efficiently – harsh acceleration and heavy braking have a very significant effect on fuel consumption. Driving more smoothly saves fuel.

- Slow down – driving at high speeds significantly increases fuel consumption.

- Use higher gears as soon as traffic conditions allow.

- Regular servicing helps keep the engine at best efficiency.

- Check your fuel consumption – it will help you get the most from the car. Changes in overall fuel consumption may indicate a fault.

- Use air-conditioning sparingly – running air-conditioning continuously will increase fuel consumption significantly.

Increasing engine efficiency means that having a large engine is no longer a necessity for an effective towcar. Models such as the VW Golf GT Sport with just a 1.4l



petrol engine, produces 140 or 170 bhp (depending on specification) and 162 or 177lb ft of torque at 1750 or 1500rpm. This kind of output would only have been obtained from a 2.5l engine a few years ago, yet this example will return around 40mpg and CO<sub>2</sub> emissions of around 170g/km. Modern diesels of around 2.0l capacity or perhaps a little less are capable of even better figures. Staying with the Golf GT Sport, the diesel version has a 2.0l engine, again produces either 140 or 170bhp (depending on specification), and 236 or 258lb ft of torque at 1750 or 2000rpm. Better still, fuel consumption is around 50mpg, and CO<sub>2</sub> emissions are around 150g/km. If you want to find the relevant figures for a particular car try the following:

- The car handbook or brochure or manufacturer's website should have all the information.

- For new cars, there should be an environment label (much like those used on fridges and washing machines) which rates the car from 'A' (most green) to 'G' (most polluting), and which gives other facts and figures too. These should be displayed on cars in the showroom, and are often reproduced in promotional brochures and sometimes websites.

- The Government's 'Act on CO<sub>2</sub>' website ([www.dft.gov.uk/ActOnCO2/](http://www.dft.gov.uk/ActOnCO2/)) includes details of the emissions performance of all new cars, as well as tips on choosing and using a car efficiently.

- The Vehicle Certification Agency's website ([www.vacarfueldata.org.uk/](http://www.vacarfueldata.org.uk/)) has a sophisticated search facility covering new cars to enable you to find fuel efficient and/or green vehicles, and also those which fall into specific VED bands etc.

- For older cars, the Society of Motor Manufacturers and Traders has a database of cars from 1997 onwards giving CO<sub>2</sub> figures ([www.smmtc.co.uk/](http://www.smmtc.co.uk/)).

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- An interesting project currently being evaluated by The Club is the 'Ecotest' study run jointly by the German auto club ADAC and the FIA Foundation. See [www.ecotest.eu](http://www.ecotest.eu) for details. This attempts to evaluate a range of efficiency and environmental factors, and to combine them to give a simple 5-star rating assessment used for vehicle safety in the Euro-NCAP test programme.



## Tips on what to avoid

When choosing a towcar it's worth knowing what to avoid and the following short checklist highlights the most important:

- It's best to avoid low-mounted number plates which may force you to choose a more expensive detachable towbar, or risk prosecution if your towball obscures the plate.
- Tailgate mounted spare wheels on 4x4s can make it awkward to hitch and unhitch (especially with a ball-acting stabiliser).
- Large and low tailgates can be obstructed by the caravan hitch – especially side-hinged ones which are occasionally seen on 4x4s.
- If the car is fitted with high intensity gas discharge headlamps, can you readily adjust the beam for continental use yourself, or, will you need to go on expensive trips to the dealer before every holiday? Some are very easy to adjust, others will need to be done by the dealer.

Members of The Caravan Club may receive photocopies of various tried and tested reports and new car tests, featured in the Caravan Club Magazine. If you would like to receive a towcar report or one of the information leaflets mentioned, please send a large (A4) stamped addressed envelope to The Club's Information Department or download a copy from The Club website.



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# Useful Conversions

**POWER** 1bhp = 1.0139 PS (= German Pferde Starke or Horse Power)

1 KW = 1.341 bhp or 1.36 PS

**TORQUE** 1 Nm = 0.737 lb/ft

1 lb/ft = 1.357 Nm

1 Kgm = 7.227 lb/ft

1 Kgm = 9.806 Nm

## FUEL CONSUMPTION

Litres per 100 km =  $\frac{282.47}{\text{mpg}}$  1 litre = 0.22 gal

Mpg =  $\frac{282.47}{1/100\text{km}}$  50 litres = 11 gal

**SPEEDOMETER CHECK** 1 Km, or 10 marker posts on a motorway, should take 55.9 seconds at 40 mph, 44.7 seconds at 50 mph and 37.3 seconds at 60 mph. Preferably measure over a longer distance.

**MILEOMETER CHECK** 1 Km (10 marker posts) equals 0.6214 miles. At least 10 Km is needed for any reasonable verification.

To help you with your selection the list below suggests a target minimum engine power to aim for in relation to train weight. The first column shows car kerb weights, the second a caravan weighing 85% of that kerb weight, and the third the bhp of a car's engine that will be needed to produce 40 bhp/tonne of train weight. Obviously a heavier caravan affects these figures.

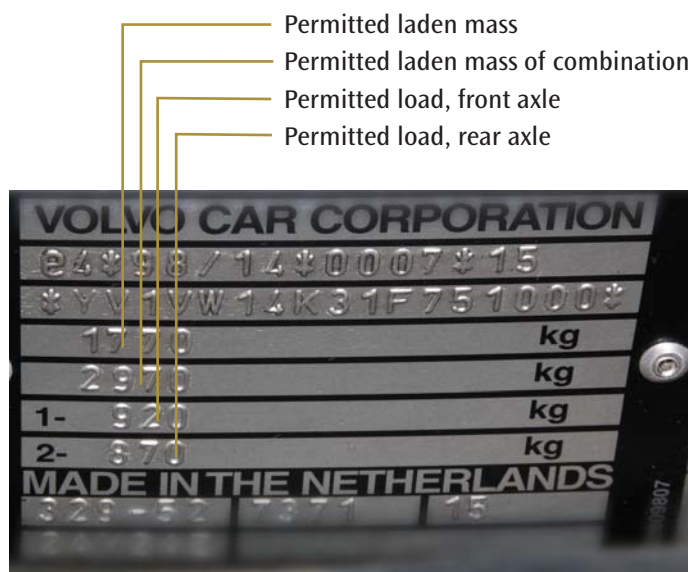
## Weight Guide using Ford/Land Rover 2007 Vehicles spec as examples

	Kerb weight Kg (cwt)
Fiesta 1.4i 3 door	1102 (21.7)
Focus 1.8i 5 door	1307 (25.7)
Mondeo 2.0TDCi 5 door	1559 (30.7)
S-Max 2.0TDCi 5 door (MPV)	1724 (33.9)
Galaxy 2.0TDCi 5 door (MPV)	1799 (35.4)
Freelander2 2.2 TD4 (4x4)	1770 (34.8)
Discovery3 2.7 TDV6 (4x4)	2494 (49.1)
Range Rover 3.6 TDV8 (4x4)	2710 (53.3)

## Power to Weight Ratio Calculations

Car Kerb weight kg (cwt)	Caravan 85% KW kg (cwt)	Minimum quoted engine bhp required
900 (17.7)	765 (15.0)	64
1000 (19.7)	850 (16.7)	73
1100 (21.6)	935 (18.4)	80
1200 (23.6)	1020 (20.0)	87
1300 (25.6)	1105 (21.8)	95
1400 (27.6)	1190 (23.4)	102
1500 (29.6)	1275 (25.0)	109
1600 (31.5)	1360 (26.8)	117
1700 (33.5)	1445 (28.4)	124
1800 (35.4)	1530 (30.1)	131
1900 (37.4)	1615 (31.8)	138
2000 (39.4)	1700 (33.5)	146
2100 (41.3)	1785 (35.1)	153
2200 (43.3)	1870 (36.8)	160
2300 (45.3)	1955 (38.5)	168
2400 (47.2)	2040 (40.1)	175
2500 (49.2)	2125 (41.8)	182
2600 (51.2)	2210 (43.5)	189
2700 (53.1)	2295 (45.2)	197

Remember, you will usually be using the car in a loaded condition and you should take this into account when working out bhp requirements. However, when considering two or more cars for their suitability, a simplistic comparison using just the car's kerb weight, as shown above, is valid to help you make the best choice.



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# Glossary

## The Caravan:

### Ex Works Weight (Unladen Weight)

The weight of the caravan as new with standard fixtures and fittings as stated by the caravan manufacturer.  
(NB: Because of the differences in the weight of materials supplied for construction of caravans, and moisture retention, variations of  $\pm 5\%$  of the manufacturer's figure can be expected, usually '+').

### Actual Laden Weight

The total weight of the caravan and its contents when being towed.

### Maximum Authorised Weight (Maximum Gross Weight)

The maximum weight for which the caravan is designed for normal use when being towed on a road laden and this must never be exceeded.

### Maximum Technically Permissible Laden Mass

As stated by the vehicle manufacturer. This mass takes into account specific operating conditions including factors such as the strength of materials, loading capacity of the tyres etc.

### Mass in Running Order

Mass of the caravan equipped to the manufacturer's standard specification.

### User Payload

The difference between the Maximum Technically Permissible Laden Mass and the Mass in Running Order. Payload includes essential habitation equipment, personal effects and optional equipment.

### Essential Habitation Equipment

Those items and fluids required for the safe and proper functioning of the equipment for habitation as defined by the manufacturer of the caravan.

### Personal Effects

Those items which a user can choose to carry in a caravan and which are not included as essential habitation equipment or optional equipment.

### Optional Equipment

Items made available by the manufacturer over and above the standard specification for the caravan.

### Noseweight

Static vertical load. That part of the weight of the caravan supported by the rear of the towing vehicle.

## The Towing Vehicle:

### Kerb Weight

There are two definitions for towing vehicle kerb weight. These are:

1. As defined in the Vehicle (Construction and Use Regulations 1986:

The weight of the towing vehicle as it leaves the manufacturer with a full tank of fuel, adequate fluids for normal operation (lubricants, oils, water etc) and its standard set of tools and equipment. It does not include the weight of the driver, occupants or load.

2. As defined by EU Directive 95/48/EC (issued in September 1995):

The weight of the vehicle as it leaves the manufacturer with its fuel tank 90% full, all the necessary fluids for normal operation (lubricants, oils, water etc), a nominal driver weight of 68kg and 7kg of luggage.

Vehicle manufacturers will tend to use the second definition in official documentation, since this is the one required by the regulations they have to meet to sell the vehicle Europe-wide. In publicity material and handbook, however, either definition may be found, although the first one is expected to gradually disappear.

### Towing Limit (braked trailer)

A statement by the manufacturer giving the maximum weight of braked trailer the car will tow, when restarting on a gradient of, usually, 1 in 8.

### Gross Vehicle Weight

The weight of the vehicle laden to its maximum, as defined by the vehicle manufacturer.

### Gross Train Weight

Often the Gross Vehicle Weight plus the Towing Limit, but check the vehicle handbook.

### VIN plate

Vehicle Identification Number Plate.

### Outfit Weight Ratio

The Actual Laden Weight expressed as a percentage of the Kerb Weight, ie:  $\frac{ALW}{KW} \times 100$

### Conversion

Kilograms divided by 50.8 = cwt

Kilograms multiplied by 2.2046 = lbs

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# Noseweight Limits October 2008

CAR	llb	Kgs
Alfa Romeo 3/145/146/Spider/GTV	110	50
Alfa Romeo 75/156/147/166	132	60
Alfa Romeo 164 2.0 Twin Spark	132	60
Alfa Romeo 164 3.0 V6	143	65
Alfa Romeo Sport wagon	132	60
Alfa Romeo 155 1.8 Twin Spark	200	90
Alfa Romeo 155 2.0 TS/2.5 V6	210	95
Alfa Romeo 155 Turbo 4X4	215	105
Asia Rocsta	110	50
Audi 80/90/Coupe/Convertible	110	50
Audi 100/200 (2WD)	110	50
Audi Quattro/Cabriolet	110	50
Audi 100/200 (4WD)	165	75
Audi S4/A3/A8	165	75
Audi A4	175	80
Audi A6 Avant & Saloon – pre 1997	110	50
Audi A6 Quattro – pre 1996	165	75
Audi A6 Avant, A6 Quattro/Saloon -1997 model onwards	187	85
Audi Allroad	210	95
Audi Avant/V8	165	75
Audi Q7 5 Seat	309	140
Audi Q7 6/7 seat	286	130
BMW 500 series Tourer – 1999 model onwards	200	90
BMW 530M Sport Tourer	175	80
BMW X5	245	120
BMW X3 2.5i/3.0i	165	75
BMW X3 2.0d/3.0d/2.0i	175	80
BMW 1 Series	165	75
Mini	165	75
BMW 330 Diesel – 2002 onwards	165	75
BMW 7 Series – all models	225	100
BMW all other versions are usually between 50-75 kgs. Consult dealer		
Chevrolet/Daewoo Tacuma/Nubira/Lacetti	165	75
Chevrolet/Daewoo Korando/Musso	309	140
Chevrolet/Daewoo Kalos	110	50
Chevrolet/Daewoo all other models except Matiz	165	75
Chevrolet Captiva	175	80
Chrysler Neon (Auto 55lbs/25kgs)	110	50
Chrysler PT Cruiser	110	50
Chrysler 300C 3.0 Diesel	225	100
Chrysler 300C 3.5 V6/5.7 V8	187	85
Chrysler Sebring	110	50
Chrysler Voyager/Grand Voyager/Captiva	175	80
Citroen Xantia Saloon 1.6i/1.8i/2.0i/1.9D/1.9TD	165	75
Citroen Xantia saloon 1.8i 16v/2.0i 16v/Turbo CT/2.1 TD/2.0i Turbo/3.0i V6/HDi	187	85
Citroen Xantia estate – all models	187	85
Citroen Saxo	110	50
Citroen Visa/AX10/AX11	99	45
Citroen AX14/GT/Gti/Diesel	110	50

Citroen BX14/Synergie	132	60
Citroen BX16/17/19	154	70
Citroen ZX/Xsara/Berlingo	154	70
Citroen CX/ C-Crosser	220	100
Citroen C5 Estate/Hatchback	165	75
Citroen C3 1.1i	84	38
Citroen C3 1.4i/1.4Hdi 16V	104	47
Citroen C3 1.4 auto/1.4 &1.616V	106	48
Citroen C3 Pluriel	75	34
Citroen C4 1.4i 16V	139	63
Citroen C4 1.6 Hdi 16V 110bhp/ 1.6 Hdi 16V 92bhp	146	66
Citroen C4 1.6i 16V	135	61
Citroen C4 1.6i 16V Auto	137	62
Citroen C4 2.0 Hdi 16V 138bhp	161	73
Citroen C4 2.0 Hdi 138bhp Auto	154	70
Citroen C4 Picasso/Grand Picasso	225	100
Citroen C6 – all models	154	70
Citroen C8	168	76
Citroen XM	243	110
Citroen XM Estate/Xsara Picasso	175	80
Citroen Berlingo Multispace – 1.6i 90 bhp	110	50
Citroen Berlingo Multispace – 1.6i 110bhp	121	55
Citroen Berlingo Multispace – 1.6Hdi 75bhp	110	50
Citroen Berlingo Multispace – 1.6Hdi 90bhp/110bhp	121	55
Daewoo – see Chevrolet		
Daihatsu/YRV	110	50
Daihatsu Terios	132	60
Daihatsu Fourtrak/Sportrak	165	75
Daihatsu Fourtrak S73 range- from chassis no. 502755	225	100
Daihatsu Fourtrak S78 range – from chassis no. 504940	225	100
Fiat Coupe	176	80
Fiat Marea/Multipla	154	70
Fiat Panda/Uno 45/60/1.0ie/1.1ie	123	56
Fiat Uno 70/1.4ie/Diesel	139	63
Fiat Uno Turbo /Punto/Brava/Bravo	154	70
Fiat Tipo 1.4ie/1.6ie/1.7D	170	77
Fiat Tipo 1.8ie/2.0ie/16V/1.9TD	185	84
Fiat Tempra	165	75
Fiat Stilo/Stilo Multiwagon	132	60
Fiat Croma – pre 1995	185	84
Fiat Croma – post 2005	154	70
Fiat Ulysee – pre Feb 2003	132	60
Fiat Ulysee – post Feb 2003	168	76
Fiat Stilo/Doblo/Idea	132	60
Fiat Sedici – All models	110	50
Ford Escort/Orion	110	50
Ford Granada/Scorpio/Mondeo	165	75
Ford Cougar/Probe	165	75
Ford Galaxy pre 2006	187	85
Ford Galaxy 2006-June 2008	175	80
Ford Sierra/Fiesta/Fusion	110	50
Ford Focus – pre Jan 01	110	50
Ford Focus – post Jan 01	165	75
Ford Focus C-Max/Titanium/S-Max	165	75

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Ford Mondeo/ S-Max 2007	175	80
Ford Mondeo/S-Max/Galaxy from Jun '08	198	90
Ford Kuga	215	105
Ford Maverick/Explorer	225	100
FSO – All Models	110	50
Honda Civic- pre 06/CRX/Concerto/Integra	110	50
Honda Civic post 06	165	75
Honda CR-V (Manual) – pre 02	154	70
Honda CR-V (Auto) – pre 02	110	50
Honda CR-V (all models) – 2002-2004	132	60
Honda CR-V (all models) from 2005	225	100
Honda FR-V (all models)	200	90
Honda HR-V/Stream/Jazz	132	60
Honda Prelude/Shuttle	110	50
Honda Accord 2.0 4dr Saloon 1990-98	110	50
Honda Accord 2.2 4dr saloon 1990-93	154	70
Honda Accord 2.2 4dr saloon 1994-98	110	50
Honda Accord 1.8/2.0/2.2 saloon 1999-May 2003	132	60
Honda Accord Coupe 2.0i 1992-93	110	50
Honda Accord Coupe 2.0i 1994-May 2003	110	50
Honda Accord Coupe 2.2i 1990-97	154	70
Honda Accord Coupe 3.0 1998-May 03	154	70
Honda Accord Aerodeck 1986-88	110	50
Honda Accord Aerodeck 1991-93	154	70
Honda Accord Aerodeck 1994-97	110	50
Honda Accord May 03 onwards all models	165	75
Honda Legend – pre 1991	110	50
Honda Legend – post 1991	154	70
Hyundai Sonata 1994 onwards	165	75
Hyundai Lantra saloon	110	50
Hyundai Lantra Estate	143	65
Hyundai Matrix	115	52
Hyundai Accent	110	50
Hyundai Santa Fe 2.0TD/2.4	175	80
Hyundai Santa Fe V6 2.7	203	92
Hyundai Santa Fe 2.2CRDT manual	194	88
Hyundai Santa Fe 2.2CRDT auto	175	80
Hyundai Elantra 1.6Si 5dr/1.6Gsi 5dr / 2.0 CDX 5dr	132	60
Hyundai Elantra 1.6 Gsi 4dr/ 2.0 CDX 4dr pre Feb '04	143	65
Hyundai Elantra 2.0 CRTD CDX post Feb '04	132	60
Hyundai Terracan	254	115
Hyundai Tucson	165	75
Hyundai Trajet 2.0 GSI	165	75
Hyundai Trajet 2.0 CRDT GSI/2.7 V6	175	80
Hyundai Trajet 2.0 GSI from '06	159	72
Hyundai Trajet 2.0 GSI CRTD manual	137	62
Hyundai Trajet 2.0 GSI CRTD auto	128	58
Hyundai i30 1.4/1.6 petrol	121	55
Hyundai i30 1.6/2.0 CRDi	165	75
Hyundai Coupe 1.6	143	65
Hyundai Coupe 2.0/XG/Trajet	165	75
Isuzu Trooper 2.6 petrol/2.8 diesel	240	110
Isuzu Trooper 3.2 petrol/3.1 diesel/Isuzu Rodeo Denver	265	120
Jaguar XJ6 '95 onwards	171	76
Jaguar X-Type/S-Type	165	75

Jaguar (all other models)	110	50
Jeep/Ranger/Cherokee 1993	200	90
Jeep/Ranger/Cherokee '94 onwards	225	100
Jeep Cherokee 2.8 2005	309	140
Jeep Wrangler'93	175	80
Jeep Wrangler '94 onwards	225	100
Jeep Grand Cherokee 2.5 '96-'98	245	120
Jeep Grand Cherokee 4.0 '96-'98	309	140
Jeep Grand Cherokee '99 onwards	309	140
Jeep Patriot	165	75
Kia Sportage pre '05	154	70
Kia Sportage post '05	165	75
Kia Shuma/Mentor	154	70
Kia Rio	97	44
Kia Sorento pre '07	247	112
Kia Sorento post '07 2.5 CRDi manual	245	120
Kia Sorento 2.5 CRDi auto/3.3 petrol	309	140
Kia Cerato	108	48
Kia Clarus/Magentis	165	75
Kia Sedona- pre 2008	175	80
Kia Sedona – post 2008	187	85
Kia Pride/Carens pre '06	110	50
Kia Carens post '06	165	75
Kia C'eed 1.4/1.6 petrol	121	55
Kia C'eed 1.6 diesel	165	75
Lada – all models	105	48
Lancia Y10 Fire/LX	123	56
Lancia Y10 GT	139	63
Lancia Delta – all versions	154	70
Lancia Thema – all versions	198	90
Land Rover/Range Rover/Discovery	165	75#
Range Rover/Discovery '95 onwards	330	150
Land Rover Freelander	309	140
Land Rover Freelander 2/ Defender	330	150
Lexus IS200/LS400	165	75
Lexus IS300/IS300 Sportcross	165	75
Lexus RX300	175	80
Lexus GS300	187	85
Mazda 323/2	110	50
Mazda Premacy – pre March 2002	110	50
Mazda Premacy – post March 2002	110	50
Mazda MPV	187	85
Mazda Tribute 3/5/6/ RX-8	165	75
Mazda (all other models)	165	75
Mercedes A-Class pre 2008	110	50
Mercedes A-Class post 2008	154	70
Mercedes B-Class	165	75
Mercedes C-Class	165	75
Mercedes CLC Class Coupe	n/a	n/a
Mercedes E-Class saloon	168	76
Mercedes E-Class Estate	185	84
Mercedes M-Class	298	135
Mercedes R-Class	187	85
Mercedes S-Class	187	85
Mercedes V-Class	165	75
Mercedes Vaneo	165	75
Mercedes Viano	221	100
Mercedes – all other models	165	75
Mitsubishi Lancer Est 1500/1800	110	50
Mitsubishi Lancer Liftback 1600/1800 '93 –'07	165	75

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Mitsubishi Lancer -'08 all models -manual	132	60
Mitsubishi Lancer – '08 all models- auto	110	50
Mitsubishi Colt 1300/1600/1800 '92 onwards	165	75
Mitsubishi Galant 1800/2000/2000 V6/2500 V6 '93 onwards	165	75
Mitsubishi Colt 1.5 DI-D Equippe	110	50
Mitsubishi Space Wagon/Runner post'91	165	75
Mitsubishi Carisma/Space Star	165	75
Mitsubishi Sigma saloon '91 onwards	165	75
Mitsubishi Sigma estate '93 onwards	165	75
Mitsubishi Shogun '89 onwards	254	115
Mitsubishi Shogun Pinin	165	75
Mitsubishi Outlander pre '07	165	75
Mitsubishi Outlander post '07	225	100
Mitsubishi Grandis	187	85
Mitsubishi L200	225	100
Mitsubishi Challenger	254	115
Nissan Micra/Bluebird/1989 Prairie	110	50
Nissan Sunny/Primera/Maxima QX/Prairie '90 onwards	165	75
Nissan 1000NX/200SX/300ZX/QX/Almera/Almera Tino	165	75
Nissan Serena pre '95	110	50
Nissan Serena post '95	165	75
Nissan X-Trail 2.0	165	75
Nissan X-Trail 2.2 TD	225	100
Nissan X-Trail 2.5 SVE manual	225	100
Nissan X-Trail 2.5 SVE auto	165	75
Nissan X-Trail '08 2.0 Trek petrol	165	75
Nissan X-Trail '08 2.5 petrol 6-speed Sport/Adventura manual	225	100
Nissan X-Trail '08 2.5 petrol 6-speed Sport/ Adventura CVT	165	75
Nissan X-Trail '08 2.0 dCi 6-speed Trek/Sport/Adventura manual	225	100
Nissan X-Trail '08 2.0 dCi 6-speed Sport/Adventura auto	165	75
Nissan Pathfinder	264	120
Nissan Navara Outlaw/Adventura	229	104
Nissan Qashqai	165	75
Nissan Patrol manual	309	140
Nissan Patrol auto	225	100
Nissan Terrano/Murano	225	100
Nissan Note – all models	110	50
Peugeot 1007 – all models	88	40
Peugeot 206 1.4 16V/1.6 Hdi 110	79	36
Peugeot 206 all other models	110	50
Peugeot 206 SW 1.1	62	28
Peugeot 206 SW 1.4 16V	79	36
Peugeot 206 SW all other models	97	44
Peugeot 206 Coupe Cabriolet 2.0 Hdi 110	99	45
Peugeot 206 Coupe Cabriolet all other models	110	50
Peugeot 207 1.4 8V 75 bhp	84	38
Peugeot 207 all other models	101	46
Peugeot 106/205/306/309	110	50
Peugeot 305/806	132	60
Peugeot 307 hatchback – all models	132	60
Peugeot 307 estate 1.4/1.6/1.4Hdi	132	60
Peugeot 307 estate 2.0/2.0 90 Hdi/2.0 110 Hdi	159	72

Peugeot 307 SW 2.0/1.6/2.0 90 Hdi/2.0 110 Hdi	132	60
Peugeot 308 2.0 Turbo HDi 16V 136bhp	150	68
Peugeot 308 2.0 Turbo Hdi 16V 136bhp auto	146	66
Peugeot 308 1.6 Turbo 16V 90/110bhp	135	61
Peugeot 308 1.6 THP 16V 150bhp	146	66
Peugeot 308 1.6 Vti 16V 120bhp	168	76
Peugeot 308 1.6 Vti 16V 120bhp auto	135	61
Peugeot 308 1.4 16V 95bhp	128	58
Peugeot 405 Saloon/Estate	143	65
Peugeot 406 – all models	175	80
Peugeot 407 1.8/2.0/2.0 auto/2.2/2.2 auto/3.0 V6 auto/Hdi 110/Hdi 136	132	60
Peugeot 407 2.0HDI 136 bhp	110	50
Peugeot 4007 Hdi 156	225	100
Peugeot 505 saloon	175	80
Peugeot 505 estate	200	90
Peugeot 605 manual	175	80
Peugeot 605 auto	165	75
Peugeot 807	168	76
Peugeot 607	159	72
Peugeot Partner Combi	154	70
Proton	110	50
Renault 5/9/11/21/Savanna	110	50
Renault Espace pre '97 model	110	50
Renault Espace 2.0 '97-'03	175	80
Renault Espace V6 /2.2TD '97-'03	187	85
Renault Espace '03 onwards	175	80
Renault Espace 4X4	165	75
Renault Grand Espace	175	80
Renault Laguna Family Estate	110	50
Renault Laguna- all models	165	75
Renault Clio	123	56
Renault 19	143	65
Renault Safrane	185	84
Renault Megane/25	165	75
Renault Megane Scenic – pre '01	165	75
Renault Megane Scenic – post '01 to '03	165	75
Renault Megane Scenic – post '03	165	75
Renault Scenic RX4	143	65
Renault Grand Scenic	165	75
Renault Vel Satis/Avantime	165	75
Rover Metro May '90 onwards	110	50
Rover Maestro/Montego – pre Oct '93	99	45
*Rover Maestro/Montego – post Oct '93	154	70
Rover 200/400 – pre Oct '92	110	50
Rover 200/400 – post Oct '92	154	70
Rover 25/Streetwise	154	70
Rover 45/MG/ZS	154	70
Rover 600/MG/ZR	154	70
Rover 800- pre Nov '91	110	50
Rover 800 – post Nov '91	154	70
Rover 75/MG ZT/MG ZT-T	225	100
Rover Mini	165	75
Saab – all models	165	75
Seat Toledo/Altea	165	75
Seat Alhambra	187	85
Seat Leon	165	75
Seat – all other models	110	50

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Skoda Octavia 1.6 Lxi pre Jun'04	110	50
Skoda Octavia 1.6 GLXi/1.9 Tdi GLX/1.8 SLXi/1.9 Tdi SLX pre Jun'04	132	60
Skoda Octavia post Jun'04	165	75
Skoda Octavia 4X4 5dr	132	60
Skoda Octavia 4X4 Estate	165	75
Skoda Fabia	110	50
Skoda Superb	165	75
Skoda Roomster	110	50
Skoda – all other models	90	40
Ssangyong Rexton/Rodius	309	140
Ssangyong Kyron	257	117
Subaru L Series models	154	70
Subaru Legacy – pre '04	165	75
Subaru Legacy/Legacy Outback post '04	180	82
Subaru Justy	110	50
Subaru Forester/Impreza	165	75
Subaru B9 Tribeca – all models	175	80
Suzuki X90	121	55
Suzuki Vitara V6 'facelift' version pre '08	165	75
Suzuki Vitara TD (intercooled) pre '08	165	75
Suzuki Grand Vitara pre '08	165	75
Suzuki Vitara/Grand Vitara post '08	187	85
Suzuki Baleno Estate	165	75
Suzuki Liana/Jimney	165	75
Suzuki SX4 – all models	110	50
Suzuki – all other models	110	50
Tata Safari	200	90
Tata – all other models	112	51
Toyota Spacecruiser	110	50
Toyota Picnic	132	60
Toyota Colorado pre 2003	286	130
Toyota Amazon post 2003	309	140
Toyota Rav4	165	75
Toyota Rav4 post 2006 diesel	187	85
Toyota Rav4 post 2006 petrol	146	65
Toyota Landcruiser SWB pre 2003	264	120
Toyota Landcruiser LWB pre 2003	330	150
Toyota Landcruiser post 2003	225	100
Toyota Avensis post 2002	165	75
Toyota Avensis pre 2002	115	52
Toyota Avensis post '03 VVTi & D4-D	165	75
Toyota Avensis Verso	165	75
Toyota Corolla pre 2005	122	55
Toyota Corolla post 2005	165	75
Toyota Corolla Verso pre '04 petrol	110	50
Toyota Corolla Verso pre '04 diesel	122	55
Toyota Corolla Verso post 2004	115	52
Toyota Previa pre July 2000	165	75
Toyota Previa post July 2000	143	65
Toyota Auris	132	60
Toyota – Prius	n/a	n/a
Vauxhall Astra convertible	n/a	n/a
Vauxhall Corsa/Nova	110	50
Vauxhall Meriva – pre 2008	110	50
Vauxhall Meriva – 1.8 16V models	110	50
Vauxhall Meriva – all other models	121	55
Vauxhall Astra/Cavalier/Zafira	165	75
Vauxhall Omega/Vectra pre '07/Sintra	165	75
Vauxhall Vectra post '07 Hatch	172	78
Vauxhall Vectra post '07 Estate	187	85

Vauxhall Monterey	245	120
Vauxhall Calibra/Carlton/Senator	165	75
Vauxhall Signum	172	78
Vauxhall Frontera Estate – pre '97	165	75
Vauxhall Frontera Estate – post '97	247	112
Vauxhall Frontera Sport – pre '99	165	75
Vauxhall Frontera Sport – post '99	212	99
Vauxhall Antara – all models	175	80
VW Polo/Caddy/Scirocco/Vento/Lupo	110	50
VW Corrado/2-wheel drive	110	50
VW Golf 2-wheel drive pre Mk IV	110	50
VW Golf 2-wheel drive Mk IV	165	75
VW Golf/Jetta/Syncro	165	75
VW Golf Plus – all models	187	85
VW Bora/Beetle/Touran	165	75
VW Sharan	187	85
VW Passat 1983-1988	165	75
VW Passat 1988-2001	187	85
VW Passat Estate/ Syncro pre 2002	187	85
VW Passat Saloon '02-'08	165	75
VW Passat V6 4Motion/S/SE/Sport 1.9 TDI PD 130bhp Estate '02-'08	187	85
VW Passat – all models post 2008	200	90
VW Passat all other Estates post 2002	187	85
VW Phaeton/Caravelle T4/T5	221	100
VW Transporter Shuttle 4Motion	221	100
VW Touareg	309	140
VW Tiguan	221	100
VW Caddy Maxi Life – all models	175	80
Volvo 200/700/850/900/S40/V40/C30	165	75
Volvo 340 auto	99	45
Volvo 300/360 series	110	50
Volvo XC90	200	90
Volvo 440/460/S70/V70/C70	165	75
Volvo XC70 pre 2008	165	75
Volvo XC70 post 2008	187	85
Volvo 480/S90/V90/S80/S60/V50	165	75
Volvo Cross Country	165	75

Although the information is believed to be correct at the date of publication, The Club cannot guarantee their accuracy. If in any doubt, the figures should be confirmed with the vehicle manufacturer.

* Providing Rover approved Brink towing bracket is fitted.		
# or 150kg if 1995 towbar is fitted.		