RMS
TRAINING & RECRUITMENT

TOWING A TRAILER OR CARAVAN

Your Guide to
Loading, Towing and Reversing a Caravan or Trailer

An easy to read guide!

This guide will provide you with a better understanding of how to load, tow and reverse your caravan or trailer!

Table of Contents

1.0 Introduction to RMS Training & Recruitment.

Welcome to RMS Training and Recruitment. RMS is an accredited RTO (Registered Training Organisation) 51105 that specialises in many aspects of training across various disciplines. Training provided by RMS encompasses all aspects of mining production, civil construction, transport and logistics including specifics in medical and rescue type training courses.

RMS was founded in 2000 by Graeme and Merryn Richards. Graeme and Merryn are hands on owners of RMS and both have a long history in the mining, construction and transport industries including Merryn's background in medical and emergency response sectors.

Graeme, a registered mining manager has been involved in mining transport and construction industries for most of his working life. Having owned and operated large transport fleets, construction and heavy equipment fleets.

Merryn has a background in medical services including emergency response, road trauma and associated care. Merryn spent several years in the role of occupational health services manager for a global mining company within the gold and nickel industries

Together, Graeme and Merryn have worked side by side within RMS for the past 18 years and have developed a series of training plans and outcomes directed towards accreditation compliance for specific tasks as well as developing specific non-accredited courses or information guides to allow for upskilling in areas such as heavy equipment operation, mining and construction, transport, driver education, and similar.

RMS differ in many areas to other training organisations in that the company focus is placed on the outcomes and achievements of the individual completing the training. RMS focus on lower classroom numbers for all courses to ensure a more personalised outcome for the individuals.

One of the key drivers of RMS as a company is to develop all its own materials based on research and, based on the knowledge of the owners and staff within the organisation.

From this, RMS develop accredited and or non-accredited type course or information guides to suit a specific requirement. As an example, a training course or information guide may be developed to suit a new type of construction motor grader or to reduce accidents in the areas of heavy transport operation or to enhance the skills of individuals that operate 400 to 800-tonne hydraulic mining shovels and similar.

RMS is a services type company and as such, was established to provide a service to its respective clients. Providing a quality service that has an acknowledged outcome is the foundation of RMS.

Being honest in our dealings and being available to answer questions and assist in helping the customer or client find the right solution for them is what sets RMS aside from the others.

We trust you will enjoy your time with RMS Training and Recruitment and look forward to hearing of the outcomes you achieve during your time with RMS.

Graeme Richards (Author)

Group Operations Manager
RMS Training & Recruitment

1.1 Introduction to loading, towing and reversing.

The information provided in this guide is not based on any specific qualification or recognised training outcome. The information contained in this guide is aligned (in part) to the standards set down by various government bodies that control and police our public road systems. Part 3 of this course whilst not directly aligned to a national qualification, does provide an assessment pathway for the participants that progress and complete Part 3 practical section.

The intent for RMS is to provide you with the following outcomes (skills or knowledge or both) for loading, towing and reversing a trailer or caravan with a light vehicle. This may include but will not be limited to:

- Understanding the towing capacity of your vehicle.
- Understanding ball weights and what they mean to you.
- Understanding how to connect your vehicle to the trailer or caravan.
- Understanding how to set up and use anti sway systems.
- Understanding how to load the trailer/caravan to comply with ball weights of the tow vehicle.
- Knowledge on how to tow the trailer or caravan.
- What is the correct speed for towing.
- Electric braking systems and their function.
- Mechanical braking systems and their function.
- What happens when you apply the brakes harshly.
- Knowledge on how to reverse the trailer or caravan.
- Knowledge on how to position the trailer or caravan into an allocated park area.
- Pre-inspection of your tow vehicle and caravan or trailer.

Note the caravan shape whereby the aerodynamics of the caravan are almost opposite to what they are today.

1.2 Towing capacity of your vehicle.

We all have different preferences for the vehicles we use in our daily lives. Some people are dedicated to only one brand and will only consider buying a Ford, Holden, Toyota or similar whilst others don't care who made the vehicle and consider other factors such as price, comfort and colour.

Regardless of preferences with vehicles, the one key factor we do need to consider is the rated towing capacity of that vehicle and more importantly, is it suitable to tow your caravan or trailer.
To maintain simplicity, let's look at some of the common vehicles that are used to tow caravans and trailers in Australia.

In no specific order, we will look at a small example of the following 4x4 version tow vehicles:

- Holden Colorado.
- Mitsubishi Pajero.
- Toyota Landcruiser.
- Ford Ranger.
- Toyota Prado.
- Toyota Hilux.
- Nissan Patrol.

Point to consider: if you tow with a vehicle that is not compliant (i.e. has less capacity than what is recommended) your insurer will not pay for any damage to the tow vehicle or caravan if an accident occurs.

Equally, if an accident occurs because of your vehicle losing control whereby your vehicle was not compliant due to less than required towing capacity, then it could be that you may face criminal charges for any personal injury sustained as a direct result of an accident due to an inadequate tow vehicle.

First thing you need to consider is what rated capacity does your tow vehicle need to be to meet the required compliance standards for towing your caravan or trailer.

If solely relying on the dealer that sold you the vehicle to provide that information, then you would be well advised to seek advice from a third party to ensure the information you have been given is true and correct.

Many caravan, trailer and car dealers/suppliers lack the required knowledge regarding towing compliance. If unsure, seek additional information from a third party or check online with the vehicle manufacturer or NRMA or RAC or similar.

The following vehicles have a rated towing capacity of:

- Holden Colorado 350kg ball rating
- Mitsubishi Pajero 250kg ball rating
- Toyota Landcruiser 350kg ball rating
- Ford Ranger 350kg ball rating
- Toyota Prado 250kg ball rating
- Toyota Hilux 250kg ball rating
- Nissan Patrol 350kg ball rating

Some may find the above ball rating figures different to what they have been told previously, if that is the case, have a look on Google, type in ball weights for towing vehicles (and your vehicle type) and ask the questions yourself.

What you may find is variations. For example, if you drive a Pajero or Prado with a rated ball capacity of 250kg, you may find that you are able to increase that ball rating to 300kg.

To quote an extract from AuotNews April 2011: Industry website AutoNews reports that Mitsubishis Triton Single Cab and Dual Cab models and Challenger have increased their towing capacity to three-tonnes and their tow ball download has been increased to 300kg.

These increases were made following structural, engine and transmission cooling and stability assessments and confirmation, Mitsubishi says.

The Pajero has a maximum towing capacity of three-tonnes and a maximum tow ball download of 180kg. However, when towing at 2500kg or less the maximum tow ball download increases to 250kg, Mitsubishi says.

Mitsubishi says that while some competitors may lay claim to matching the towing capacities of the Pajero, Challenger and Triton, it all comes down to a viable payload capacity. Mitsubishi says this is particularly true in the 4x4 utility segment.

It is mentioned that there are concerns about the proposition of a 180kg ball weight while towing a 3000kg trailer, boat or caravan. Whilst it can be done, the driver is the one that will ultimately take responsibility for any failures during the towing process. To allow additional tow weight, your caravan or trailer would have to be loaded with more weight being placed to the rear of centre of the axle group. This would (in most cases) reduce the ball weight but inevitably increase the likely hood of the trailer or caravan being unstable under tow, especially at higher speeds.

The vehicle you choose will need to have sufficient capacity to tow the caravan or trailer of your choosing. It would be pointless to put a tow bar on a Hyundai Getz and then attempt to tow a 25-foot caravan. If you did that, I think anyone with half an idea would probably tell you that your mad for even considering the idea.

If you agree that using a Hyundai Getz to tow a 25-foot caravan is a poor choice, bit like the donkey on the left, then you must also consider the viability of all tow vehicles regardless of their size or appearance.

It is up to you to choose a vehicle that suits your daily drive needs but also complies with the legal towing standards of the caravan or trailer you intend to tow.

Many of us would prefer a daily drive car that is economical to run, easy to park and possibly fun to drive but just because we would like a car like this does not mean you can bolt a tow bar to that same car and head off down the road with a 2.8 tonne caravan or trailer behind you.

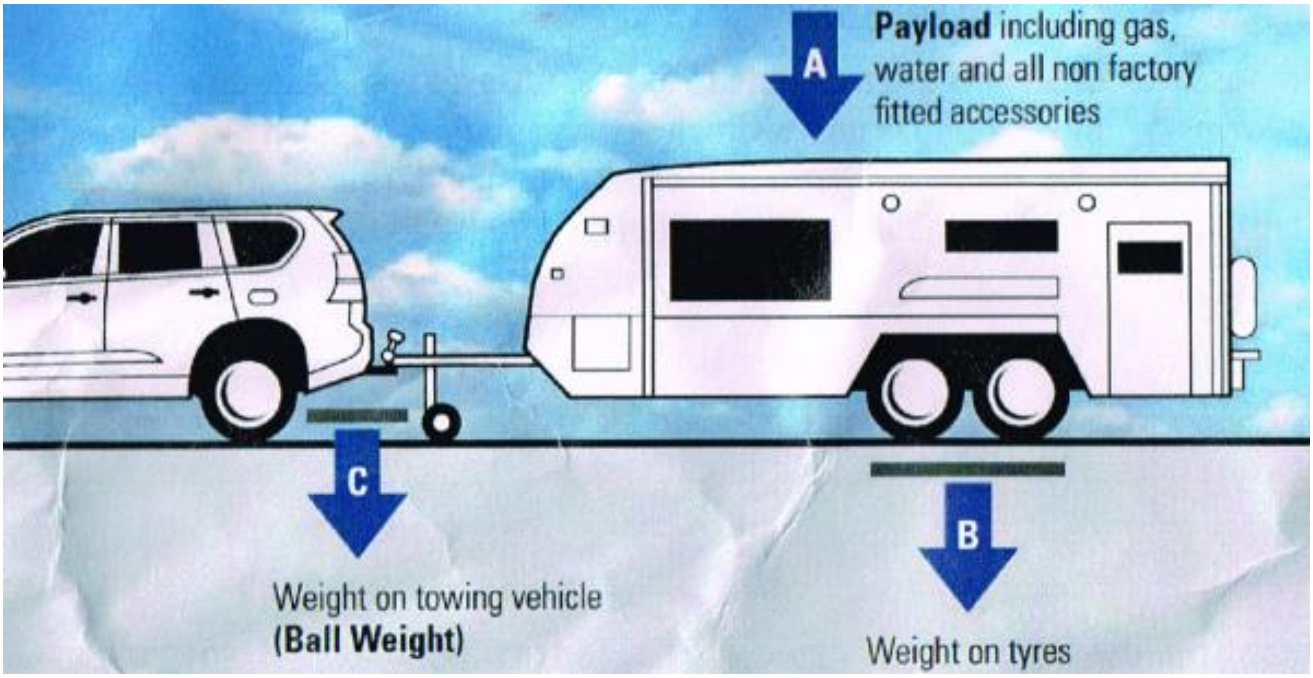
You must choose an appropriate vehicle that meets or exceeds the requirement for towing your chosen caravan or trailer.

Many have heard the old saying; if it looks like a duck, quacks like a duck and walks like a duck, then it may well be a duck. If your tow vehicle is not suited or was not designed to tow your caravan or trailer, then no matter what you do to the tow vehicle, it will probably still not suit your caravan or trailer.

Loading the weight behind the axle group may alter the tow ball weight but it will not reduce the GVM (gross vehicle mass). There is a price to pay for moving weight behind the axle group away from the tow ball. You will have a much-increased chance the caravan or trailer will sway (severely) when towing. If this occurs and you do not know how to stop the swaying, then you will more than likely end up in a ditch jack-knifed or worse.

History tells us that when a loaded caravan or trailer starts to sway, the outcome can be disastrous. In most cases, the tow vehicle driver may not know how to stop the caravan from swaying and in response, will apply the vehicle brake harshly. This will more than likely, cause the tow vehicle to lose control given the sudden transfer of weight.

The outcome will generally be a total loss of control whereby the caravan or trailer will fishtail excessively and dominate the towing vehicle. From there, control is usually lost whereby both the towing vehicle and the caravan or trailer will end up in a jack-knifed position on or off the road and could in the process hit oncoming vehicles.



ATM = A + B + C

ATM = Aggregate trailer mass is the total laden weight of a trailer, which includes the tow ball mass and whatever you add as payload (i.e. water, gas, luggage). The ATM is specified by the trailer manufacturer and must not be exceeded.

GTM = A + B

GTM = Gross trailer mass is the total permissible mass which includes whatever you add as payload (i.e. water, gas & luggage) that can be supported by the wheels of a trailer. This does not include the mass supported by the tow ball.

One other point to consider and this is especially important for caravan owners is, the placement of fixed item such as fridges, ovens and water tanks within the caravan.

For example, a caravan with the master bed located at the front (drawbar end) will have less weight influence over the drawbar (tow ball) as opposed to a caravan that has a front mounted kitchen that incorporates fridges, ovens, benchtops and similar.

Some caravan manufactures will take this point into consideration and may position things like chassis mounted water tanks, tool boxes and other heavier items further towards the rear to compensate for the front mounted kitchen.

1.3 What is ball weight and why is it so important?

So many people get confused by the term ball weight. What does it mean and why is it so important when considering towing a caravan or trailer?

Tow ball mass, or tow ball weight is the weight that the caravan or trailer places onto the towing vehicle's tow ball. If you had a towing vehicle with a tow ball capacity of 250 kg, that would be the same as placing 3 people that each weigh 83.3 kg (combined weight of 250kg) on the tow ball simultaneously and this would mean you are at capacity of your tow ball weight or the weight the tow ball (tow vehicle) was designed to safely support.

Having said that, you must also consider the requirements of the towbar manufacturer. There are many tow bars that are fitted to vehicles that will restrict the full potential of the tow vehicle. For example; you may have a tow vehicle that allows for a 300kg ball weight capacity, but the tow bar fitted to that vehicle may be a low-cost tow bar that only allows for 160kg ball rating. Remember, this reduced rating is not vehicle related, it is due to the lower cost tow bar.

Many people have purchased vehicles from dealers whereby tow bars have been fitted as part of the deal. The owner then discovers the dealer has fitted a low-cost towbar option to minimise their expenditure on the vehicle.

Towbars do have a small data plate fitted that will inform the vehicle owner of the actual capacity of that towbar.

Understanding how tow ball mass affects your towing vehicle and caravan or trailer is essential to safe towing. There is much to know. RMS would suggest that you take the time to learn tow ball weights.

There was an interesting article written by Philip Lord in January 2015 titled "Towing weights; what do they all mean" this article was posted in the January edition of Caravan World. It's worth a read as it provides a simple easy to understand explanation on the subject. https://www.caravanworld.com.au/features/1501/towing-weights-what-do-they-all-mean

In determining the right tow weight (ball weight) for your towing set up, a good rule of thumb used by many is to consider the 10% rule.

If your caravan or trailer has an overall mass weight of 2750kg, then the ball weight could be around 275kg measured. If the caravan or trailer has a loaded mass weight of 3200kg, then your ball weight could be around 320kg measured.

It is advisable to use a scale system to measure the ball weight of the caravan. Equally, once you have your caravan or trailer loaded (food, clothing, odds and ends and full water tanks) you should consider taking this to a public weighbridge, so you can see with accuracy the overall weight of the caravan or trailer.

Mistakes are often made through assumptions. For example, many have loaded a caravan or trailer and assumed it was heavy only to find out the actual weight was well below maximum. The same can be said for the opposite as well.

All good caravan and trailer manufacturers will provide a data plate alerting you of the tare and GVM or GTM mass of the unit. Rather than guess the weight of the load you place into the caravan or trailer, take a moment and find out the weight so that you can be assured it's within the guidelines specified by the manufacturer.

If you look at the 2 photos on the left, you will see that both photos represent the same trailer and load.

The top photo shows the load (small car) being positioned significantly forward of the trailer axles whereby the load weight on the tow ball would be increased.

The bottom photo shows the load (small car) being positioned back centrally over the trailer axles.

Where is the correct position for the load? Guessing where the small car should be placed will not give you accurate information.

Use a weight measuring device to determine actual ball weight loadings. If you do not have any scales, use a tape measure to measure the tow ball height of the tow vehicle unladen. If possible, stand on the tow ball and measure the difference in height.

Calculate your own weight plus the decreased vehicle height. You can use a method like this to "roughly" determine the weight on the tow ball of the tow car if scales are unavailable

1.4 Connecting your vehicle to a trailer or caravan.

It's about now that the husband and the wife start arguing. The husband is often the one given the task of reversing back to the caravan or trailer to complete the hook up process. The wife will often be heard yelling out things like "a bit more that way". The husband will be heard replying in a soft controlled soothing voice, "which way is that way" darling?

In many situations, it does not take too long before it all starts to get out of hand and it's not uncommon to hear colourful words of encouragement being sent from the driver to the spotter and back again.

The question to ask is this; Is there an easier way to reverse up to the caravan with some accuracy and a lot less stress? There are a few, so let's look and see if one could suit you.

Many caravaners will have a broom and a mop handy. If you don't, then find a couple of small straight tree branches or similar. Using a broom and a mop and turning the broom and mop upside down, you can place one on top of the "V" of the drawbar directly in line with the tow hitch. Then place the second one on top of the tow ball and as you reverse, simply line up the two poles. Now you're thinking how do I hold the upside-down broom or mop on the tow ball of the car? You can get your partner to hold it there so long as they walk clear of the tow ball while you slowly reverse back.

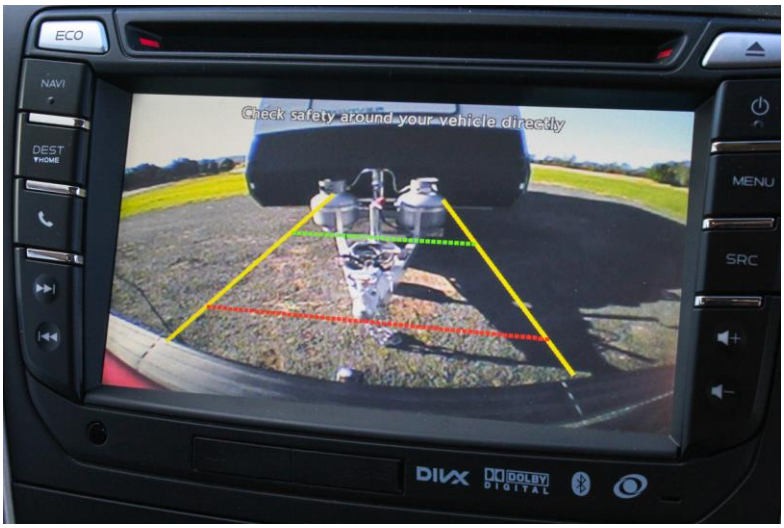
There are products available from reputable manufacturers such as Trailer guides Australia that will assist you to reverse your vehicle to the caravan or trailer without all the upset that is usually involved.

Another idea is one where you mark the ground prior to unhooking the caravan or trailer in the first place. For example; when you arrived at the caravan park and positioned your caravan, before unhooking the caravan or trailer, mark the ground where the rear car tyres are sitting now. You could use some survey paint or some old tent pegs or whatever you have handy. When it's time to re-connect the caravan or trailer, simply back your car and place the rear tyres in the same position and providing you have some accuracy, then hook up should be simple.

If you look on the net, you will find products such as couple mate which will assist in hook up and there is another product call Jenbac which is like the mop and broom design and finally you could have a reverse camera fitted as this will take away all the stress of hooking up to the caravan or trailer.

Regardless of which product you choose or how you choose to hook the car to the caravan or trailer, there are some essential ideas you should adopt to make hook up easy.

Firstly, when reversing to hook up, use your mirrors (right and left side) to line up the car and caravan.



Turning your head to reverse is not the right way to reverse the vehicle.

When using the mirrors, try and set up the car so that you have the same distance (picture) on each side.

As an example, if you look in the left mirror and can see 300mil of caravan protruding to the left side of the car, then make sure you have the same picture in the right mirror.

If you don't, then adjust the steering to suit.

Using a reversing aid such as couple mate or similar will only work if you position the towing vehicle close to where it needs to end up. Get use to using your mirrors as the mirrors are the key to accurate reversing.

Practice using the mirrors on your tow vehicle when hooked up to the caravan or trailer. It is easier to learn when not under pressure. Many people fail at reversing when there are lots of onlookers, better to practice when no one is looking.

1.5 How to set up and use anti sway systems.

Anti-sway, ride control, load levellers, it's hard to know what they all mean and what would be best for you and your towing set up. Anti-sway is a good thing providing you know the limitations of the device you're using.

All too often people are convinced to purchase an anti-sway system when picking up their new caravan or trailer but are not given any education on how to set the system up correctly or how it works in relation to preventing excessive swaying.

We need to ask ourselves what causes swaying in the first place. Plenty of caravans and trailers are being towed right now somewhere in Australia that are not fitted with anti-sway systems. How did we tow big caravans and trailers years ago before anti-sway systems were invented?

Many years ago, it was not uncommon to see 25-foot caravans being towed by family type cars such as V8 Holden or Ford Falcons sedans. Back then you would be hard pressed to find an anti-sway system fitted and if one was, it would have been very basic or in some cases, homemade.

Let's look at some facts: most caravans or trailers sway because of overloading or more importantly, because of poor load placement. If you load a trailer with the weight positioned more towards the rear of the trailer, then it is fair to say that you will have difficulty in towing that trailer without some sway. Having said that, if you load the trailer whereby all the weight is now sitting over the tow ball drawbar section, then equally you will have issues. Not only will the tow hitch be overloaded, but it's fair to say your tow vehicle will be unbalanced and may experience loss of control due to the positioning of the weight.

Many caravan manufacturers are now mindful of load weights and will set the caravan up with the axle group positioned slightly towards the back of the chassis to ensure the load balance is maintained.

There are several products on the market that will assist you to determine the actual ball weight of your caravan or trailer.

On the left is a simple scale device that you place under the tow cup of the caravan or trailer and then lower the dolly wheel until all the weight is resting on the scale.

From there, you will be able to calculate the ball weight and where necessary, adjust the load placement to increase or decrease the ball weight.

Once you have established a suitable ball weight and one that is compliant for your tow vehicle, you can then start to look at the towing set-up.

This may include the fitting of anti-sway bars or ride control devices to assist in the overall handling and height of the caravan or trailer when under tow conditions.

Earlier we mentioned that there are many different devices to choose from when it comes to anti-sway, ride control or load levelling accessories.

The intent of RMS is not to associate ourselves with any specific brands. What we can say is there are many brands to choose from and if you ask the dealers the right questions or find the product you like and do some research or even get associated with a few different clubs that tow caravans or trailers, I am sure you will find the right product for your needs.

On the right is a basic ride control set up that if set up correctly will assist in raising the drawbar height of the caravan or trailer so that you do not have your headlights looking for possums while driving, and,

Will assist in preventing sway on the caravan given the additional friction and effort required to allow the ride control set up to move left to right or right to left.

Whilst it will assist in sway control, its primary function is load levelling.

Ride control or load levelling type systems will not necessarily control swaying. They will assist due to the additional movement effort required, but they will not prevent swaying. Most anti-sway systems like the one shown below will be attached to the drawbar of the tow vehicle and the A-frame of the caravan or trailer and will be an addition to the load levelling device fitted. The anti-sway device acts like a shock absorber whereby friction is introduced to the left and right movement of the drawbar and tow vehicle

What is important to note is: fitting a load levelling system will assist greatly in providing better safer control of the vehicle. Fitting an anti-sway system will greatly decrease the likelihood of the caravan or trailer swaying and will greatly improve handling in windy or harsh road conditions.

But remember, just because you have these additions fitted on your vehicle does not mean you can forget things like proper loading techniques, vehicle safety checks, tyre condition or similar. If the caravan or trailer or the tow vehicle is poorly loaded or is not suited for the task at hand, then fitting load levelling or anti sway systems will not miraculously fix the problem.

One very important thing to remember if using anti-sway, ride levelling devices on your tow set up. Always make sure you disconnect (unhook) the set up when you have reached your destination PRIOR to positioning your caravan or trailer into a parking bay or similar. Anti-sway systems like the one shown are designed for open road use and are not suited to harsh turning that would be applicable to jack-knifing when reversing into a parking bay.

When ready to travel, hook up the anti-sway ride levelling system and once you reach your destination and prior to reverse parking, disconnect the system to prevent damage.

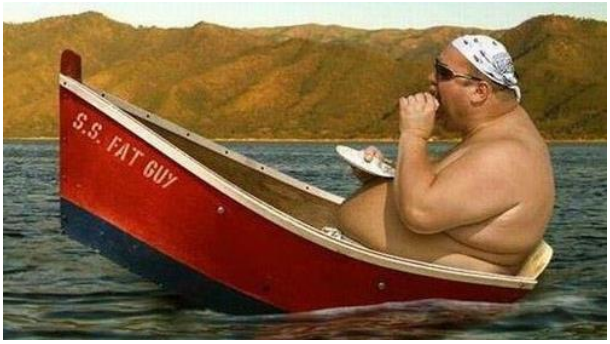
If using a ride levelling system: when initially setting up the brackets and chains that will assist in the levelling process, try to have your tow vehicle and caravan or trailer parked on level ground. The important thing with ride levelling devices is to have the tow vehicle and caravan or trailer sit level. You can measure things like bumper heights on the tow vehicle prior to hook up and then see how much the bumper drops after hook-up but in all fairness, the aim of ride levelling is not to bring the tow vehicle fully back to its un-hooked level state. It's more to have the two vehicles sitting at the best level possible that allows for safe towing.

Many manufacturers are now offering stability control systems with the caravans and trailers they sell. These systems provide much improved control of the caravan or trailer should the tow vehicle have to brake, swerve or make a direction change to avoid an accident. If the driver does make a sudden direction change, the stability control will apply the brakes to the caravan or trailer wheels and assist in controlling any swerve and help in keeping the caravan or trailer under control during this process.

What should be remembered is this: just because you have a caravan that is fitted with stability control does not mean you can forget all the other safe practices that must be considered when towing a caravan or trailer. Load placement, overall weight, tyre condition and tyre pressures, wheel bearing condition, the use of ride levellers or anti-sway devices still play a significant role in the safe towing of the caravan or trailer. Stability control is an excellent feature and one that all persons involved in towing medium to large caravans or trailers should consider as a safety feature for their towing vehicles.

1.6 Loading your trailer or caravan.

Imagine being in a canoe where all the weight is at one end. Does not take too much imagination to work out how the canoe will be sitting in the water.



The same rule applies when loading a trailer or caravan.

If the trailer has TM tare mass of 1200kg and a GTM gross trailer mass of 3000kg, then what you have is a trailer that weighs 1200kg empty with the ability to carry an additional 1800kg of load that would take the total weight (trailer and load) to 3000kg.

Terminology.

TM = Tare Mass is the unladen weight of the trailer or caravan as delivered from the factory.

TBM = Tow ball mass = the weight placed on the tow ball.

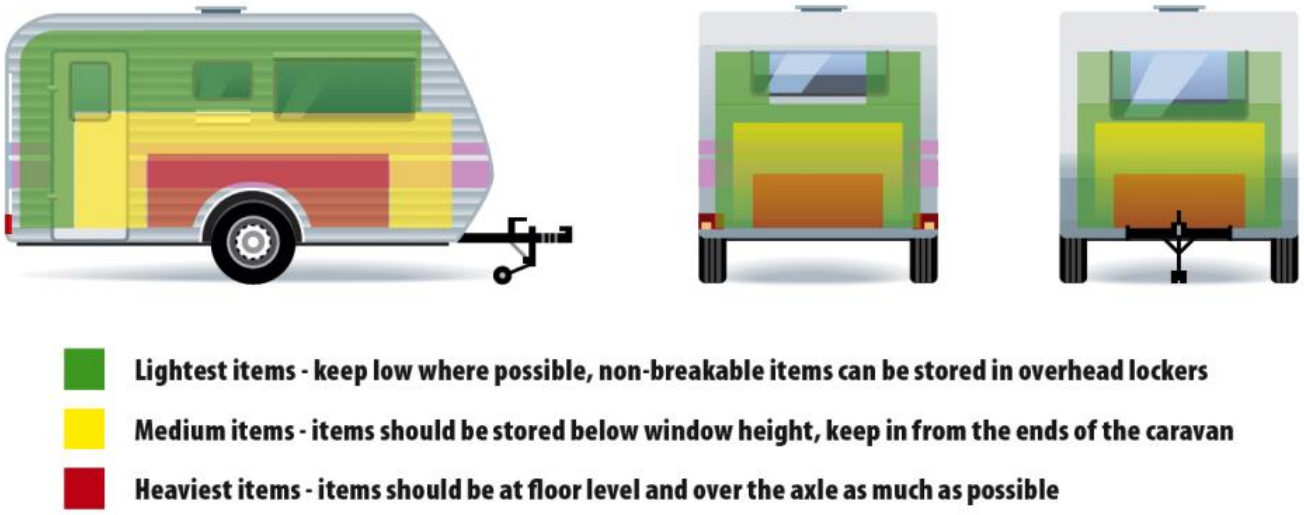
GTM = Gross trailer mass is the total permissible mass which includes whatever you add as payload (i.e. water, gas & luggage) that can be supported by the wheels of a trailer. This does not include the mass supported by the tow ball.

ATM = Aggregate trailer mass is the total laden weight of a trailer, which includes the tow ball mass and whatever you add as payload (i.e. water, gas, luggage). The ATM is specified by the trailer manufacturer and must not be exceeded.

Payload = The payload is worked out by deducting the "Tare Mass" from the "ATM". It must not be exceeded under any circumstances. Safety, insurance & warranty may be affected if the specified payload is exceeded.

GVM = The GVM is the maximum allowable total mass of a fully loaded motor vehicle, consisting of the tare mass (mass of the vehicle) plus the load (including passengers).

GCM = The GCM is the rating provided by the manufacturer of the tow vehicle. The maximum laden mass of a motor vehicle plus the maximum laden weight of an attached trailer is not permitted to exceed the GCM rating.



Loading a caravan or trailer is not always as simple as placing the weight in one spot or having the ability to put the weight where it will travel best. In a caravan, you are dictated by storage areas under beds or storage cupboards under seating areas. In some cases, the bed may not be over the axle group and this may cause some difficulty when placing heavy items in the caravan.

The same can be said for loading a car trailer. If loading a car onto a trailer, which way should the car be loaded, engine first or engine over the rear? Which part of the car is the heaviest part? Lots to consider. If loading the caravan with some heavy items, it might pay to work out what fits where and from there using the coloured graph above, try to place the heavier items over the axle of the caravan.

Once you have loaded the caravan, use your scales to measure ball weight to ensure you have not exceeded the capacity of the tow vehicle ball weight restrictions.

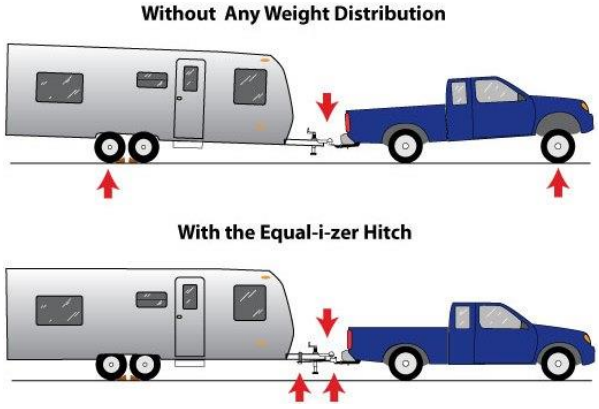
Equally, make sure the load is central. You may have placed the load over the axle group area, but you need to be mindful of bias loading or having too much of the load to the left or right side.

It may not seem like much but most roads in Australia are cambered (curved or rounded) with the highest part of the road being the centre and the lowest being the left and right shoulder areas. If the caravan or trailer was bias loaded to the left side, that could increase the lean of the caravan or trailer to the left. This could be exaggerated more by the camber of the road and this alone could facilitate less than perfect travel conditions and may place additional stresses on tyres, wheel bearings and the overall handling of the caravan or trailer.

As we have discussed previously and as the illustrations demonstrate, the heavier load items that you place over the axle group should be placed slightly forward towards the drawbar. Remember you need to do this to place some weight over the tow ball and to prevent swaying due to poor load placement.

If towing a caravan with fitted water tanks and you are going to take water with you, then it would be wise to fill the tanks before you complete any tow ball weight measurements. The full water tanks will more than likely alter the tow ball weight, especially if the tanks are forward of the axle group. Most caravan manufacturers will recommend that you load your caravan (food, clothing, supplies and water) prior to setting up load levelling devices or checking tow ball weights.

Good caravan manufacturers will fit the chassis mounted water tanks in such a way that they do not alter or disturb ball weights of the caravan.



If using a weight distribution (stabiliser) system, don't assume that just because you fit this type of system that you can now load the caravan or trailer without care as the load distribution stabiliser bars will fix any issues.

The load distribution bars will help the tow vehicle and trailer to look level but what they will not change the weight position of where you place the load. Prior to fitting the weight distribution bars, you should load the caravan or trailer and then check ball weights to ensure the load is within specification. If all is OK, now fit the load distribution bars as this will assist and improve the overall towing safety and control of the caravan or trailer.

1.7 Towing your trailer or caravan.

Preparation PRIOR to towing is the absolute key to a safe towing experience. How and where you position the weight in the caravan or trailer, the type of vehicle you use to tow with and, the level of knowledge you have with regards to understanding the towing sequence will all play a role in the safe outcome of your trip.

It is important that the process of towing a caravan or trailer is not understated as history will tell us that many caravans and trailers have been involved in accidents with some having a disastrous outcome. If you take the time to look at testimonials of what causes the majority of caravan and trailer towing accidents, you will quickly discover that "loss of control" is the main contributor.

Comments written by survivors read like: "the caravan started to wobble, and we ended up tipping over" or, "I looked in the mirror and the caravan was beside me, it happened so quick" or, "it felt like the wind picked me up and rolled me over" and the list goes on.

If you look at the most likely causation, for the most, it is the loss of control between the car and caravan or trailer whereby the driver is unable to recover or regain control of the vehicles.

The good news is, it is possible to tow your caravan or trailer under a variety of conditions and not be involved in a loss of control situation. To achieve this, you need to understand the relationship between the tow vehicle and the caravan or trailer that you are towing.

If we look at a standard tow vehicle and for this example, let's use a Mitsubishi Pajero. The Pajero has a curb weight (unladen weight) of approximately 2300kg. The weight will increase as you add your own personal items (including passengers) and fill fuel tanks and similar, so to keep this exercise fair, we will give the Pajero a revised curb weight of 2500kg.

If you have a trailer or caravan that weighs 2000kg and you couple that to the Pajero, you would have a combined tow combination of 4500kg or 4.5 tonnes.

Forgetting the overall weight for a moment, what you need to focus on is the weight of the trailer or caravan. The 2000kg weight of the trailer or caravan is hooked to your car via a 50-mil tow ball. Your tow vehicle is now responsible for keeping the trailer or caravan under control on all types of road conditions and in all types of weather. This is achievable, but you must understand that having that 2000kg weight connected to the tow vehicle will have a noticeable influence over how the tow vehicle handles.

If the caravan or trailer is hit by a side force of wind, the trailer or caravan will move because of that wind strike, this wind strike will be felt in the tow vehicle by the driver. When the driver feels this movement, there is a high probability that the driver will move the steering wheel to compensate the movement of the caravan or trailer.

It is this input or compensation by the driver that often creates the issue and it is a key factor in the loss of control of many caravan or trailer accidents.

Earlier we said that most loss of control situations are caused by uncontrolled swaying of the towed caravan or trailer. Many people call this the "dreaded wobble".

Let's have a look at what causes the caravan or trailer to sway or wobble:

- Un-balanced load on a trailer can result in swaying, especially at speed.
- Having too much weight to the rear of the axle group can cause swaying.
- Some road conditions can cause swaying (aggressive camber or drops in road shoulders)
- Side winds (poor weather) can cause swaying.
- The tow vehicle swerving to avoid something can cause swaying (swerving to avoid an animal)
- Underinflated tyres or tyre blow out can cause swaying.
- High speeds can cause swaying.

Other factors will also cause swaying but for now, we will concentrate on the above points and look at how to eliminate or at least understand and control these factors.

Loading the caravan or trailer whereby the load weights are within the guidelines of the vehicle and trailer or caravan manufacturer will eliminate or reduce many sway or wobble issues.

Road conditions play a key role in loss of control with the most common being the road shoulder. Many caravans and trailers have lost control when moving off the road to allow room for passing trucks and vehicles.

In some situations, the gravel road edge is lower than the sealed section of the road and when the wheels of the caravan drop off the sealed section, this creates rapid movement and weight distribution which is often compensated with copious amounts of steering input with a disastrous outcome.

High winds, especially cross winds will buffet and move the caravan or trailer about and can be difficult to handle for the driver given the wind is unpredictable.

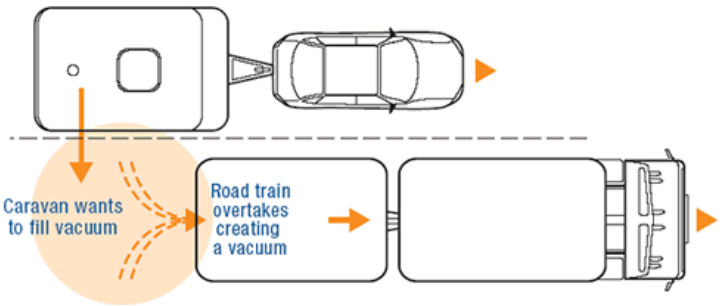
Swerving to avoid an accident or animal on the road can have dire consequences given the abruptness of the swerve. Changing direction quickly in the tow vehicle has a knock-on effect for the caravan or trailer and if not corrected quickly will often result in a total loss of control. Remembering that you have a caravan or trailer behind you may encourage you to keep well back from the vehicles in front. Doing this may increase you forward vision and reduce the need for sudden movements with the tow vehicle.

Whilst we understand that swaying is a primary contributor in loss of control with caravans and trailers and that the swaying can often be attributed to poor load position, incorrect towing set up or cross winds. What about swaying caused by a passing truck?

When a high sided truck passes a caravan or larger trailer, the movement of air created by the larger truck will create a vacuum effect. Of the vehicles affected, caravans cop it the most given the caravan has high sided walls and the vacuum pulls the caravan towards the void created by the passing truck.

Anticipation is the key, so make sure you keep an eye on the mirrors so that the passing truck is not a surprise event. This rule may not apply to all, but if you maintain road position with the tow vehicle and don't start to fight the caravan or start swerving all over the road, then whilst the caravan may move or feel like its pulling to the right or left, providing the tow vehicle remains true and steady between the white lines, then the vacuum effect will pass as quickly as it arrived, and the caravan will settle back in behind you.

It is a fact that most accidents are caused by non-anticipated or unexpected events. An event could be a truck passing, high winds, poor road conditions, swerving to avoid an accident, etc.



As the driver of the tow vehicle, you need to anticipate that unexpected events may occur and train yourself to react in a calm but direct manner.

A recent accident report relating to a caravan accident read something like this:

My wife and I were travelling along highway X and were chatting about the unusual fellow we had met the previous evening at the caravan park. My concentration was probably more focused on our discussion as I did not notice the large B-Double truck overtaking us. My first knowledge of being in trouble was when the caravan started to sway severely. I think I might have hit the brakes and that is when we went sideways, and the caravan crashed into our car on the left side. This is a condensed version of the report, but it gives you an idea of what inattention can do. This was, like most accidents, an unplanned, unexpected event that had disastrous results. *Both driver and passenger in the above story received non-life-threatening injuries, their caravan and brand new Landcruiser were written off*.

As discussed earlier, just because your caravan or trailer starts to move (vacuum effect) due to a truck passing does not mean that you need to start swerving all over the road or slamming the brakes on to compensate that effect. In most cases, keep calm, keep the drive vehicle steady and keep within your lane. If needed, gently apply the caravan or trailer brake (not the car brake) as this will assist in bringing the caravan or trailer back under control.

1.8 What is the correct speed for towing?

High speed will alter the characteristics of the car and caravan combination. Many vehicles will tolerate higher speeds if well maintained and driven with care and skill.

Caravans and trailers are not usually designed for high speed and should not be towed at speeds above what the manufacturer recommends. Equally, the tyre manufacturer may also put stipulations on speed and inflation pressures for the tyres they develop for use on caravans and trailers.

The bottom line is this, hooking your Ferrari up to the family caravan and heading down the road at 200 kilometres an hour will more than likely end in tears. Speed is a critical factor in the relationship between the tow vehicle and the caravan or trailer.

In looking back at the caravans from the 70's and 80's to what we have available to us now, it is fair to say that many caravan manufacturers are building much safer caravans and trailer and these units do have better suspension, better tyres, better brakes, better tow hitches and are designed using lighter materials that assist in the safe towing weights and safer towing of the caravan or trailer.

That being the case, why do we still have so many caravan and trailer towing accidents? Is it because there are so many more people out there now towing caravans and trailers into areas that were once difficult to get to? Australia has a lot of "grey nomads" that are now hanging up their work boots for a life out on the road in their caravans. Aside from what might be, the facts are we are still seeing a lot of accidents involving towing vehicles and their caravans or trailers.

The facts:

We all know that speed increases the risk of accidents. In many cases, this will leave a trail of devastation for the people involved. We also know that driving at 50 kilometres an hour on the open road where everyone else is going 100 to 110 kilometres an hour could also create a very unsafe and potentially disastrous situation, so you need to find a speed that not only keeps the caravan or trailer upright and safe but also allows for the drivers of non-towing vehicles to keep moving without feeling like they have to risk theirs or your life just so can get past you. If your caravan or trailer is loaded correctly and in good working condition, keeping pace with other traffic won't be an issue.

What is the right speed for a caravan or larger size trailer?

Many experienced drivers that have towed caravans and trailers over long distances will have varying views on this topic These views are generally based on opinions or experiences.

When asking many of these people what is the best speed, 90 kilometres an hour pops up and is used as a bench mark speed for towing caravans and larger type trailers. The points you need to consider will be based on the following:

1. Your experience level for both driving and towing.
2. The vehicle type that you drive and its ability to tow (power of the towing vehicle).
3. The size, type and weight of caravan or trailer that you will be towing.
4. The roads or areas that you will venture into.
5. The hours you expect to drive in a 24-hour period.

Let's look at some of the points raised and see where you fit in the big picture.

1. Only you will know your level of driving experience. It's important that you're honest with yourself in this regard. Driving a car is a lot different to towing a 2000kg caravan or trailer with that same car and unless you have done this before, it is fair to say you would benefit from some pointers and education on how to handle a car and caravan combination as well as the do's and don'ts of towing.

   Many people that tow a caravan for the first time will have purchased a larger type vehicle such as a 4x4 to tow that caravan. Sometimes just getting used to the larger drive vehicle can be daunting, especially when it comes to vision around the vehicle, the size, height and length of the vehicle and even trying to park the vehicle can be a task on its own. it is one thing to learn and gain experience in your new tow vehicle, but it's another thing altogether once you hook that vehicle to a heavy caravan or trailer for the first time.

2. There are many types of vehicles that are suitable for towing. You do need to make sure the vehicle you choose will be suitable for your caravan or trailer and is compliant in that it meets the legal requirements for ball weights and similar.

   Many people will choose a 4x4 tow vehicle as many of these vehicles will meet the requirements of towing given their additional size and strength. These bigger vehicles also offer the owner the ability to go places not normally accessible to a standard drive car.

   Regardless of the type of vehicle you choose, make sure that your vehicle is in good condition mechanically and that you pay special attention to the condition of tyres, brakes, steering and similar. Having the right tow vehicle is one thing, making sure that tow vehicle is in a safe condition is another. Vehicle maintence should be at the top of your priority list.

3. Towing a small single axle caravan can be just as difficult as towing a larger duel axle caravan, so don't assume that because you have a smaller caravan or trailer behind you that you can now speed up and drive like last year's Bathurst winner.

   Size does matter, and small caravans and trailers can have similar issues to larger type units. You need to also consider things like: is the caravan loaded or empty? Is the caravan or trailer built out of steel or aluminium and is it constructed with timber, carbon fibre, or other types of products. Some caravans are light whilst others are heavy and from the outside, they all look the same so check the compliance plate of the caravan or trailer as this will provide valuable information to the driver.

   Remember, how you load the caravan or trailer will greatly affect how it performs when towed behind your vehicle. Use a scale device to measure the ball weight and keep the weight within the recommended guidelines.

4. Towing on a freeway with light traffic in dry clear conditions is great. What about towing on an outback gravel road in hot dusty conditions? Or towing on a busy single lane highway in wet windy conditions? It would be nice to have perfect towing conditions, but that will not always be the case. If you're not in a hurry, you can pull over and park in a safe area when conditions are not great but there will be times when you may have to keep going and brave the harsh conditions.

   In all towing conditions, speed will play a role in the handling and safety of the caravan or trailer under tow. The roads you travel on can dictate the speed you tow at. Travelling at 90 kilometres an hour seems to be a popular towing speed that many prefer, but it does not mean it's the right speed for you or the road you're towing on.

   An outback sealed road that has minimal traffic may allow for a higher speed. Providing your tow vehicle and caravan combination are set up properly, there is no reason why a higher speed could not be achieved. Remember to abide by all state and territory speed limits and road cautions.

5. It is well documented that driving tired is a major cause of accidents on our roads. Many drivers that tow caravans or trailers often come to grief because of driving (towing) long hours in their attempt to reach their destination. School holidays are a testament to caravans being involved in accidents where the family has a set time frame (2 weeks off) and wants to squeeze as much into that 2 weeks as humanly possible. This often involves mum and dad hooking up the caravan after a long day at work and then heading off to that favourite destination at the end of their work day. If you are not used to driving long distances or if you are setting off already tired, then accidents may occur.

   Don't drive for extended periods. Many people will drive for 2 hours and then take a break. When taking a break, get out of the vehicle, go for a walk, be active for a few minutes to help refresh yourself. Towing can be stressful so don't plan on towing your caravan or trailer for long distances. Set yourself a daily target (an example might be 350 to 500 kilometres) and be happy with that. if you need to complete more then use 2 drivers and look out for each other during the driving process.

   Remember, complacency is a major contributor to vehicle accidents. Be alert, drive to conditions, if unsure of what's ahead, slow down, if tired, pull up in a safe area and rest. Recognise the signs of fatigue: loss of concentration, yawning, rubbing your eyes, can't remember the last 10 kilometres you have driven, irritable and so on. if you feel any of these, pull up in a safe area and rest.

Statistics show us that many accidents occur when towing a caravan or trailer. Accidents occur due to unplanned or unforeseen events but in many cases, caravans and trailer are involved in accidents that could have been avoided. The major concerns are inexperience in towing, excessive speed, fatigue and similar.

Whilst excessive speed plays a role, so does driving too slow on a busy road and being hit from behind by a fast-moving vehicle.

Many accidents occur due to driver fatigue. Drivers often succumb to fatigue due to feeling pressure or an urgency to be somewhere at a certain time. These factors can lead to tears so take a moment to work out what is important before putting yourself, your family or other lives at risk.

Accident investigations often reveal clues that should be taken onboard by all concerned as they may assist others to not make a similar mistake.

Jerking the steering wheel of a car under tow at speed is one clue that should be remembered by everyone. Many survivors of caravan and trailer accidents will tell you that they "only moved the steering wheel a little bit" but the caravan swayed a lot before tipping over.

For a person that does not know how to fly an aeroplane, being told to hop in the pilot's seat at 10,000 feet and land that aeroplane would make them totally freak out. To a trained pilot, it's all in a day's work.

The same rule applies for understanding how to tow a heavy caravan or trailer and more importantly, how to control the car and caravan if something goes wrong. If you don't know how to handle the car and caravan and something does go wrong, then you have little chance of preventing or recovering the situation.

Loss of control is without a doubt the biggest causation of accidents whereby the main contributing factors are lack of knowledge on how to stop the loss of control in the first instance or how to correct the loss once it occurs.

If you do some research especially with caravan insurers, you will discover that loss of control (swaying) is the greatest cause of accidents.

Speed and other factors including load set up, tow vehicle capabilities, driver education, fatigue, weather and road conditions all play a role in the caravan and trailer towing safety but swaying which is primarily "loss of control" is the key factor of caravan accidents.

Use caution, drive to conditions and don't be afraid to ask for advice.

It would be a real shame to have an accident purely based on a lack of information because you were afraid to ask for help or advice.

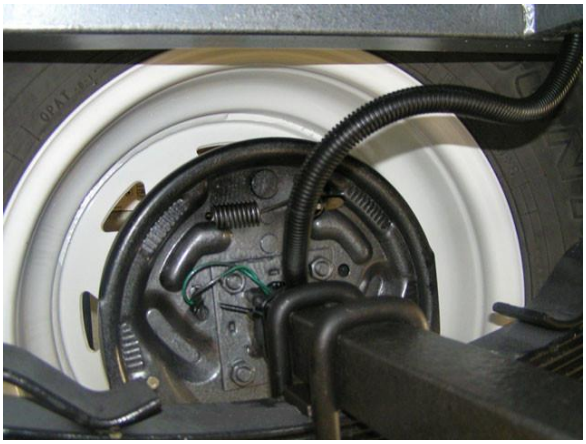
1.9 Electric braking systems.

Many caravans and trailers are now fitted with electric brakes. Electric brake systems have been around for quite some time now and work well in caravan and trailer applications. Unlike conventional inertia activated trailer brakes, the electric brake system requires a brake applicator that will be fitted to your car. This unit will be hard wired into your foot brake pedal. The applicator has varying settings that will allow you to choose between minimal and maximum application of the caravan or trailer brake system.

Slide lever

Simply put, when you apply the foot brake in the tow vehicle, the electric brake applicator will respond by sending a message to the electric brakes fitted to the caravan and will apply those brakes. How much the brake applies will depend on what the setting is on the applicator fitted to the drivers compartment of the tow vehicle.

Having a minimal setting on the brake modulator will mean the tow vehicle brakes are doing most of the slowing and if you have the applicator set too high, it will mean the caravan or trailer brakes will be doing most of the braking when the foot brake is applied.



Before setting off on a trip with your caravan or trailer, you will need to test the brake applicator to make sure it's working. You can do this by moving off at a slow pace and then applying your foot brake. If the electric brake applicator is set too high, then you will feel the caravan or trailer brakes grab and pull you up. This will assure you the electric brakes on the caravan or trailer are responding to your tow vehicles input.

Another way of testing the electric brake is to move off at a slow pace and gently slide or push the spring-loaded lever on the brake applicator to its full-on position. This will apply full braking ability to the electric brakes and you will feel the car and trailer come to a stop.

You can adjust the sensitivity of the electric brake applicator to suit varying conditions. Some units will have a digital display whilst others will have a light system that will increase in brightness the more the sensitivity is increased.

Once out on the road, set the brake applicator to around 40% sensitivity and then adjust each time you brake until you feel the brakes on the caravan or trailer and contributing the same brake force as the towing vehicle.

We discussed earlier the swaying or wobble issue with towing caravans and trailers. We do know with some certainty that many accidents involving towing a caravan or trailer are due to swaying. Without going back over what causes the caravan or trailer to sway or wobble, we can discuss how to stop the swaying with the use of the electric brake applicator.

Primarily, the best way to stop a caravan or trailer swaying at speed is to apply the brake to the trailer or caravan to pull it back in line with the tow vehicle. There are some key reasons as to why a caravan or trailer will start to sway but more importantly you need to understand that once it starts to sway it may continue, and it may also start to increase in intensity. Equally, you need to consider that the driver (actions of the driver) may well be the reason the caravan is swaying in the first instance.

Fitting anti-sway devices to the tow system will increase stability but it will not remove the cause of the swaying. If the swaying is induced through poor loading of the caravan or trailer, then fitting anti-sway bars will not make that problem go away. They may reduce the intensity of the swaying, but they will not eliminate the problem.

Caravans when overtaken by heavy transport trucks will often sway due to the suction created by the truck as it passes. This too can cause swaying and if not corrected, can lead to loss of control.

Electric brake units have one excellent feature in that the brake unit can be activated (by hand) whereby you can apply the brakes to the caravan or trailer without applying the tow vehicle brakes. If the caravan or trailer is swaying and you apply the electric brakes, you will feel the caravan or trailer pull against the car and slow the tow vehicle and in doing this the caravan or trailer (in most cases) will cease swaying and commence following the tow vehicle in a controlled manner.

Application of the trailer or caravan brakes using the electric brake applicator may save the day, but there is no compromise for having the caravan or trailer loaded correctly with a well maintained towing vehicle and towing equipment and having an experienced or at a minimum, a knowledgeable driver behind the wheel.

1.10 Mechanical braking systems.

We looked at electric braking in the last section but what we have not yet considered is the once very popular mechanical, older style braking systems that were fitted to most trailers and caravan's in the past. Mechanical braking systems for caravans and trailers are simple in design and can be an effective braking system if well maintained. Many however would consider these older design braking systems to be at a disadvantage when compared to the electric and air assisted braking systems now readily available.

Inertia mechanical systems work like this: you apply the brakes under towing conditions, the car starts to slow, the caravan or trailer pushes against the slowing car, the drawbar activation device is placed under pressure as it pushed forward on the drawbar and because of this, brake pressure is applied to the caravan or trailer brakes.

If you look at the unit on the left, you can see that just behind the tow ball cup is a locking lever. This lever is used for reversing to prevent the brake coming on as you push back against the caravan or trailer.

Once the lever is raised, it allows the front tow cup section freedom to slide forward and back. If the car brakes hard, the drawbar will be pushed hard into the slide unit and this will create a lockup situation on the caravan or trailer brakes. If the tow vehicle suddenly accelerates, it will immediately disengage the brakes as the unit slides back out of the braking mode.

Many drivers that have used these types of brake systems will have varying opinions on their effectiveness, especially when compared to electric or air brake systems.

The key question for you to consider, especially if looking to purchase a caravan or trailer that has this type of brake system is: do they work and if so, how well? If the sliding brake system is well maintained and the brakes are adjusted and checked for operation, then the system will do what it was designed to do and that, is apply the caravan or trailer brakes if the tow vehicle slows. If the tow vehicle abruptly stops, then so will the caravan or trailer. Inertia brakes are not as advanced as electric or air assisted brakes so cannot be expected to perform in the same manner.

Some will consider that RMS are in some areas, harsh in their opinions on certain items, but having said that, honesty cannot always be sugar coated. In looking at the differences between electric braking and inertia induced braking it would be clear to most that electric braking offers a more controlled measured braking force and unlike inertia braking, electric braking can be manually controlled by the driver and applied to the caravan or trailer without the tow vehicle brakes being applied.

Having a braking system that can be adjusted by the driver simply by turning a knob or moving a dial and equally having a system that allows the driver to activate the caravan or trailer brake by sliding a button on the cabin mounted brake applicator must be a safer better option than waiting for a sliding mechanical bar to push forward and then apply the brakes based on how hard the tow vehicle is braking.

RMS are in no way saying that an inertia or damper type mechanical brake is unsafe or that you should not use a brake like this, what we are saying is there are more advanced, more user-friendly systems available that you should consider.

Your safety and the safety of others needs to be your absolute priority. If you have a trailer or caravan that has an inertia type mechanical brake system and you can afford to retro fit it with a more advanced braking system, then you should consider do that to enhance the safety of your towing vehicle set up.

Can you correct a swaying caravan or trailer if fitted with inertia brakes? Hard to say given you must apply the tow vehicle brakes to activate the inertia brake on the swaying caravan or trailer. If the swaying caravan or trailer are dominating the tow vehicle, then recovery via brake application would be slim unless the braking was very controlled.

The opposite to applying the brakes on the caravan or trailer is to apply power to the tow vehicle (same effect). This could instigate a quick recovery but may also create further loss of control if the swaying is caused by speed. Once again, we offer no sugar coating of the answer, just plain facts that you need to think about and consider what you might do in that same situation.

1.11 Additional recovery methods.

We have discussed electric braking and the benefits that system offers if the caravan or trailer starts to sway and we have also looked at mechanical braking systems that some caravans and trailers use.

In this section we will look at alternative ways to recover a swaying trailer or caravan that is not reliant on the braking system of the vehicles.

If towing a caravan or trailer and the towed unit starts to sway, probably the first response would be to not panic by over correcting the towing vehicle. Often the driver will feel the caravan sway or visually see the trailer sway to the left or right and will immediately compensate with copious amounts of steering input. Look at the situation like this: it's bad enough having the caravan swaying, but if you then get the tow vehicle swaying your chances of recovery are much less.

It is easy to suggest what you can do to recover if swaying occurs, but a swaying caravan or trailer is something that can be unnerving and will more than likely prompt you to respond without thinking or considering the possible negative outcomes.

If possible, stay calm and do whatever you can to keep the tow vehicle under control. The caravan or trailer may be swaying but if the tow vehicle remains under control and traveling in a straight line, then recovery of the swaying trailer is achievable. Second thing to do and this will create some exciting conversation between some readers is; do you slow (ease off on the power) or do you apply power?

If the caravan is swaying, applying power is like applying the brakes on the caravan or trailer. If you apply the brakes on the caravan or trailer, it will pull against the tow vehicle and this will assist in bringing the sway under control. The same can be said for applying power, opposite input but a similar outcome. Applying power now means the tow vehicle is pulling against the caravan or trailer and pulling that unit back into a controlled situation.

Here is where it becomes a grey area. If the caravan is swaying because of excessive speed (down a hill too fast or similar) applying power will only increase the likelihood of losing control. Simply put, if the caravan starts to sway at 105 kilometres an hour, increasing to 120 kilometres an hour won't fix the problem.

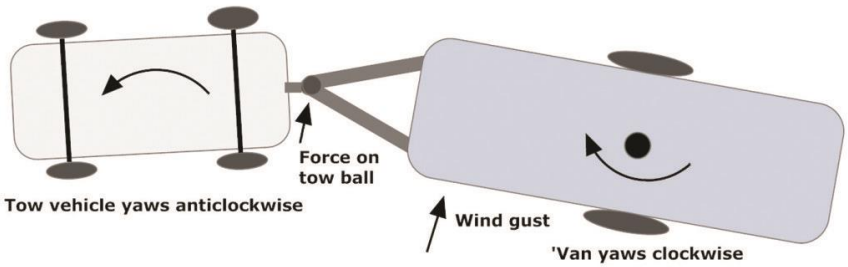
So, do you apply power, or do you ease off on the power and allow the swaying to stop due to slower speed? If the caravan or trailer is swaying because of a truck passing, then power may well be the right formula to recover the sway. Once recovered, allow the vehicle to slow back to your chosen travel speed.

If the sway is caused by poor loading, speed or similar, then consider easing off on the power and keeping the tow vehicle on the road and under control. If the sway is excessive, gently steer into the sway. Apply the brakes to slow the tow car and trailer down. If the sway is excessive and you have electric brakes, apply the electric brakes with some aggression to rectify the swaying.

Point to consider, if the caravan or trailer is swaying severely to the left and right and you apply the towing vehicles brake when the caravan or trailer is off centre to the tow vehicle, there is every possibility that the caravan or trailer will pass the tow vehicle and become a jack knife situation. Timing as to when you brake is critical.

Plan for the worst, hope for the best: accidents do happen. No one leaves to go travelling with an expectation of having an accident, but we do need to make sure we are set up for any situation. Many people have been injured when the tow vehicle has tipped over and the occupants have been struck by things like unsecured spare tyres, bottle jacks, 20 litre water containers, tool kits, small eskies or similar.

99% of the population purchase insurance for their cars, caravans, so whilst we might think that planning for the worst and hoping for the best sounds harsh, we are doing exactly that when we buy insurance.



If you plan for the worst and set your tow vehicle up to be safe in a rollover then there is every chance that if the tow vehicle did roll over your chances of survival would be greatly increased.

Plan for the worst but do everything you can from loading the caravan or trailer correctly to getting your vehicle serviced, making sure all tyre pressures are checked, making sure you use a good anti-sway load levelling system, fitting electric brakes if possible and if you do all this, there is every possibility that you will never need to contact your insurer to make a claim.

When getting the caravan checked, ask your service provider to check the condition of the shock absorbers. These units can wear and if worn will allow swaying to occur. Equally, have the brakes and bearings serviced and adjusted and consider having any worn bushes in the suspension replaced as these can wear and worn bushes can alter tracking direction of the wheels and decrease the performance of the caravan or trailer when being towed.

1.12 How to reverse your trailer or caravan.

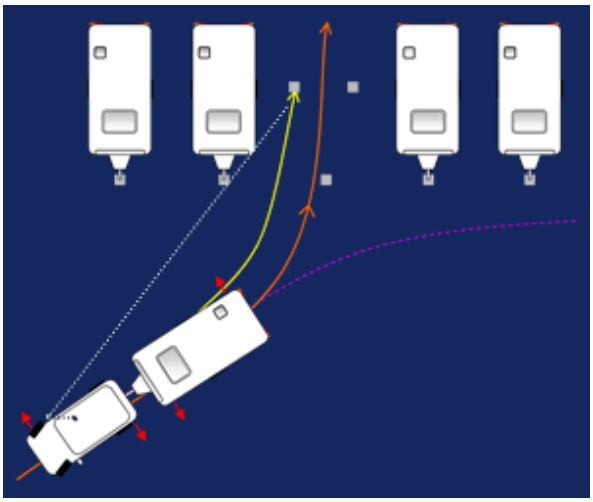
Reversing a car is not so hard, but there are a lot of good people out there that will tell you reversing a trailer or caravan can be a daunting challenge, especially if you have never attempted this before.

Drivers are often observed using loads of steering input when reversing their caravans or trailers. Watching a tow vehicle steer full lock left and then full lock right and then full lock left again to reverse a metre in distance is not uncommon but ask yourself this: would you steer your car full lock left, full lock right and full lock left again if driving forward for one metre? Probably not, so why do it in reverse?

If you had to drive your car forward down a straight driveway you would use very little steering input, yet for some reason, once the tow vehicle is put into reverse gear, we suddenly change all the rules and start using copious amounts of steering to reverse the caravan or trailer.

It all comes back to the unknown. You can see what's in front of you and you steer in the direction you want to go. Because you are now relying on mirrors to see behind you, or a voice directing you, you have less faith in the process.

Confusion plays a part in not knowing which way the tow vehicle or the steering wheel turn to make the caravan or trailer go in the right direction. Finally, you need to work out when to turn the steering wheel to make the caravan or trailer go where it's needed at the right moment.



The biggest mistake made by us all is usually too much steering input based on not understanding what the tow vehicle needs to do to push the trailer or caravan in reverse.

Without intending to sound too harsh, the driver needs to stop all the steering input, relax a little and think about where they want the trailer or caravan to go and then with calmness, put it there. Take control, use less input and think about how you would drive out of the position if already there, that may help you reverse into that position with less stress.

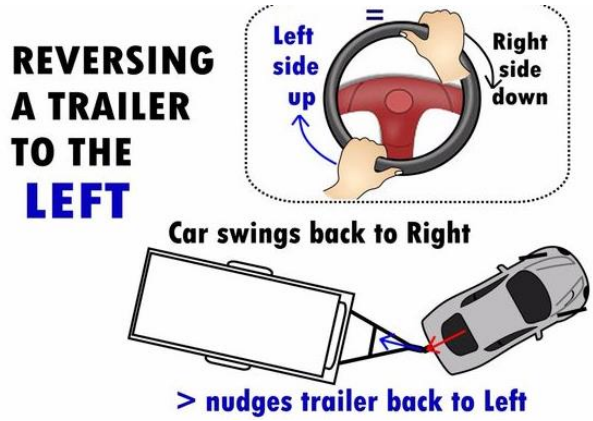
Looking at the diagram on the right, the yellow line indicates where the driver's side caravan wheel needs to track to get into this parking bay. In this situation, the driver needs to focus on two things only. One being, the driver side wheel of the caravan and where its tracking, and the off side of the caravan to make sure it does not hit other vehicles.

When you look at this diagram, ask yourself this: if the caravan was already parked in the bay between the other caravans and your job was to tow it forward to where it is parked now, what sort of steering input would you need to use to get it from where it was parked between the vans to where it is now?

Answer? Hardly any. If you require very little input to get the caravan from the parking bay to where it now sitting, why would you need loads of steering input to do the opposite? The answer is, you don't.

As discussed earlier, going forward is visually clear and we can see "first hand" the direction we need to take. Going in reverse now poses an issue because we cannot see clearly the direction of travel and we need to use mirrors or spotters to compensate this.

Mirrors are your friend and should be easy to use when reversing. Most drivers have no issue looking in their side mirrors when towing to see what traffic is behind them or to make sure the tyres and caravan or trailer are travelling OK. If we can use the mirrors for this purpose, then surely, we can use the mirrors to reverse.



Looking over your shoulder will not fix the reversing problem. Given you have a trailer or caravan behind you blocking your view, the only effective way to turn and see where your going is to turn to your right side and this is not easy.

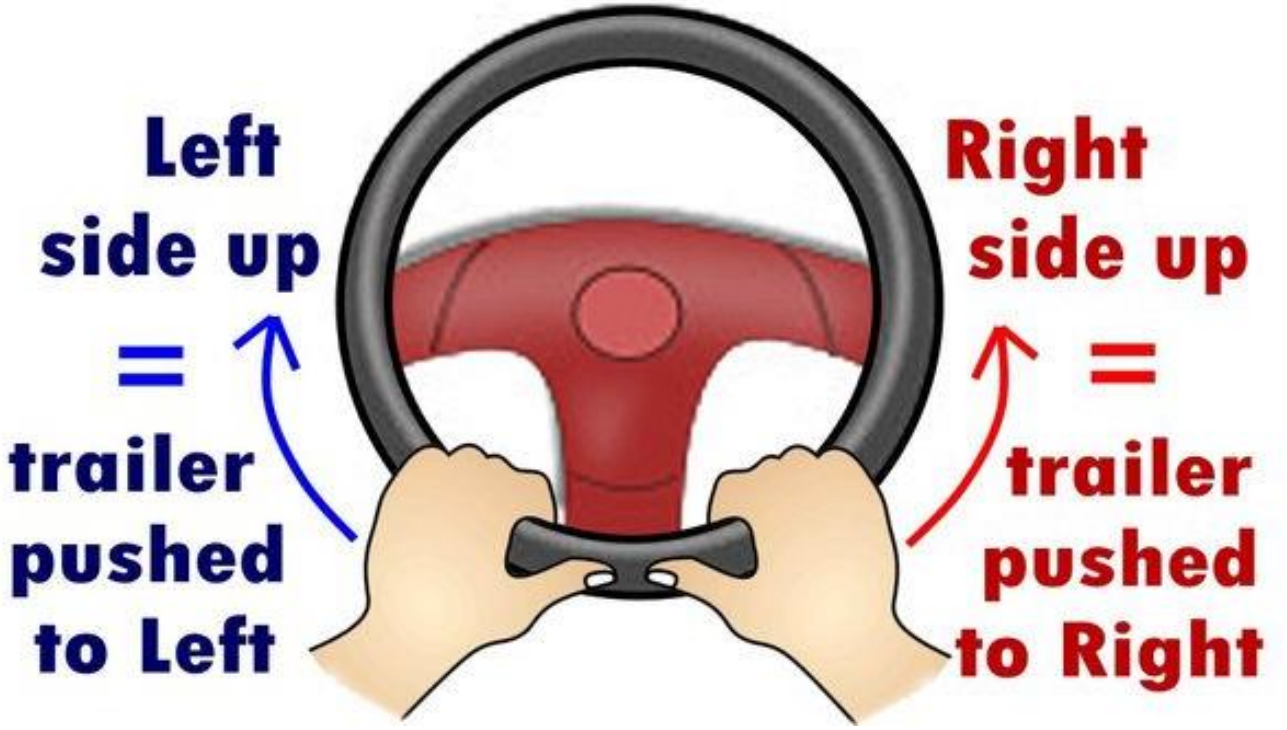
Some people may find it uncomfortable or painful to turn fully around and may find it difficult to drive the car if they are turned in the driver's seat.

We live in exciting times and are fortunate to have access to things like reversing cameras for caravans and trailers. Whilst reversing cameras are great, they won't teach you how to reverse and don't think they will automatically make you a reversing legend. Some reverse cameras are great, but they can only see where you are right now. if the camera is fitted with directional arrows this will make life a touch easier, if not, you will have to take it slower to work out exactly where the rear of the caravan or trailer is.

The best advice for any driver that is towing and especially reversing is learning to use and trust your side mirrors. Understanding how to read and use the mirrors will make life easy. Once you master that, simply keep reminding yourself not to use excessive steering input when reversing.

Simple rule to remember: when reversing, rather than hold the top of your steering wheel as you normally would, try holding the bottom of the steering wheel.

If using the bottom section only, then consider this rule. If you turn the wheel left from the bottom, the caravan or trailer will head towards the left, if you turn the bottom of the steering wheel right, the caravan or trailer will head towards the right.



The additional benefit of holding the steering wheel at the base as shown, prevents the driver from making large inputs.

To make large inputs you would have to use the top section of the steering wheel. If you use only the bottom section as shown, this will assist you greatly to reverse and position the caravan or trailer where you want it.

If you are fortunate enough to have reversing cameras, then use the camera in conjunction with your mirrors and spotter to complete a no fuss reverse move.

Some key points to remember: where possible, always reverse on your driver's side (right side) so that you have a close vision of where the caravan or trailer is reversing to. Even when arriving at caravan park or your destination look at the allocated reverse area and work out how to get there so that you can reverse on your onside.

Use your mirrors, make sure they are adjusted to suit your driving position and if needed, also use a spotter to guide you.

Less steering input when reversing will create a far smoother reversing outcome. Remind yourself; less steering input means a more controlled outcome - less steering input means a more controlled outcome!

Steer from the bottom section of the steering wheel, low input = maximum outcome.

Stay calm, relax, and think about where the caravan or trailer needs to be and then calmly reverse the car and trailer until you achieve the required outcome.

1.13 How to position your trailer or caravan.

For the caravaners, many caravan parks now have drive through bays that require little or no reversing and most caravan parks are set up to make reversing a less challenging task.

Positioning the caravan or trailer into a parking bay, garage or an undercover driveway area can be one of the hardest tasks to complete, especially if the driveway is curved and leading away from the onside of the tow vehicle.

Some homes or driveways do not allow sufficient room for the tow car and caravan or trailer, so other options for positioning the caravan may need to be considered

Brand names associated with positioning products are not promoted by RMS. There are many and varied manufacturers listed, and RMS would suggest you take the time to find the right product that suits your needs. The role of RMS is to discuss the types of devices available.

RMS will illustrate 3 different product types that are available to assist in positioning a caravan or trailer

First one is an electric (12 volt) motorised drive shaft that is fitted to the front or rear section of the caravan or trailer wheels.

When activated, the driveshaft moves and pushes against the tyres and provides controlled slow-moving power to the wheels of the caravan or trailer. Works a bit like a self-propelled lawn mower.

The unit is controlled via a remote control or a plug-in wire design system that allows the operator to drive and position the caravan into almost any position with ease.

Like all products, they have their good and bad points. Good points are: they are with you wherever you go, no set up required and ready to use when you need.

Bad points: extra weight to carry, they get rusty due to being on the underside of the chassis, can be costly, so shop around.

The second devise is a walk along type trolley jack that some may find easy to use given it does not require a remote control.

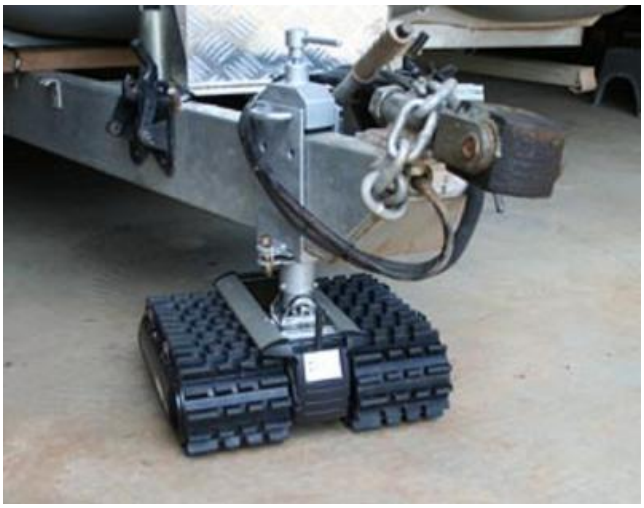
In this category of caravan positioning systems, there are loads to choose from. Many are simple in design whilst others are a touch fancier with additional features like built in hydraulic jack, fold down handles, little headlights and similar.

For the handy man, these motorised trolley jacks would not be too difficult to build in the back shed.

The motorised trolley jack usually comprises an electric starter motor for power, car battery, chain drive and a couple of sprockets and some cleverness to build.

Good points are: these trolley type positioning devices are not too expensive, they are easy to store in the garage and are easy to use given they are a hands-on type device.

Bad point, would be hard to take on a trip with you given their size and weight, you still need a spotter to guide you as you will always be in the centre of the drawbar when using this device.



The third product type is a robotic type rubber tracked device that fits to the tow ball of the caravan or trailer and once coupled, becomes the drive power that will allow the operator to position the caravan or trailer by simply using the hard wired or Bluetooth remote provided.

Good points are: the robotic track drive unit is powerful and easy to use. Uses a remote control that allows for operation at any angle of the caravan or trailer. Packs into a small bag and can travel with you.

Bad points: the only real negative is their high purchase cost, other than that, these devices are pretty good.

Other devices exist, so take the time to look around for one that suits your budget and needs.

Most important thing to consider when looking to purchase a positioning device like the ones shown is to make sure it suits your situation.

Many of these products are on display at caravan and camping shows where you may get a chance to try one before you buy, or at the very least, see them being operated in a practical setting.

As the house block sizes decrease and our desire to travel in caravans increases, there will be more and more clever devices like the positioning systems we see coming onto the market to assist and make our lifestyle more enjoyable.

1.14 Pre-inspection of your vehicle and caravan.

RMS will finish this information guide where others may have stared and that is with inspections and maintenance of the caravan or trailer. We have covered many sections relating to the loading, towing and reversing of caravans and trailers and maintenance has been mentioned in this process.

Statistics will show that setting off on a trip with a poorly maintained caravan or trailer will often end on the side of the road somewhere between the place of departure and where you're going.

Breaking down due to a failed wheel bearing or blown tyre whereby you now need roadside assistance will cost you a lot more than had you done this maintenance prior to leaving home. It is still very important that you don't set off on a trip without completing some basic maintence tasks on the caravan or trailer.

- ✓ Tyres, check pressures, tread depth and cracking or wall damage.
- ✓ Brakes, check adjustment, fluid level if mechanical, drum or disc condition, disc pads and handbrake cable adjustment.
- ✓ Bearings, cleaned and re-packed with bearing grease, fitted with new split pins and checked for correct tightness, not too tight, not too loose.
- ✓ Lights, all indicator and park lights working, fridge power on via tow vehicle, no loose wires in wire harness.

If you checked and maintained the 4 basic points listed above, you would be assured of having a trip that hopefully will not see you on the side of the road waiting for a repairer to fix the breakdown.

Trailer or caravan condition is important, running old tyres or not taking the time to check tyre pressures or not making sure the wheel bearings are cleaned and re-packed regularly with grease prior to travelling or not checking the operation of the brakes will all contribute to failures when towing.

Having a failure due to lack of care or concern is not a good look and can cause you or others harm so make sure your caravan or trailer is safe to tow on public roads.

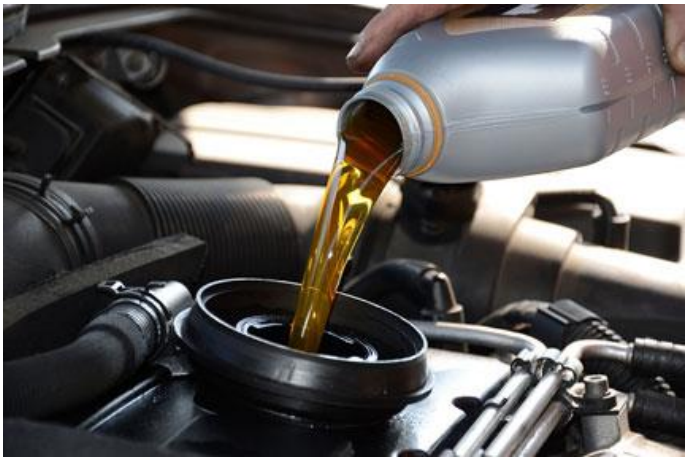
Making sure your tow vehicle is in good condition and operating safely is a priorty that you must consider if wishing to travel safely.

Like the caravan or trailer servicing, it is far more cost effective to complete preventative maintenance on your tow vehicle than have it repaired on the side of the road.

Brakes, steering, tyres, engine and transmission should all be checked and serviced prior to towing.

In hot or dusty weather conditions, consider having the cooling system flushed if needed and consider carrying spare coolant or water in your travel kit.

Packing a small tool kit comprising of basic screw drivers, shifting spanners, pliers and other items such as cable ties, electrical tape and similar will often come in handy for a quick fix to keep you moving.



Check the tow vehicles jack and wheel brace and check all wheel nuts to ensure they're tight but also that you can undo them if needed. Often, tyre fitting centres use air guns that over tignten wheel nuts, better to have that sorted prior to travelling.

1.15 Conclusion.

A guide to loading, towing and reversing your caravan or trailer is a 3 Part package that RMS offer. This section (Part 1) is a guide containing information that will assist in the understanding or loading, towing and reversing a caravan or trailer. Part 3 pratical assessment is based on the information contained in Part 1.

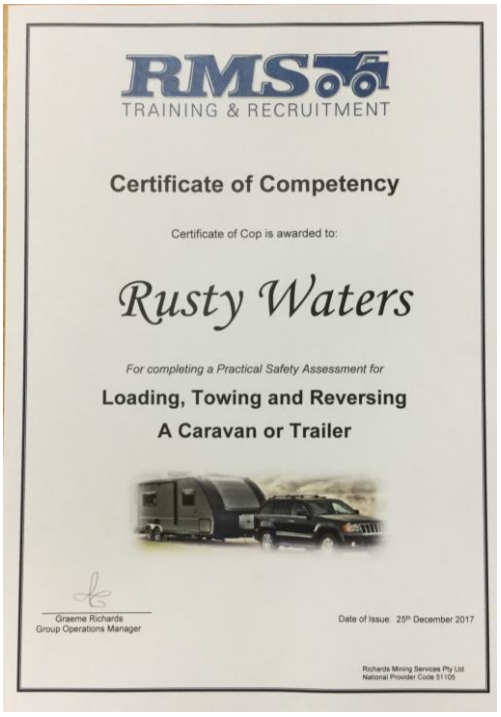
Part 2 is an advanced information session that will touch on the basics covered in level 1 but will offer a more detailed advanced learning outcome that will encompass bigger caravans, round Australia trips, off road operations, wet road conditions, recovery methods and much more. Due for release in July 2018.

Part 3 of this 3 Part program is the practical training and hands on assessment section that allows you to put into practice some of the points covered in Part 1

Part 3 covers the loading, towing and reversing of your caravan or trailer whereby RMS take small groups on a one day adventure that includes:

1. Loading and weight testing a trailer in the RMS undercover facitilties where you will learn and see first hand how the weights can and do affect the tow ball weight of the tow vehicle. You will have the opportunity to re-position weights to allow for correct loading.
2. Towing training is carried out on the road where you can use your own tow vehicle and caravan or you can use our Mitsubishi Pajero and caravan. The towing session follows a quiet but colourful route that will enhance your skills when towing, passing and following other vehicles and road users.
3. Reversing we leave to last just incase you have a melt down. The reversing is carried out in a safe area that will allow you to make mistakes without the fear of causing damage or harm. You will have to complete the reversing process a few times under supervision so that we can be assured you are a reversing to a safe standard. two way radio's will be used to assist in guiding you when reversing.

At the completion of the day, we believe you will have made some new friends and hopefully you will have gained some valuable skills and to compliment all of that, you will receive a Certificate to verify your new skills as well as a smart looking polo shirt with the compliments of RMS.


RMS TRAINING & RECRUITMENT

Certificate of Competency

Certificate of Cop is awarded to:

Rusty Waters

For completing a Practical Safety Assessment for

Loading, Towing and Reversing

A Caravan or Trailer

Graeme Richards
Group Operations Manager

Date of Issue: 25th December 2017

Richards Mining Services Pty Ltd
National Provider Code 51105

Booking for the practical sessions are essential. Costs for the sessions will be discussed at booking time or can be booked by going to our web page and following the prompts.

For the participants that wish to complete the practical section of this course, you are encouraged to supply your own tow vehicle and caravan or trailer as this allows you to get familiar with your vehicle set up.

RMS can provide an automatic diesel Pajero and tow unit at an additonal cost, but we do encourage using your own vehicle as this also allows RMS to look over tow vehicle and caravan or trailer that you have and offer any advice if needed on improving that set up.

We trust you enjoyed Part 1 of this 3 Part program and look forward to hearing your comments, compliments or any points you would like to see discussed in Part 2.

Graeme Richards

Group Operations Manager
RMS Training & Recruitment