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## Tow-able Choices: Travel Trailer vs Fifth Wheel

By Jerry (RiverGuy) Brown

Presumably you are here because you have decided that a tow-able RV makes sense for your travel style and budget. Leaving aside pop-up campers, which aren't really in the same class, your choices are travel trailer (TT) and fifth wheel trailer (5er). As with other decisions in the RV spectrum, there is no single right answer. Both have their strong points and drawbacks. Think about your needs in relation to these pros and cons and the choice will be easier. And if you haven't already done so, it's a good idea to visit one or two dealers and tour a few coaches of each type. This will help you rank some of the less tangible differences in these RVs.

The major difference between these trailer types is the hitch: The TT is hitched to the rear bumper of the tow vehicle (TV) using a ball and coupler hitch while the 5er uses a truck bed mounted pin and jaw hitch. As such, the TT is constructed on a single level frame, whereas the forward section of the 5er is elevated resulting in a split level floor plan that extends over the rear of the TV. In most cases the 5er is somewhat more expensive than a TT with similar features and options, but it will have more living area and substantially greater storage space.

### Advantages of the TT

- Tow vehicle flexibility: Van and SUV TVs provide more passenger space and truck beds are available for additional hauling.
- Lighter weight which may result in improved fuel mileage and requires less power from the TV.
- Lower roofline means less risk of snagging overhead obstructions.

Some people, especially those with disabilities, may find the single level floor plan more to their liking. Also, the TT is typically lower to the ground.

### Advantages of the 5er

- Overall TV plus trailer length is less for equivalent floor space, providing for better maneuverability.

- More stable towing, though load balancing TT hitches can reduce this advantage.
- Easier to hitch and unhitch, especially by a single individual.
- Usually have larger fresh and waste water storage capacity which can extend dry camping stays. Additional storage space for extra batteries can also help in that regard.
- Added ceiling height gives a more spacious feeling and provides additional overhead cabinet space.

Because of the different pivot points of their hitches, these trailer types differ somewhat in how they handle when backing up. However, most people find that with practice they can become proficient with either.

## How to Get the Most from Your Recreational Vehicle

### Tires The Importance of Air Pressure

The most important factor in maximizing the life of your tires is maintaining proper inflation. Driving on any tire that does not have the correct inflation pressure for the load of the vehicle is dangerous and may cause premature wear, tire damage, and/or loss of control of the vehicle.

A tire that is underinflated will build up excessive heat that may go beyond the prescribed limits of endurance of the rubber and the radial cords. This could result in sudden tire failure. A tire that is underinflated will also cause poor vehicle handling, rapid and/or irregular tire wear, and a decrease in its fuel economy.

Over inflation will reduce the tire's footprint or contact patch with the road, thus reducing the traction, braking capacity, and handling of the vehicle. A tire that is overinflated for the load that it is carrying will also contribute to a harsh ride, uneven tire wear, and will be susceptible to impact damage.

Maintaining correct tire inflation pressure for each loaded wheel position on your vehicle is of the utmost importance and must be a part of regular vehicle maintenance.

#### **How Much Air Should I Carry in My Tires?**

Federal law requires that the tire's maximum load rating be molded into the sidewall of the tire. On the tire's sidewall you can see the maximum load allowed for the size tire and load rating, and the minimum cold air inflation pressure needed to carry that stated maximum load. Utilizing less air pressure means a lesser load can be carried by the tire.

The amount of air pressure you need to use is dependent on the weight of your fully loaded vehicle.

It is important to note that the cold inflation pressure for the tire must never exceed the maximum inflation rating stamped on the wheel.

#### **When Should I Check my RV's Tires' Air Pressure?**

You should check the air pressure every two weeks or at least one a month and before any major trip. Your RV tires' air pressure should be checked every "drive" morning on long trips. On short trips of a day or less driving each way, your tires should be checked before you leave on your trip and again before you start your trip home. If your vehicle is stored for any

length of time, air pressure should be checked prior to storage, but more importantly, when it comes out of storage.

Check your tires when they are "cold" and have not been driven for more than one mile. The stated load capacity for a given cold inflation pressure is based on ambient outside temperature. If you must check your tires when they are warm or hot, do allow for a slight increase in air pressure and make sure they are within a couple of pounds of each other on the same axle. Never let air out of a hot tire.

It is recommended you purchase a quality truck tire air gauge which has an angled dual head. This type of gauge allows you to check inflations on the inner dual wheel which has the valve stem pointing toward you, and on the outer wheel which has the valve stem pointing away from you. Nothing should restrict your ability to check a tire's air pressure daily when you are driving your RV. Pressure sealing valve caps should always be used to prevent air from escaping from the valve stem. If you use valve stem extension hoses, make sure they are good quality stainless steel braid reinforced and are securely anchored to the outer wheel. If your RV has wheel covers which must be removed to check the inflation, then consider removing them on a long trip, as the extra time and effort required may lead you to avoid checking your air pressure.

### **What if You Don't Check Your Air Pressure?**

If a tire picks up a nail or screw that creates a slow leak and causes some air pressure loss, you might eventually spot it visually if it's a front tire. If it is an outside rear dual, you might also spot it with a visual inspection. However, if it is an inside rear dual, the chances of spotting it without an air pressure check are very slim. If you begin driving without finding it, very quickly (in most cases a few miles) your outside rear tire next to the low air pressure tire is going to heat up from carrying double its load, which will cause both tires to fail. Then you'll have two tires down on the same side and on the same axle, and a five ton or more vehicle at any speed is difficult to bring under control.

### **How to Determine Your RV's Correct Weight**

The GVWR (Gross Vehicle Weight Rating) and GAWR (Gross Axle Weight Rating) stickers on your motorhome (normally located on the support pillar next to the driver's seat) will show you the chassis manufacturer's and/or the motorhome manufacturer's total vehicle maximum weight ratings and per axle weight rating.

The GVWR is the maximum total weight for which the vehicle is rated - including passengers, fluids, and cargo. The GAWR is the maximum for which a single axle is designed. These per axle and total maximum weight ratings could be limited by the tires, wheels, axle and axle bearings, springs, the vehicle frame, or other components of the vehicle.

The GAWR sticker is only a guide in knowing your maximum loaded axle weights and subsequently your correct tire inflation pressure. Every motorhome, even of the same make and model, will vary in actual loaded axle weights, because of different options and personal loads.

While your actual, loaded axle weight should be below the GAWR, you must weigh your motorhome in a loaded condition to know its actual weight. Weigh the front axle, the total unit, and then the rear axle. It is possible for a vehicle to be within the GVWR yet overloaded on an axle. It is even possible for one wheel position to be overloaded, even though the GAWR has not been exceeded. For this reason (if there is room to the sides of the scale) Michelin recommends weighing each wheel position of the vehicle. This will give you a clear indication of exactly how the weight of your motorhome is distributed. The Tire Industry Safety Council publishes a "Recreational Vehicle Tire Care and Safety Guide" which includes instructions on how to weigh your vehicle by wheel position.

Links to selected instructions and diagrams are presented here: [Weighing Your Single Axle Recreational Vehicle](#) or [Weighing Your Tandem Axle Recreational Vehicle](#). Print the correct diagram/instruction from the links for your type of RV and use in conjunction with the "How to Weigh Your RV" section found below.

### Where to Weigh Your Vehicle

There are probably several certified public scales in your area. You will find public-access scales in a variety of places, such as moving and storage company lots, farm suppliers with grain elevators, gravel pits, recycling companies, and large commercial truck stops.

If you are not aware of a nearby public scale, check your phone book's yellow pages under "scales-public" section or "weighers". A nominal fee will be charged, but this is money wisely spent.

### How to Weigh Your RV

Your RV must be weighed fully loaded, that is, with passengers, food, clothing, fuel, water, propane, supplies, etc. Any towed vehicle (car/pickup, boat or trailer) or item loaded on brackets on the back of the RV, such as bikes or motorcycles, should also be included in the weighing.

#### **There are three types of scales: 1. Platform. 2. Segmented Platform. 3. Single Axle.**

1. The platform scale is long enough to weight the complete vehicle.
2. The segmented platform scales can provide individual axle weights and total vehicle weights simultaneously, when the vehicle is positioned properly.
3. Single axle scales weigh one axle at a time.

#### **1) The platform scale is long enough to weight the complete vehicle. The following steps are suggested and are illustrated with diagrams found in the above links under "How to Determine Your RV's Correct Weight".**

- a) Pull onto the scale so that only the front axle is on the platform (with the end of the scale midway between the front and rear axles), and record the scaled weight.
- b) Pull forward until the full unit is on the scale, and record the scaled weight.
- c) Pull forward so that only the rear axle is on the scale (again with the edge of the scale midway between the front and rear axles), and record the scaled weight.
- d) If the RV has a rear tag axle, pull forward so that only the tag axle remains on the scale, and record the scaled weight.

If there is no towed vehicle, this weight will represent the actual weight on the tag axle. To determine the actual load on the rear axle, subtract this value from the recorded weight in step 1c. If there is a towed vehicle, proceed to step 1e (see link above for "Weighing Your Tandem Axle Recreational Vehicle"), to obtain the "towed vehicle only" weight. Subtract that value from the value above and then subtract that from the weight recorded in step 1c.

If a boat, trailer or other vehicle is being towed, it should be weighed and combined with the towing vehicle's GVW (Gross Vehicle Weight) to ensure the total weight does not exceed the GCWR (Gross Combined Weight Rating).

#### **2) The segmented platform scales can provide individual axle weights and total vehicle weights simultaneously, when the vehicle is positioned properly.**

Position the vehicle on the scales so that each axle is centered as much as possible on separate segments, and record the weight. Reposition the vehicle so that only one side is on the scale, again centered on the segment as much as possible. Subtract the weighed wheel positions from the total axle weights to determine the un-weighed wheel positions' weights.

### 3) The single axle scale weighs one axle at a time.

Drive your front axle onto the scale and stop long enough for the weight to be recorded. Pull vehicle forward until the rear axle is on the scale. To obtain the gross vehicle weight add the two axle loads together. To obtain the individual wheel position weights, repeat this process with only one side of the RV on the scale.

*Note: Even though the weight of the total axle may be within the axle's rating, it may be overloaded on one side. This causes one wheel position to be overloaded. Therefore, side-to-side weighing should also be done.*

- To determine individual wheel position weights, it is necessary to repeat the previous three steps (1a, 1b and 1c), but this time, use only one side of the scale, as shown in the diagrams (see links above)
- To calculate the opposite side of the vehicle wheel position weight, subtract this side's weight from the weights recorded in steps 1a, 1b and 1c.

*Your RV must remain as level as possible on the scale (even though an axle or side is not physically on the scale). Obviously, to obtain the side-to-side weights, there must be enough space on either side of the scale to accommodate the RV being partially off the scale.*

If there is a difference in the weights on one side of the vehicle as compared to weights on the other side, components (tires, wheels, brakes, springs, etc.) on the heavier side could be overloaded, even though the total axle load is within the GAWR. It is important to redistribute the load to avoid component failure, as well as to improve the handling characteristics of the vehicle. With these actual weights, it is now possible to compare them against the GAWR, GVWR and tire capacities. These weights are also what should be used to help determine the proper air pressure for the tires.

If you are towing a vehicle or trailer, you need to know your RV's GCWR (Gross Combined Weight Ratings). This is the total actual loaded weight of your RV (or tow vehicle) plus total actual loaded weight of the towed vehicle (or trailer). The total actual loaded weight of the RV and towed vehicle should not exceed the GCWR. While the GCWR has more to do with the drivetrain (engine, transmission, axle, brakes, and bearings) design limits, this additional weight can also affect the tires and how your RV (or tow vehicle) handles. And finally, please don't forget to consider the tongue weight of the trailer.

### Common Tire Damages and Tire Wear

No tire, regardless of its quality, is indestructible. Certain conditions of use and abuse can stress a tire beyond reasonable operating limits, causing it to come out of service even when considerable tread remains. Such conditions are clearly indicated by the damage they leave on the tire itself. Below are listed common damages and the signs they leave behind. Please understand that this list is by no means exhaustive and is intended only as a general guide.

#### Fatigue Rupture

This type of damage is sometimes called a "zipper rip" because of the zipper-like effect it creates in the steel casing cords of the damaged tire. Overload and/or under inflation for a given load, and improper blocking of the tires can cause the steel casing to fatigue and result in this type of damage. As one cord breaks, each cord around it is subjected to even more stress. Eventually the weakened cords may break, one after the other, until a rupture occurs in the upper sidewall.

## Dual Kissing

This type of damage refers to what happens when two tires in dual configuration make contact while in operation. The heat generated by the friction between the two tires severely weakens the casing material of the dual tires. This is easily seen on the sidewalls of the tires where the duals come in contact. The condition may be caused by several factors:

- improper mounting
- incorrect dual spacing
- under inflation
- "casing growth"

In this last case, the fabric casing cords of the tire actually stretch and expand, causing the tire to touch or kiss, under load at the contact patch.

## Under inflation

This condition is often referred to as a "run flat" tire. It is caused by operating a tire at very low or zero air pressure. When a tire is run at normal highway speeds, underinflated, it flexes too much and builds up heat. This heat damages the inner liner, casing and outer sidewall of the tire. If not remedied quickly, the tire will be irreparably damaged.

In extreme cases, the sidewall of the tire is destroyed, from the excessive heat it endured, due to the weight of the vehicle pressing on the tire casing without the cushioning effect of the correct air pressure, and due to the crushing/cutting action of the wheel as it rolls on the uninflated sidewall. According to guidelines put out by the Rubber Manufacturers Association, any tire that has been run at less than 80% of recommended air pressure for the load it is carrying should be inspected for possible damage.

When one tire in a dual configuration comes out of service due to under inflation/run flat damage, the other tire in the dual configuration should be inspected immediately. If the unserviceable tire was underinflated, that means the serviceable tire was carrying more and more of the load for that wheel position. Consequently, it too may have suffered some casing damage.

## Tire Wear

All tires mounted on RV's should wear in a smooth, even wear pattern when the tires are maintained with the correct air pressure for the load on the tire. If tires begin to show an irregular wear pattern, and the vehicle alignment is correct, sometimes just rotating the tires by changing direction of rotation and wheel position will allow the tires to wear evenly.

## Toe Wear

A feathered wear pattern on the front tires typically indicates misalignment (toe in or out). Sometimes a radial tire will not have this wear pattern unless the toe condition is severe. Instead of the feathered edge wear, the tire will be worn on the inside or outside shoulder which could be confused with camber wear. A skewed rear axle could show feathered edge wear on one shoulder of one front tire and feathered edge on the opposite shoulder of the other front tire. In order to correctly diagnose a tire wear condition, the motorhome should have the alignment checked on all four wheel positions before any corrections to alignment are made.

## Camber Wear

Also known as edge wear, camber wear shows up on the inside or outside shoulders of the tread. Wear on the inside edge of both tires may be due to negative camber or toe-out, a misalignment. If only one tire shows edge wear, check for worn kingpin bushings, bent or worn steering components, or excessive positive camber setting.

## **Rotation/Cleaning/Tire Life**

### **Tire Rotation**

If correct air pressure and proper alignment are both continually maintained, tire rotation may never be needed. However, in other cases, tire rotations may be needed to help even out alignment, under inflation, or free rolling wear problems. Follow your motorhome manufacturer's rotations service recommendations.

### **Proper Cleaning**

Road oil will cause deterioration of the rubber and dirt buildup will help hold the chemicals in the air next to the tire and will also deteriorate the tire.

As with the cleaning of any rubber product, proper care and methods in cleaning must be used to obtain the maximum service years out of your tires. A soft brush and the normal mild soap that you would use to clean your RV may be used. If you use a dressing product to "protect" your tires from aging, use extra care and caution. Tire dressings that contain petroleum products or alcohol may cause deterioration or cracking.

In many cases, it is not the dressing itself that can be a problem, but more the chemical reaction that the product can have with the antioxidant compound in the tire. Heat can add to the negative reaction. When these same dressing products are used on a passenger car tire that is replaced every three to four years, it is rare to see a major problem. However, in most cases, RV tires may last much longer due to limited annual mileage, and the chemical reactions have much longer to take effect.

### **Tire Life**

The life of a tire used on an RV cannot be measured by miles alone. Your RV tire life depends on driving habits, driving conditions, and geography, as well as the age of your tires.

Just like your fan belt and radiator hoses, the rubber in your tires ages as well. In cooler, clean air locations, the expected tire life will be longer than in high temperature, high ozone areas. Of course, as a tire ages, you should inspect it more frequently.

### **Tire Inspection**

Your RV tires should be inspected thoroughly at least once a year, and any time you drive in rough or rocky terrain, or when you have your RV serviced.

This inspection should include both the outside and inside sidewalls, the tread area, and the valves, caps, and any valve extensions. Inspect for nails, cuts, bulges, aging, or fatigue cracks and weathering or ozone cracking. Also, check between the duals for objects lodged between them.

During the yearly or pre-trip inspection the tires should be inspected for signs of aging, either checking and/or ozone cracking. Look for tiny cracks in the rubber surface on the sidewall of the tires. Most often the cracks are 360 degrees around the tire.

If the cracks are less than 1/32" deep, the tires is O.K. to run. Between 1/32" and 2/32", the tire is suspect and should be examined by your tire dealer. If the cracks are over 2/32", the tire should be replaced immediately.

To protect your tires from these common damage conditions:

- Keep tires properly inflated

- Keep tires clean
- Avoid prolonged exposure to heat, cold or moisture
- Cover your tires when vehicle is not in use
- Do not park near electric generators or transformers
- Do not store vehicles in an area where welding is being done or in a garage which has mercury vapor lamps

On a regular basis, rub the palm of your hand across the face of the tread on your front tires to feel for any feathered wear from "toe" alignment problems. (Be careful since severe wear can expose steel belt edges that are very sharp). A "toe" misalignment problem can be caused by impact with a "chuck" hole in the road. Bad "toe" wear can be hard to find visually, but can be felt very quickly with the hand. This type of alignment problem can wear rubber off the tread of your tires in just a few hundred miles.

### **Long-Term Storage/Selecting Replacement Tires**

Your RV is designed for recreation, not long-term storage. However, unless you are a "full timer", you have no other choice. Rubber tires age faster when not being used. A cool, dry, sealed garage is your best bet for storage. However, many RVs are stored outside in the elements. Some storage surfaces may cause tires to age prematurely. For this reason, Michelin recommends placing a barrier (i.e. cardboard, plastic, or plywood) between the tire and the storage floor/ground surface. There are a few steps that you can take to reduce the aging effects from long-term RV storage. Before putting your RV into storage or a non-use period, thoroughly clean your tires. Then cover the tires to block direct sunlight and ultraviolet rays. Store your RV out of a high ozone area. NOTE: When vehicle is stored, tires should be inflated to maximum inflation pressure as indicated on the sidewall of the tire.

Before removing your vehicle from long-term storage, thoroughly inspect each of its tires. This means a close examination of each tire's tread area, and air pressure. If your pressure check indicates the tires have lost air during storage, be sure to inflate them to the correct pressure for the current load before putting the unit into service.

## **The Best RV Accessories & Add-Ons That Make Life On The Road Even Better**

Today's RV lifestyle is about a whole lot more than just having a comfortable bed to sleep on.

Sure, being comfortable is a primary concern, and getting there is half the fun, but modern RVs have so much more in the way of accessories that can bring your enjoyment of RVing to another level altogether.

*Here are some examples of today's must-have RV accessories. How many of these do you have?...*

### **RV Accessories**

Pretty much standard on new RVs these days are things like huge flat screen TVs, DVD players, and surround sound systems with better quality than what you have at home!

A self-aligning satellite dish is one of the most popular RV add-ons. After all, you don't want to miss your favorite TV show while you're rolling down

the highway.

You want to be entertained outdoors too? You can have your side storage compartment converted to an outdoor entertainment center. Many different things can be mounted in the side compartment of an RV, including stereos and TVs.

If you've ever been to a NASCAR race and walked through the pits, then you've probably noticed that the luxury coaches that the teams use as their corporate headquarters are decked out with every possible RV accessory you could possibly imagine. When they open their outdoor storage compartments, you can find everything from ice machines to extra freezer space for the kitchen!

Do you like to show your stuff when it comes to outdoor cooking? How about a swing-out stainless steel grill? You can have one mounted so it swings around the end of your RV trailer creating a picnic table, as well as a cooking station.

An RV awning is the most desired accessory of all. Many RVs come from the factory without this marvelous shade maker. RV dealers can easily add this to the sales ticket and have it ready for you in no time at all.

You might also want to consider RV window awnings for every window. They help keep your RV cool in hot climates. Plus, they keep the glaring sun out of your eyes when you're inside the RV. The list of available RV accessories aimed at making life easier on the road (or perhaps just more luxurious) is virtually endless. Many can be added during the building process at the factory. Your salesman can include most items when you're ordering your new RV.

For items that you may want to add later on down the road, any RV dealer will be happy to arrange installation for you. When it comes to installing some electronic devices, they may bring in an outside specialist to make sure everything is done to perfection.

You say having a back up camera would be a good idea, but your motorhome didn't come with one? Not to worry. One can be added in a matter of a few hours labor.

Everything from a talking navigational GPS unit to a brand new dishwasher or ice maker can be added to your RV before or after you drive it off the lot. Pretty much the only limitation is your imagination and the size of your wallet!

If there's room in your RV trailer or motorhome, your favorite RV dealer can install whatever strikes your fancy. All it takes is money.

Which RV accessories do *you* think are must-haves?

## Truck Conversions

*Reprint of article by Bob Strader*

In the issue of the NKK Konection, John Anderson, Executive Director, RV Safety Education, presented an article entitled Towing a Fifth Wheel with a Medium Duty Truck. John's article focused on safety and truck characteristics needed tow our larger fifth wheels. He briefly mentioned a lighter class of truck, commonly referred to as "light medium duty" trucks that are designed to fill a gap between pick-up trucks and medium duty trucks. These lighter trucks are also referred to as Class 4 and Class 5 trucks as opposed to the medium duty, which starts at Class 6.

Starting with the 1999 model year, Ford Motor Company introduced new models of the light medium duty Class 4 and 5 trucks (F450 and F550) to accommodate towing fifth wheel trailers in the 16,000 to 21,000 lb. ranges,

with a Gross Combination Weight Rating (GCWR) of up to 30,000 lbs.

These trucks are manufactured as dual wheeled chassis models with cab, drive train, and suspension completed. They are delivered as an incomplete chassis and then the conversion facility manufactures and installs a body on which the fifth wheel hitch is mounted and storage compartments are incorporated into the design. The conversion is then ready to be sold through Ford Motor Company's dealer network.

Why would we want to upgrade to the higher-class truck? (Safety) As John Anderson so aptly stated in his article, "the maximum allowable fifth wheel weight for most pick-ups is in the vicinity of 13,000 to 15,000 pounds". The Class 4 and 5 F550's will safely tow and stop our larger fifth wheels that are manufactured with multiple slideouts and carry a Gross Vehicle Weight Rating (GVWR) of 16,000 to 20,000 lbs

These trucks usually are equipped with the 7.3 liter PowerStroke diesel engine, four speed automatic transmission, like the Class 2 and 3 pick-up models, the cab area is also identical. The differences are in the frame, suspension, brakes, drive shaft, axle, rims, and tire size. These components are more heavy duty. Examples would include 15" ABS brakes as opposed to 12" ABS. Axle's accommodate up to 13,500 lbs. as opposed to 6,830 lbs. SRD, and 9,750 lbs. DRW, on the F350 models. Payloads are significantly increased with GVWR's up to 17,500 lbs. with the Crew Cab model.

An important consideration is how well the truck rides especially when used as a "daily driver". This is where I believe a major difference exists between the Class 6 medium duty trucks and the Class 4 & 5 light medium duty trucks. The front axles are rated for up to 6,000 lbs., as opposed to 8,000 lb. The 6,000 lb. axle provides a softer ride. The F550 especially benefits from optional rear air ride suspension. Air ride suspensions are adjustable and the ride can be significantly softened for non-towing application.

As John Anderson mentioned in his article, the addition of an air suspension hitch will provide additional dampening motion between the truck and the trailer. Some hitch manufacturers recommend this style of hitch on all dually pick-up through medium duty trucks. Some fifth wheel manufacturers have had to redesign their fifth wheel pin-box areas to accommodate the heavier suspensions of this newer breed of tow vehicle. The combination of rear air-ride and the air suspension hitch has made a significant difference in the ride and elimination of the "surging motion" common with standard suspended models.

Towing your fifth wheel safely is an important responsibility. Overloading the truck and fifth wheel can create a significant liability. Use of these newer model trucks help add the needed margin of safety not available with the pick-up. In the September 2001 issue of Trailer Life, writer Ken Freund responded to a question about overloading a tow vehicle with this quote: "When you overload a vehicle, you are using yourself and your family as test pilots to find out what fails first. It also puts all other users of the road at risk. In all cases, our response will be to not exceed manufacturer's ratings."

## Can Your Vehicle Carry the Load?

Reprint of article by Carl A. Nelson

Perhaps one of the most ignored and misunderstood aspects of obtaining the proper vehicle for the job is determining the requirements the vehicle

needs to fulfill. "Rightsizing" the vehicle will cut costs and downtime, while increasing the comfort and efficiency of the employee.

A vehicle too small to meet your needs may result in insufficient room, lower fuel mileage, excessive repairs and downtime, premature wear, and possible liability issues. Too large a vehicle may increase acquisition and operating costs, decrease mileage and maneuverability, and adversely affect employee comfort.

For these reasons, it is necessary to first identify your needs. The cargo type, weight and size must be considered. What are the operating conditions--city, urban, rural? What are the temperature ranges and terrain? Will it need to tow, and if so, what type and size trailer?

Are there any corporate requirements, such as maintaining an image, external agreements, or special safety concerns? Do you have any special driver needs? All of these issues must be part of the equation when writing your specs.

Before you can effectively determine your specs, however, you need to be aware of the following terms:

- Curb Weight: The weight of the vehicle with all permanently mounted equipment and maximum capacity of fuel, oil, and coolant.
- GAWR: Gross Axle Weight Rating. The value specified by the manufacturer as the loaded weight of a single motor vehicle. Cannot exceed the sum of all GAWR's.
- GCWR: Gross Combination Weight Rating. The value specified by the manufacturer as the entire weight of vehicle, trailer(s), equipment, driver, fuel, and payload
- Payload Capacity: The amount of weight the vehicle is rated to carry, computed by subtracting the curb weight from the GVWR.

#### Knowing Towing

If towing is a part of your requirements, it is also necessary to be familiar with the following towing terminology:

#### Trailer Classes

- Class I - Light Duty: 2,000 pound maximum weight, trailer and cargo combined.
- Class II - Medium Duty: 2,001 to 3,500 pound gross trailer weight, single axle, small to medium, length up to 18 feet.
- Class III - Heavy Duty: 3,501 to 5,000 pound gross trailer weight, dual axle or large single axle.
- Class IV - Extra Heavy Duty: 5,001 to 10,000 pound gross trailer weight, usually fifth wheel or gooseneck.

#### Hitch Types

- Weight Carrying: Supports trailer tongue weight, used for Class I and II up to 300 pound tongue weight, 3,500 pound trailer weight.
- Weight Distributing: Applies leverage between towing vehicle and trailer, distributing weight to all wheels.
- Fifth Wheel: Typically Class IV or higher, mounting platform over rear axle improves sway control, makes long trailers more maneuverable.
- Gooseneck Ball: Typically 2-5/16 ball mounted at bed level, improves sway control and maneuverability.
- Tongue Weight must be included in payload calculations. Properly loaded tag-a-long trailers are usually 10 percent to 15 percent of loaded trailer weight. Fifth wheel and gooseneck trailers are

typically about 25 percent of the loaded trailer weight.

**TOWING CAUTION:** You can maximize the vehicle manufacturer's value for trailer size OR you can maximize the vehicle manufacturer's value for payload. **YOU CANNOT MAXIMIZE BOTH!**

### Defining the Categories

Several years ago, as part of a cost cutting effort, AT&T recognized that many different sizes and types of vehicles were being used to support similar jobs nationwide. To analyze the differences, a Process Management Team was formed with representatives from each region.

The first step taken was to ask drivers to provide an inventory of the equipment and supplies carried on their vehicles. The responses were then compared, and the equipment and supplies were separated into broad categories, such as "Basics," which included tools, personal items, driver weight, documents and reference materials, and communications equipment.

Some of the other categories were "Optional Equipment" (toppers, shelving, etc.), "Special Equipment" (winches, plows), "Occasional Allowances" (extra passenger, special project tools), and "Towing."

The next step was to weigh the most common equipment in each category, and determine an average weight. Using the results of this exercise, a "Weight Matrix" was devised listing the common items in each category, and known weights.

Provisions were made to allow each driver to add his or her own weight for each item, and add additional items within each category. This provided the flexibility to accommodate regional variations as well as provide for customization. All weights could then be totaled and compared to the manufacturers' specifications to insure the vehicle ordered could meet the requirements.

Because at its' implementation the matrix was required with each order, it was necessary that it be simple to understand and complete. nationwide implementation resulted in considerable cost savings through lower downtime, fewer repairs, and standardization.

To illustrate this under real world conditions, let us examine the following hypothetical scenario. The people and trip are fictitious, but the vehicle specs and weights are real.

It is important to understand that your weights may vary with your equipment. The principle, however, is the same whether you are looking at a Ford or a Freightliner, a Kia or a Kenworth.

### Ray's Camping Trip

Ray has just purchased a shiny new Ford four wheel drive Super Cab short bed. He has a 5.4L V8, a 3.55 axle, and a 139" wheelbase. The curb weight is 4,775 pounds with a payload of 1,725 pounds, for a GVWR of 6,500. The GCWR is 11,500, with a maximum trailer weight of 7,800.

He has invited his best buddies, George, Fred, and Al to go with him for a long weekend of camping, fishing, and relaxing. They will be towing Ray's old fiberglass boat and trailer.

Ray has installed a fiberglass topper on his truck, which weighs in at 165 pounds. Additionally, he carries jumper cables (2 pounds),

a tool box (25), and a first aid kit (2). This has now reduced his available payload to 1,531 pounds (1,725 minus 165 minus 2 minus 25 minus 2 equals 1,531).

Ray weighs in at 190, George is 195, Fred is 185, and Al weighs 170. Subtracting this from the available remaining payload of 1,531 gives us 791 pounds of payload available (1,531 minus 190 minus 195 minus 185 minus 170 equals 791).

The four-person tent they are carrying weighs 23 pounds, four sleeping bags are another 20 pounds, the cook stove is 5 and two lanterns are an additional 4 pounds. Total is 52, leaving us with 739 available.

Now, let's add in the cooler, with hot dogs, hamburgers, etc. (25), two cases of beer at 20 pounds each (light beer does NOT weigh less), coffee, snacks, canned goods (10), pots, pans, utensils, dishes (15), and these items add another 90 pounds of weight. Four folding chairs (16), personal items, i.e. shaving kit, change of clothes, jackets, etc. (15 pounds each), tackle box, boots, etc. (10 each), subtract another 116 pounds, bringing us down to 533 pounds remaining.

Ray's older 20-foot fiberglass boat, with a galvanized trailer and big engine, weighs in at 5,250 pounds, fully outfitted. Since it is properly loaded, the tongue weight is 10 percent or 525 pounds. Subtract this tongue weight from the remaining payload of 533, and we are safe by 8 pounds. Or are we?

#### **Pay Attention**

As you can see by this example, neither the payload nor the trailer rating was exceeded, yet Ray was still overloaded. Without paying attention to what is put in/on the vehicle, it is very easy to become overloaded without even trying.

Adding to this illusion is the fact there is still plenty of space in the pickup bed for more items. Can the vehicle handle this? Perhaps, but stopping distances are increased, handling is severely affected, and the liability is unbelievable.

Try this little test on yourself. Take several common items and estimate their weights. Then, put them on a scale and compare their actual weights with your estimate. You will be amazed at the differences.

By becoming more aware of how quickly these can add up, you will not only save money, but also put a much safer fleet on the road. What price can you put on that?

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## Bumper Pull Trailers vs. Gooseneck Trailers

Of all the choices you'll make when selecting a trailer, none will affect your driving more than the choice between a bumper pull trailer and gooseneck trailer. Each option has its own advantages, but the differences between a gooseneck and a bumper pull hitch sometimes aren't apparent. How do you decide which hitch to choose?

Over the course of this article you'll learn the difference between a gooseneck hitch and a bumper pull hitch, along with the advantages and compromises of owning each type. By the end, you'll have enough information to figure out the right type of hitch for you and your tow vehicle.

The most common type of hitch is the bumper pull, also known as a drag or tagalong trailer. The name is slightly misleading because the trailer doesn't actually connect to the tow vehicle's bumper. Instead, the trailer's tongue fits over a ball hitch that juts out from the vehicle's frame at the rear of the vehicle.

Bumper pull trailers have a lot of advantages. Most of these advantages are because bumper pulls are smaller than goosenecks. This means a bumper pull trailer usually costs less than a gooseneck. It also means you may not have to buy a pickup truck in order to tow a bumper pull. Depending on the trailer, a motorhome, SUV or CUV may be suitable for hauling one.

Another advantage is the combined weight of a bumper pull trailer and vehicle is unlikely to exceed 10,001 lbs. This is usually the weight at which a trailer is declared commercial and requires a special license to haul, but you'll want to check with your state's Department of Motor Vehicles in case your state has lower limits.

A bumper pull hitch is also an advantage for a first-time trailer owner. It is a more common style of hitch than a gooseneck, and as a result it's less intimidating. In addition, a first-time trailer owner is more likely to have a bumper pull hitch on his or her SUV or pickup truck than a gooseneck hitch. First-time trailer owners will also appreciate that a bumper pull trailer has a normal turn radius, so the trailer will follow the towing vehicle as it makes a turn.

However, a bumper pull trailer does have some disadvantages. A smaller trailer means less space for living quarters or a dressing room in your trailer, and if you're hauling horses or livestock it also limits the number of animals you can transport. If you want to haul more than two horses for

instance, you may want a gooseneck trailer instead.

In fact, you'll want to be careful when hauling heavier loads overall. You'll need to make sure your truck is rated properly for the weight. If not, you are likely to encounter several problems while on the road, such as lack of stability and loss of control, including trailer swaying.

These are not problems most beginning trailer owners consider. Since more novice trailer owners have bumper pulls, it shouldn't come as a surprise that bumper pull trailers are involved in more trailer accidents.

A gooseneck trailer, on the other hand, is often owned by a trailering veteran. A gooseneck can easily be confused with a fifth-wheel trailer because the two hitch types are quite similar. The difference is a gooseneck trailer slides over a ball hitch in the bed of a pickup truck, while a fifth wheel trailer attaches to a pickup truck using a hinged plate hitch; the same type of hitch is used by semi trucks.

The biggest advantage of a gooseneck trailer over a bumper pull is its stability. Since the tongue weight of the trailer is over the truck's rear axle instead of at the back of the frame, the potential of the trailer to sway is minimized. This increased stability also means gooseneck trailers can accommodate more weight and be larger than a bumper pull trailer. Goosenecks have more room for living quarters if you want them, as well as more room for any cargo you haul.

Gooseneck trailers also have a tighter turn radius. This lets you cut corners tighter than a bumper pull trailer and lets you maneuver the trailer in tighter spaces. This tight turn radius can be a double-edged sword, though. It takes a few tries to learn, and if you mess up you can take off the trailer's fender, to say nothing of damaging street signs and other cars on the road.

A gooseneck trailer has limitations, though. One is its size. You won't be able to haul one with anything less than a pickup truck, and unlike bumper pull trailers, several goosenecks are heavy enough to be classified as commercial. Gooseneck trailers also require a special hitching system, installed in the bed of a pickup truck.

Gooseneck trailers are less common than bumper pull trailers. This means most pickup trucks don't come equipped with a gooseneck trailer ball in their truck beds. You'll need a mechanic (and some additional money) to do this.

Another gooseneck trailer issue is storage of the trailer itself. Since gooseneck trailers are generally larger than bumper pull trailers, storing one is a little more complicated than storing a bumper pull.

When considering whether to purchase a gooseneck or a bumper pull trailer, you want to figure out how much trailer you need. If you plan on transporting several horses, livestock, ATVs, etc., you'll want to consider getting a gooseneck. You'll also want to consider getting a gooseneck if you're planning on camping in your trailer, because you'll have more living space. A bumper pull trailer, on the other hand, fits better with hobby farmers.

Gooseneck and bumper pull trailers both have their own advantages. Choosing the hitch that's right for you will give you a better ride and optimize your trailering experience.

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