

Today we're going to discuss one of the most important components of your RV and probably the most neglected, your RV tires. We all tend to take tires for granted. You know what I mean, when was the last time you checked the inflation pressure in your tires? Especially the inner duals if you have a motor home. Better yet, when was the last time you had your RV weighed? Overweight RVs and under inflated tires are both unsafe, send operating and repair costs sky high and can cause unexpected downtime. Much of the reason for neglecting our tires is because we don't really understand what is required to properly maintain them.

Did you know that nearly a quarter of the RVs weighed by the Recreation Vehicle Safety Education Foundation; www.rvsafety.org had loads that exceeded the capacity of the tires on the RVs? On average, these RVs were overloaded by over 900 pounds based on manufacturer specifications. In a separate survey conducted by Bridgestone / Firestone, 4 out of 5 RVs had at least one under inflated tire, a third of which were dangerously under inflated and at risk of failure. An under inflated tire can't carry the load of a properly inflated tire and the extra weight causes greater heat build up in the tire, which can lead to tire failure. 40% of all rear tires were overloaded. Improper weight distribution resulted in 28% of all motor homes being out of balance by 400 pounds or more from one axle end to the other.

With multiple slide out rooms, amenities like washers and dryers, holding tank capacities and the ample amount of storage space available on today's RVs it's easy to see why so many RVs are overloaded. We have a tendency to fill every nook and cranny of available space. Another problem is out of balance loads. Properly distributing the load can be difficult to determine when you're loading the RV. You can within an axle or tire's load capacity on one end of an axle, and over capacity on the other axle end. The bottom line is overloaded RVs and under inflated tires are extremely dangerous. Our goal today is to keep you from becoming a statistic in relationship to overloaded RVs and under inflated tires. What do you say we get started.

The best place to start is with weight ratings. Weight ratings are established by the manufacturer and are based on the weakest link in the chain. The suspension system, tires, wheels, brakes, axles, and the RV itself all have weight ratings. When you exceed a weight rating you are overloading one or more components on the RV and risk wearing the component out prematurely or complete failure of the component. In many cases the tires on your RV are the weakest link.

If you've been RVing for a while I'm sure you heard stories about tire failures and blowouts. I can't begin to tell you how many times I've heard people say that the tires on their RV were defective, or my tires only had 12,000 miles on them when I had a blowout. In the majority of cases the truth of the matter is that tire maintenance has been neglected or the RV was overloaded. The only thing between your RV and the road surface is your tires and the air that is in them. This is the weakest link.

A federal data plate is required by law on all vehicles. It lists the Gross Vehicle Weight Rating and the Gross Axle Weight Rating for the vehicle. The Gross Vehicle Weight Rating or GVWR is one of the most crucial safety factors of your RV. The Gross Vehicle Weight Rating is the maximum allowable weight of the vehicle when fully loaded for travel including, all passengers, all cargo, fluids, and aftermarket accessories. You must not exceed the total GVWR for your vehicle. The Gross Axle Weight Ratings or GAWR is the maximum weight that should ever be placed on a given axle. The GAWR divided by two is the maximum axle rating for each end of the axle. You must not exceed this weight on either end of the axle, even if the total doesn't exceed the GAWR.

In addition to the federal data plate all members of the Recreation Vehicle Industry association (RVIA) are required to have an additional label on the vehicles they manufacture. This label lists additional information not available on the federal data plate and supersedes the federal data plate. There are two versions of the RVIA label depending on whether the vehicle was manufactured from September 1996 through August 2000, or after September 1, 2000. There are also separate versions for motor homes and for trailers, including 5th wheel trailers. Some of the weight terms on this label that we are concerned with are:

Unloaded Vehicle Weight or Dry Weight (UVW): The actual weight of the trailer or truck as built at the factory. The UVW does not include passengers, cargo, fresh water, LP gas, or after market accessories.

Cargo Carrying Capacity (CCC): is the maximum permissible weight of personal belongings that can be added. CCC is equal or less than GVWR minus UVW, full fresh water weight, full LP gas weight, tongue weight of any towed vehicle and after market accessories.

Gross Combined Weight Rating (GCWR): The maximum permissible weight of the tow vehicle and trailer **combined** when **both are fully loaded for travel**. GCWR also applies to a motor home towing a vehicle or trailer behind it. GCWR minus GVWR represents the allowable weight for the towed vehicle. **Note: The hitch receiver mounted on the towing vehicle must be rated for this amount of weight. If it is rated for less that is the maximum amount you can tow.**

Hitch Weight or Tongue Weight (TW): is the amount of weight pressing down on the vehicle's hitch or 5th wheel connection when the trailer is fully loaded for travel.

The only way to know if you are exceeding any of these weight ratings is to take your RV to the scales and have it weighed. The first step is to find scales where you can weigh your RV. This shouldn't be a problem. You can look in the Yellow Pages under moving and storage companies, farm suppliers, gravel pits and commercial truck stops. There are several different kinds of scales. What's important is to find scales where you can weigh individual wheel positions in addition to the overall weight, and the axle weights. Remember we said earlier it's quite possible to weigh an axle and be within the Gross Axle Weight Rating, but you can exceed the tire rating on one axle end or the other. Call

the number where the scales are located and ask them if it is possible to weigh your RV in these configurations.

The next step is to weigh everything! The day you head to the scales have the RV fully loaded for travel. If you tow a vehicle or trailer behind the motor home take the loaded vehicle with you. If you are weighing a travel trailer or 5th wheel, have the trailer and the tow vehicle loaded as if you were leaving on a camping trip. Be sure to include all passengers, cargo, food, clothing, fuel, water, and propane. Water, fuel and propane alone can exceed 750 pounds.

The actual process of weighing your RV is not that difficult. It may take a little time at the scales, but it is well worth it knowing that you're traveling safely within all of the manufacturer's weight ratings. To download a free copy of a detailed guide, with worksheets to take along on how to weigh your travel trailer or motor home go to www.trucktires.com

Before you go to the scales identify the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating (GAWR) for each axle, and the information about the correct tire and rim sizes and recommended cold tire inflation pressures for all vehicles and/or trailers you are going to weigh. Get this information from the Federal Data plate and RVIA Data plates we discussed earlier. Take this guide on how to weigh your travel trailer or RV with you and simply follow the steps in the charts that pertain to your configuration and fill in the blanks.

If any overload condition exists it must be resolved immediately. In some cases it might be possible to redistribute the weight and then weigh it again. If the overload condition still exists you'll need to remove some weight from the RV.

Just like the axles your tires and wheels have load ratings too. The maximum ratings are molded into the side of the tires. Keep in mind these are maximum ratings. The sidewall of the tire shows the maximum load and the minimum inflation pressure for that load. Never set the inflation pressures below the recommendations you find on the vehicle manufacturers placard and do not exceed the maximum inflation pressure ratings found on the tires sidewall.

The actual permissible load for a tire depends on the tire size and load range. The maximum load amount is molded into the side wall of the tire. You could increase your load capacity by changing to a higher load rated tire of the same size at a higher pressure, but keep in mind you still must not exceed the gross axle weight rating of the vehicle and you can't exceed the maximum tire inflation for the wheels. It's also possible in some cases to increase tire load capacity by increasing the inflation pressure in your tires, but you cannot exceed the maximum pressure specified for that tire. Consult your tire dealer for load and inflation tables.

It's also important that you use the same inflation pressure on both ends of each axle. If you weigh the RV and axle end loads differ enough that the tables specify different

inflation pressures for each axle end, the axle is out of balance and you need to redistribute the load. If for some reason you cannot redistribute the load you must inflate the tires on both ends to the pressure required for the axle end with the heavier load.

Never operate your vehicle with tires inflated to less pressure than required for the load. Never operate your vehicle with tires inflated to less pressure than specified on the vehicle placard, no matter what the load. Never inflate your tires above the maximum pressure shown on their sidewalls

This would be a good time to discuss some of the leading causes of premature tire failure?

- Overloading the tires
- Under inflated tires
- Ozone and UV rays
- Age of the tires
- Rotating tires

The tires on your RV are the most vulnerable component affected by overloading the RV. There are numerous reasons for this. First and foremost is when the tires are not inflated properly for the load. Failure to maintain correct tire pressure can result in fast tread wear, uneven wear, poor handling, and excessive heat build up, which can lead to tire failure. Another problem is when you weigh your RV the total weight of the axles may be within the axles weight rating but it may be overloaded on one side of the axle or the other. This is a common problem with RVs and many times the cause is poor weight distribution and/or improper loading of the RV. When this happens the tire or tires on the end of the axle that is overloaded are subject to tire failure. When a tire fails many RVers contribute it to a defect in the tire, but that is rarely the reason. The only way to avoid this is to weigh each axle end separately to determine if a tire overload condition exists. The maximum load on each axle end is half the GAWR for that axle. If an axle end has dual tires, the load on each tire is half the load on the axle end. **Never exceed the maximum tire load rating that is molded into the tires sidewall (along with the inflation pressure for that load).**

Another leading cause of tire failure is under inflated tires. The load rating for a tire is only accurate if the tire is properly inflated. Under inflated tires cause extreme heat build up that leads to tire failure. The appearance of the tire can look normal but the internal damage is not visible and the tire can fail at any time without warning. If you find any tire 20 percent or more below the correct inflation pressure have it removed, demounted and inspected. Driving on a tire that is 20 percent or more under inflated can cause serious, permanent damage to the tire that may not be visible. Tires with internal damage from under inflation can fail catastrophically without warning.

Tires can lose up to two pounds of air pressure per month. If you don't check your tires for three or four months they could be seriously under inflated. Ideally you should check tire inflation, and adjust it if required, everyday that you move or drive your RV. If you

can't get into the habit of doing it on a daily basis you need to make it a point to check all tires weekly at a minimum when you're traveling. You always want to check the tires when they are cold, meaning that you don't drive or move the RV before checking inflation pressure.

The only way to correctly measure the inflation pressure in your tires is with a quality inflation pressure gauge. Using your boot, a billie club or a hammer is not a quality pressure gauge, and don't ever depend on your eyes to check tire inflation. There can be as much as 20 PSI difference between tires that look the same. You need to invest in an accurate inflation pressure gauge. You should get one with a double, angled foot. This makes it much easier to check the outer tire of a dual set.

Wipe off the valve stem before you remove cap. The valve stem caps should be metal with an inner rubber gasket. A good cap will provide a seal even when the valve doesn't. Plastic caps may not provide a good seal at higher inflation pressures used on RV tires. Check all of your tires and adjust the pressure according to the manufacturer's recommendation. Never set the inflation pressures below the recommendations you find on the vehicle manufacturers placard and do not exceed the maximum inflation pressure ratings found on the tires sidewall. Over inflated tires are more likely to be cut, punctured or broken by sudden impact if they hit an obstacle, like a pothole, at high speeds.

Never check inflation pressure when the tires are hot. You'll get a higher-pressure reading and if you let some air out they'll be under inflated when they are cold. If you have dual wheels you'll want to add extension hoses to the valve stems to make the job of checking tire inflation easier. It can be nearly impossible to check the inner dual without extension hoses. The best extension hoses will have stainless steel reinforcement and external braiding for long trouble-free life. Make sure the ends of the hoses are securely attached to the wheels. If you add extension hoses you need to replace the rubber valve stems with all steel valve stems. The added weight of the extension hoses can cause rubber stems to leak air resulting in under inflation.

Ozone in the air and UV rays from the sun shorten the life of your tires. It's not uncommon to see RV tires with low mileage and plenty of tread that are ruined by the damaging effects of ozone and UV rays. Ozone in the air causes tires to dry rot and deteriorate. UV rays from the sun make it happen quicker. This is especially true of the tires sidewall. Inspect your tires for checking or cracks in the sidewalls. If you notice any damage have the tires inspected by a professional. There are basically two ways to protect your tires from these elements. Keep the tires covered with covers that will block out the sunlight when not in use. For long-term storage remove the tires and store them in a cool dry place away from the sunlight, and away from grease, oil, and fuel. I also recommend that you place something like a piece of wood between the ground and the tires. Be sure that whatever you use is larger than the footprint of the tire. No portion of the tire should hang over the edge of the tire block. This can cause internal damage to the tire.

The age of your tires is another factor that contributes to tire failure. I learned this lesson the hard way. I bought an early model Jeep CJ7 to tow behind our motor home. After completely restoring it we were ready to try it out. The tires on the Jeep looked new. There were no visible signs of damage from the sun and the tread looked as though they were used very little. We towed the Jeep from North Carolina to Florida and from there to Colorado and back to North Carolina with no problems. Shortly after that we towed it to Pennsylvania. Two hundred miles into the trip a front tire blew out, damaging the inner fender, shock absorber and an area below the door. I replaced the tire with the spare and within another 100 miles the spare blew out resulting in more damage. After getting a new tire and going back to pick the Jeep up along side the Interstate we took it to a tire store to have the remainder of the tires replaced. The technician came in and explained that the tires were nine years old and even though they looked to be in good shape they could not handle the stress put on them. He also explained that all tires manufactured in the United States have a DOT number. The DOT number on my tires was on the inside sidewalls. The last three or four digits in the DOT number identify how old the tire is. Older tires used three digits. The first two identify the week of the year that the tire was built and the third identifies the year. Newer tires use four digits. Again the first two digits are the week of the year and the last two identify the year. For example 32nd week of the year and 05 is the year 2004. If you question the age of your tires, especially on a used RV, and you can't find the DOT number have them inspected by a qualified tire center.

Have you ever owned a vehicle and neglected to have the tires rotated and one day you suddenly notice that the front tires are wore out but the rear tires look fine? I'm sure that this has happened to most of us until we learned the valuable and expensive lesson of not rotating our tires. If one tire shows signs of wear faster than another tire it may be a signal that something other than normal tire wear is happening and you should have it checked. But if it's just normal tire wear you can even out the wear and extend the life of your tires by having the tires rotated on a regular basis. Talk to your tire dealer about proper tire rotation intervals.

Occasionally washing your tires with soap and water is OK, but anything beyond that can actually shorten the life of your tires. Sidewall rubber contains antioxidants and anti-ozones that are designed to work their way to the surface of the rubber to protect it. Washing tires excessively removes these protective compounds and can age tire prematurely. The same is true of most tire dressing designed to make your tires shine.

Always keep in mind that weighing your RV is a snapshot in time. Weights can and do change according to how you load and distribute the weight in your RV and on many other factors. You should get in the practice of weighing your RV periodically to stay within all weight ratings, and remember, whenever an overload condition exists resolve the problem before using your RV.

Tire failure can be extremely dangerous and can cause extensive damage to your RV. There are no guarantees, but by practicing good tire maintenance and weighing your RV

you can feel much safer and secure that the weakest link on your RV will do its job while you're out exploring this wonderful country we live in.

Happy Camping,

Mark

Mark Polk is the owner of RV Education 101, www.rveducation101.com RV Education 101 is a North Carolina based company that produces professional training videos, DVDs and e-books on how to use and maintain your RV. Mark also hosts the RV savvy segments for RVTV which airs on the Outdoor Channel.