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Tire Safety part 1 of 4

Tire Basics, Age and Air Pressure by Dick Lorntson

Understanding and monitoring tire age and pressure may be the most important area of your motor home when it comes to safety. It is also one of the least expensive "fixes" any owner can do to improve ride and handling.

There are several markings on the sidewall of a tire that you should be aware of. The list includes manufacture date, load rating, air pressure range, speed rating and size. You will find these on all RV and passenger tires sold in the US.

#### MANUFACTURE DATE.

Knowing the actual age of your tires is important because most RV tires do not fail because of tire wear; rather they suffer damage from extended periods of neglect and inactivity. All tires have a DOT number on them, usually on only one side. This begins with the letters "DOT" and indicates that the tire meets all U.S. federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last three or four numbers, grouped together, represent the week and year the tire was built. For example, the numbers 317 means the 31st week of 1997 and as such 1204 would be the 12<sup>th</sup> week of 2004. The other numbers are marketing codes used at the mers if a tire defect recall. Tires over 5 years old should be inspected annually by a certified tire dealer and all tires over 7 years old should be replaced regardless of the miles or remaining tread.

#### LOAD RATING

Each tire has a load rating. It relates to the number of plies in the tread support system. This information may appear on the tire as "LRG" meaning "Load Range G". Load range G = 14 ply rating. Different load range letters relate directly to the ply thickness of the tire, and as such, the carrying capacity of that tire.

#### MAXIMUM AIR PRESSURE

Each tire has an acceptable maximum air pressure rating. This marking indicates the maximum amount of pressure that able to handle. Minimum air pressure is listed in the charts. DO NOT EVER exceed the maximum air pressure on the tire or the wheel your tire is mounted on.

#### SPEED RATING

Most RV tires are speed rated to 75MPH – exceed this speed and your carrying capacity drops proportionally.

#### TIRE SIZE

Tire size is likely the easiest marking to find on your tire. Common sizes include...245/70R19.5 (245mm width, 70 percent height versus width, R = Radial construction, 19.5 = diameter of wheel) 235/80R22.5, 275/80R22.5, and 225/70R19.5.

Now, the million-dollar question is "how much air pressure should I run in the tires on my RV?" The answer is, "Until you know the four corner weights of your RV, you do not really know." Knowing the precise weight of each corner independent of the others is the only accurate method of determining the proper air pressure for your specific RV. Different RV's carry different weights, are packed differently, weight is distributed differently, and may not have the same tires on them. The placard

with air pressure recommendations, found somewhere inside your coach, is generic at best. The coachbuilders and their engineers have no idea exactly what tires you may have mounted, (you are maybe on your second or third set of tires) or how and where in the coach you will carry your weight (treasures and what-if's).

To weigh your RV correctly, measure the fully loaded vehicle (full of fuel and with the normal amount of water and LP that you usually carry), using independent scales at each of the four corners. If you cannot find a properly equipped RV repair facility to do a four-corner weight measurement, a measurement of at least the front and rear axle is better than nothing. You can find certified public or commercial scales at moving or storage lots, farm suppliers with grain elevators, gravel pits, recycling companies and large commercial truck stops for this type of weighing. Allow adequate time, since the entire weighing process can take up to 30 minutes.

Next, take those weights and consult your tire manufacturer's load/inflation tables to find the air pressure needed to safely carry the load your coach is carrying. The tables will give you a range of weights for each 5-psi increment of air pressure. These tables will give you a minimum air pressure for that tire regardless if you are under the lowest weight for that tire. All tire air pressure ratings are to set at 65 degrees F temperature so only adjust the air pressure in the morning before you start driving.

All tires on the same axle must carry the same air pressure but the front or rear axles may carry different air pressures based on the recorded weights. For instance, both front tires must be the same and all 4-rear tires must be at the same pressure. Tag axle tires also carry the same pressure.

I will give a good example of why knowing your 4 corner weights are so important. Using my own 40' Damon on a Freightliner chassis, I know that the weights are as follows:

Left front #5250  
Left rear #9200

Right front #5600  
Right rear is #10,150

From the chart below, I see that my tires must carry a minimum of 70 PSI even if my coach is lightweight for my tires.

If you use the chart from Michelin below (all tire charts are available on the internet or at your local tire dealer) that represents my Michelin XZE tires, I know that the 275/80R22.5 load range G front tires can handle my weights at 100 PSI plus 5 PSI for what-if's (what if I stop and add something else of significant weight) to be able to properly carry the 5600 lbs that are on the heaviest front tire (right front). If I just weighed the front axle, I would come up with 10,850 lbs divided by 2 = 5,425 or 95PSI +5 PSI for what-if's. Not enough for the right front corner.

The rear weights have a marked difference. The right rear weighs 10,150 so I would need 100 PSI + 5 PSI for what-if's for a total of 105 PSI. On a single axle scale, the readings would be 9200 + 10150 = 19350 divided by 2 = 9675. By using the chart below I would use only 90-PSI +5 PSI for what-if's and I would not have enough air in each right side tires to properly carry my weights. (NOTE: Michelin often uses weights X 2 to list in their charts so be careful how you read the chart.)

275/80R22.5 LRG XD4<sup>®</sup>, XDA<sup>®</sup> ENERGY™, XDA<sup>®</sup>5, XDA-HT™ High Torque, XDA3™, XDE<sup>®</sup> M/S, XDN<sup>®</sup>2, XT-1<sup>®</sup>, XTA<sup>®</sup> ENERGY™, XTE™, XZA<sup>®</sup>-1+, XZA2<sup>®</sup>, XZA2<sup>®</sup> Antisplash™, XZA3<sup>®</sup>, XZE<sup>®</sup>

PSI	70	75	80	85	90	95	100	105	110	Maximum load & pressure on sidewall		
kPa	480	520	550	590	620	660	690	720	760			
LBS	Single	9000	9450	9880	10310	10740	11020	11560	11960	12350	S	6175 LBS at 110 PSI
	Dual	16380	17200	18160	18760	19540	20280	21040	21760	22700	D	5675 LBS at 110 PSI
KG	Single	4080	4280	4480	4680	4880	5000	5240	5420	5600	S	2800 KG at 760 kPa
	Dual	7440	7800	8240	8520	8880	9200	9560	9880	10300	D	2575 KG at 760 kPa

Rear tire weights (dual) are always rated lower than the same tire on the front. This is because the rear tires disperse heat slower due to their proximity to one another. Make sure to note the maximum weight at the maximum air pressure written on the sidewall of your tires, when consulting the charts. Some newer tires have slightly different air pressure ratings for the same size and load range of tires.

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