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Why are there load and
inflation tables?

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Why are there load and inflation tables

Tire manufacturers mold a label into the sidewall of every truck tire that gives both a load limit and an inflation pressure.

So what's the point of having load and inflation tables?



MAX LOAD!



Is what's stamped on the sidewall of the tire the recommended inflation pressure?

Some people think that, but it's not true. What is stamped on the sidewall is actually the maximum load and the minimum inflation pressure for that load.

So what do those numbers really mean?

The load number is the maximum load for the tire in normal operation. When you select a tire, **you should always make sure that this number is equal to or greater than the largest load you'll ever put on the tire.**

Why not just go for the highest tire load rating available?

You can do that, but it really doesn't help, nor is it very economical. Tires with higher load ratings often cost more, but if you can't use that extra load capacity, there's no advantage.

Why are there different numbers for dual and single?

Dual load limits are lower than those for singles to add a bit of a safety factor for inflation pressure mismatch between the tires, and because road crown causes each tire in a dual pair to be loaded somewhat differently.



Road Crown

But the recommended inflation pressure is the same.

Yes. And again, it's the inflation pressure for that maximum load. So, if your tire loads aren't that high, your tires are probably overinflated.

That's why the practice some people have, of looking at tire sidewalls to determine the inflation pressure for their tires, is not a very good one.

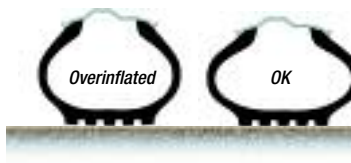
What harm does it cause?

First, overinflating tires makes them hard and stiff. That means a rougher ride.

And, in some situations, overinflated tires, because of their stiffness, can actually damage dirt roads, like logging roads. That's why some logging companies run their tires

at different inflation pressures, depending on whether they're "in the bush" or out on the highway.

And, overinflation also means tires are at greater risk for an impact break.



Overinflated tires tend to exhibit fast wear in the crown area, together with hard ride and increased tendency to impact breaks

What's an impact break?

When an overinflated tire strikes a sharp edge, like the edge of a pothole, at fairly high speed, it can literally "break" the tread and casing, often opening a huge gash across the width of the tread.

The damage is usually so bad the tire cannot be repaired or retreaded.

Are there any other disadvantages to overinflation?

Overinflated tires can suffer irregular wear, especially in the crown area, because the crown shape is distorted by excessive air pressure

And, for this same reason, it's possible for overinflated tires to suffer a loss of dry traction, because the excessive pressure reduces the amount of rubber in proper contact with the road.

It was also this loss of traction, in the days before ABS became universal, that often allowed trailer tires to lock up and become flat-spotted. When a tire was inflated to its maximum, and the trailer was empty, brake lock and flatspotting were likely.

Can this inflation pressure ever be exceeded?

If you're running at speeds less than 50 miles per hour and need to increase tire loads, you can often do it by adding additional air pressure.

So, if you're running a metric size tire, like a 295/75R22.5 with a "G" load rating, the maximum load at speeds of 51 mph and above would be 5675 lb for each tire in a dual pair.

TIRE SIZE DESIGNATION	USAGE	kPa psi	480 70	520 75	550 80	590 85	620 90	660 95	690 100	720 105	760 110	790 115	830 120
295/75R22.5	DUAL	kg lb	1860 4095	1950 4300	2060 4540	2130 4690	2220 4885	2300 (F) 5070 (F)	2390 5260	2470 5440	2575 (G) 5675 (G)	2630 5795	2725 (H) 6005 (H)
	SINGLE	kg lb	2040 4500	2140 4725	2240 4940	2340 5155	2440 5370	2500 (F) 5510 (F)	2620 5780	2710 5980	2800 (G) 6175 (G)	2890 6370	3000 (H) 6610 (H)

Wheels have load and inflation pressure limits, often very close to those of the tires mounted on them.

If your actual speed never exceeds 30 miles per hour, you can add at least 12 percent to your load, making it 6356 lb, provided you add 10 psi to your inflation pressure, making it 120 psi.

Plus, if you're using a trailer as a storage unit and it never moves, you can add 105 percent to the normal maximum load, taking it to 11,634 lb, provided you increase inflation pressure by 30 psi, to 140 psi.

Metric & Wide Base Radial Tires Rated at 75 mph

Speed Range (mph)	% Load Change	Inflation Pressure Change, psi
41 - 50	+7%	No increase
31 - 40	+9%	No increase
21 - 30	+12%	+10
11 - 20	+17%	+15
6 - 10	+25%	+20
2.6 - 5	+45%	+20
Creep - 2.5 ¹	+55%	+20
Creep ²	+75%	+30
Stationary ¹	+105%	+30

Conventional Radial Tires Rated at 75 mph

Speed Range (mph)	% Load Change	Inflation Pressure Change, psi
41 - 50	+9%	No increase
31 - 40	+16%	No increase
21 - 30	+24%	+10
11 - 20	+32%	+15
6 - 10	+60%	+30
2.6 - 5	+85%	+30
Creep - 2.5 ¹	+115%	+30
Creep ²	+140%	+40
Stationary ¹	+185%	+40

¹Apply these increases to dual loads and inflation pressures

²Creep: Motion for not over 200 feet in a 30-minute period.

Note: The inflation pressures shown in the referenced tables are minimum cold pressures for the various loads listed. Higher pressures should be used as follows:

- When required by the above speed/load table.
- When higher pressures are desirable to obtain improved operating performance.

For speeds above 20 mph, the combined increases of A and B should not exceed 20 psi above the inflation specified for the maximum load of the tire.

THE MAXIMUM LOAD & INFLATION CAPACITY OF THE RIM MUST NOT BE EXCEEDED.

Wouldn't a high load like that, plus such a high inflation pressure, make the tires explode?

In actual tests, modern truck tires can often be inflated to over twice their maximum rated pressure before failing.

Plus, most wheels break down before the tire does.

Really? It's the wheel that fails?

Take a look at the maximum inflation pressure rating stamped on the rim. You'll probably find it's not much higher than the rating for the tire.

So, even if it looks like the tire can handle the load at a slower speed and increased pressure, the wheel might not.

In many shops, the air compressor doesn't produce enough pressure to ever cause this kind of wheel failure, and it's just as well, because it would be very dangerous.

What's the conclusion?

The proper inflation pressure for a tire depends on the actual load, the operating speed and whether the tire is in a single or dual configuration. Once you know those things, you can select the correct inflation pressure.

And **the sidewall stamping is not a substitute for using a proper load and inflation table.** 