

Beadlock Wheels



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Beadlock Wheels

As we are talking about specific build modifications you can do to your Jeep, one of the frequently asked questions is about the Beadlock Wheel or Rim.

This brings up a great "terminology" aspect to start with first.

I have found depending on what part of the country you are in, or what area of the automotive world you are in there are different ideas of "terminology." I want to take a moment to start with that first terminology aspect so when you go into a shop, talk to someone at an event, or call a company to ask questions you are informed.

I know people call the Beadlock or non-beadlock a Wheel or a Rim. In the 4x4 and off-road world you are going to call your tire a tire not wheel, and your Wheel is a Beadlock or non-beadlock that your tire mounts too.

In this training article when you see Wheel that is referring to the Beadlock or Non-beadlock Wheel not a tire.

This can be a confusing distinction but it is important terminology to know and understand.



Beadlock Wheels

I have been asked,
"What is a Beadlock Wheel?"
What is the difference between the Beadlock Wheel and traditional non-beadlock Wheel?
When do I need to get a Beadlock Wheel?"

I talked about the Beadlock in one of our classes and there were some questions, so that prompted doing this entire Focus on the Beadlock Wheel as a specified piece of our Design Your Jeep Build Training.

The very first thing I want to cover is also a very important thing!
Make sure that the Beadlock Wheel that you are looking at is DOT approved.



Being street legal and understanding what that means can be a misconception.

Start by understanding that the Beadlock wheels were not "street legal" for a very long time.
Now there are more available that are DOT approved.

If you do look into getting Beadlock wheels, you need to look up and make sure that they are DOT approved. They need to be "street legal" and look into your state and make sure that they are going to be legal.

Not every Beadlock really is going to be "street legal" and some states have different requirements.

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Why would you look at a Beadlock wheel?

Really this is going to be for your Off-Road capabilities.

The biggest thing is so that you can air down the PSI or the air pressure in the tire lower due to the Beadlock wheel because of how it works.

That is the biggest thing really when you start talking about Beadlocks. Doing the upgrade to a Beadlock is because you want the off-road capabilities.

The Beadlock has nothing to do with on road capabilities for your daily driver.

This really is when you start talking about offering capabilities and the biggest thing is by far is the ability to air down your tire, and run a much lower PSI then you can on a non-beadlock wheel.

This allows for a better ride quality as well.

It is going to allow the tire to have more give and kind of melt around the rock or the object on the trail. You gain more tire surface on the ground so that in turn also gives you more traction as well. That can make a big difference when you are negotiating terrain Off-Road!

You can see that in the picture example below. You can see in this picture, I wanted to find one that captured the tire aired down at work. In the picture this is my stock, JKU with non-beadlocks.

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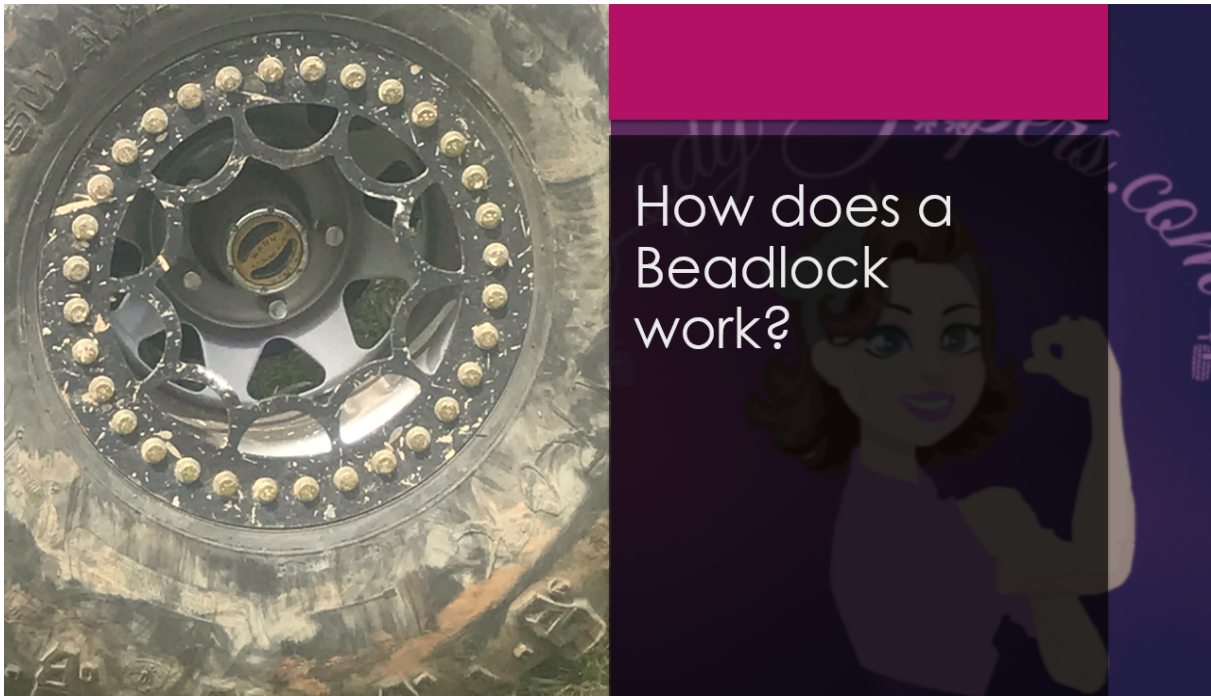


In this picture, the tire is only aired down to 18 PSI due to it being a non-beadlock. In fact, this is actually my factory stock wheel that came on my JKU.

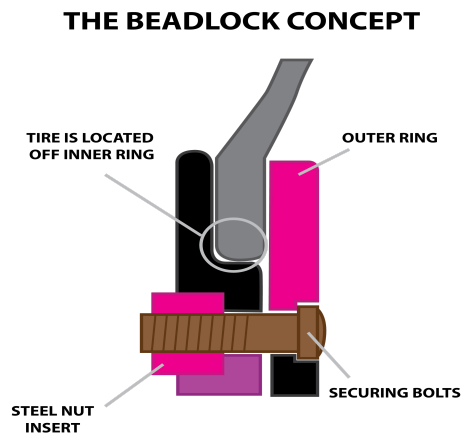
As you can see because it is aired down, you can see how the tire is forming around the obstacle right here. That is the actual example of when we start talking about off road capabilities. This shows why being able to air down the tire even more with the Beadlock wheels can be so important.

So the next question that this leads into that I hear all the time is,
"How does a Beadlock wheel work."

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I know that is the biggest question I hear and get in regards to understanding Beadlock Wheels.
What makes it so different from a non-beadlock and how does it actually work?
So the picture above is a Beadlock wheel.



I had this graphic created for us to help illustrate how the Beadlock wheel works. To me, this is a great way of showing what the actual Beadlock concept is. What the Beadlock does and how it functions is illustrated for us.

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You are going to have an inner ring and then you are going to have the bead of your tire, and then you have the outer ring. This is going to kind of squish against it. Then you are going to have the bolts that are going to go in to actually secure that front ring to the back ring. It is going to kind of, for lack of a better words, sandwich or smush the actual rubber of your tire and hold it. That is going to be a little different than a stock or non-beadlock wheel.

The Beadlock concept is that the tire is actually being held with the plates and with the bolts instead of holding the tire to the wheel with air pressure.



In the picture, this is a Beadlock wheel. This is a wheel that is on my Yj.

As you can see, this is going to be the outer ring that we are talking about. And these are the securing bolts and this is what it looks like on the back side. When you are looking at this tire, it is actually in between the inner ring and this outer ring. The bolts are then holding the actual rubber tire to the wheel. It was kind of pinched or sandwich or squished, whatever words you want to use to hold that tire right there with the wheel itself.

It is a completely different designed wheel in functionality and application. It is not dependent on air and the seal to the wheel to be held by the air pressure.

Let's jump into that below in more depth!

Beadlock Wheels

The difference between a stock wheel (non-beadlock) and a Beadlock.



Here is an example of the two different wheel types next to each other.

As you can see over here on the right, this is my stock, JKU. These are the stock wheels that come on it, so non-beadlocks. Just to clarify quickly as well, I am running my stock wheels and tires in this example photo. (And yes it is aired down and on a trail. 😊)

Then over here, on the left, you have the bead lock.

When you are looking at what the actual difference in these two are..... The one on the right (non-beadlock) shows the wheel is mounted with the tire. The tire meets the outside of the wheel to have the "mounting" surface when it seals, it seals to the outside of the wheel and sits on the outside of the wheel due to the air pressure creating that tight seal of the tire to the wheel.

On the Beadlock tire on the left, you can see you have the lip of the wheel and the tire is actually under that lip. That means your wheel is on the outside of the tire. That also means that what is holding this together is not the air pressure.

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I don't know if you have ever seen a "traditional" wheel and tire like this stock one mounted. When they go to do it, this tire is not actually sealed to the wheel until the air inflates the tire to almost "pop it" onto the wheel to create the mounting seal.



When mounting the non-beadlock on the right, it actually mounted so that the rubber of the tire is put underneath the lip of this wheel and then they go ahead and inflate it with air all the way.

What is holding this together and creating the seal is the actual air pressure.

Now when you look at the Beadlock, (wheel on the left) the way that a Beadlock is put together, when you mount it, you do go ahead and mount the surface of the tire. But the difference is there is an inner surface, and what you are able to see is the outer ring. You can not see the actual inner piece once it is mounted in this picture. But the inner piece goes under the tire and the outer piece goes over the rubber tire and then all these bolts go in to hold it together. The actual rubber tire is in between the inner and outer plate right here.

So what happens when you go to mount it?

If you think about it, it is really the bead, kind of securing that tire so that you can inflate it. What happens if the air is not what is keeping the tire on the wheel anymore. (The Beadlock example) You can deflate this tire, run a much lower psi and you have less of a risk of it actually coming off the wheel/bead or losing the tire mount. (Laments terms)

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Whereas, on a traditional, or non-beadlock wheel, if you were to air down and you were to hit an obstacle or a rock, sometimes the tires actually going to lose the bead or mount/seal and then all of a sudden your tire is no longer on the wheel.

On the Beadlock that is less likely to happen because this is what is securing the tire instead of the air itself or air pressure (PSI) securing the seal and holding on the tire to the wheel.

Quick Overview;

That is why when we are talking about the Beadlock, we are talking about it for Off-Road capabilities.

The biggest difference is the traditional wheel (non-beadlock) uses the air pressure in the tire to keep the tire on the wheel. You know, that is why when they mount them, they inflate them to get the seal and sometimes you will hear the pop of the tire sealing to the wheel with the pressure of the air.

Whereas, the Beadlock uses the ring and then the outer ring to sandwich them and lock the bead of the tire. So it does not have to rely on air pressure to keep the seal anymore. That is why you are able to air down more and you can run a much lower PSI on a Beadlock then on a traditional wheel.

Understanding PSI

I want to give you an example of what I am talking about as a guide when I am talking about PSI. On a Beadlock wheel, you can air down to about 5-6 PSI so that you are running six pounds of pressure in that tire.

On a traditional, or non-beadlock wheel, you can air down to about 16 -19 PSI air down range safely. This guide is conservative so that you are not having to worry about the seal or the tire coming off of the wheel itself and losing that seal.

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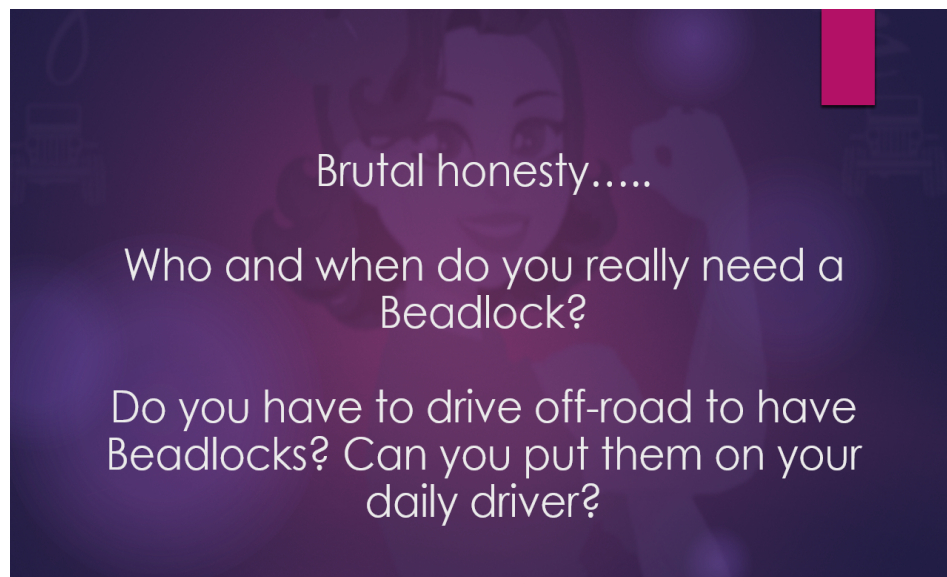
Think about that, you are talking about a difference of 10 PSI. So 10 pounds of air difference between your Beadlock and your non-beadlock wheel. When you are out on a trail, especially if you know you are doing rocks and different obstacles, that is going to make a big difference as to how much tire surface that you are going to have to be able to kind of mold around the obstacle, the Rock, whatever it may be that you are driving on.

If you are going to be going to the events, really want to take the Off-Road ability of your vehicle to its maximum that you can then think about upgrading to the Beadlock wheel. That then brings up the next question.....do you have to drive Off-Road to have Beadlocks and can you put them on your daily driver?

**I am going to share some Brutal Honesty here ladies.....
I am going to throw this out here and hit a little bit of Hard Honesty.**

**Who really needs a Beadlock wheel?
and
Why do you really need a Beadlock wheel?**

Like we talked about at the beginning, the Beadlock really has been developed for Off-Road capabilities. This is for the jeep that you are going to be taking on the trail. You are going to be taking to events, parks and rides. You want more capabilities so you want to be able to air the tires down or run a much lower PSI.



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Here is where there is a little brutal honesty.

You know, you see a lot of people who are running Beadlocks. It is becoming more and more common and some people do use them on their daily drivers for looks.

Ask yourself, is your vehicle going to be your daily driver, you are not going to be taking it Off-Road, or if you do, it is going to be more moderate, a little bit easier trail riding?
If Yes, you do not need to be thinking about Beadlocks.

Again, this really is meant for your Off-Road capabilities. You do not need it on your daily driver. A lot of people are doing it nowadays for looks. That is fine. They are more expensive. And again, you have to make sure that they are street legal and they are DOT approved. If you are just going for the look, they make fake Beadlocks that are really a non-beadlock wheel, but they look like they have the plate and it looks like they have the screws so that they are Beadlocks, but the really are not.

You are seeing more and more of that when you are talking about the looks of the vehicle and not necessarily about the function and use of the Beadlock itself.

This is a personal preference.

If you are going to be Off-roading, you want to go ahead and step it up. The Beadlock is a great way to go. It is going to improve the quality of the ride that you have, by increasing the capabilities Off-Road.

If you want it just for looks, remember it is going to be a little more expensive. You have to make sure that it is legal. This again is a personal preference and if you are putting them on your daily driver that is going to just be going down the road, there is nothing wrong with that.
(and do not let anyone else make you feel differently! Your choice and your money.)

This isn't a crucial upgrade and money to spend unless you know that you are going to be going Off-Road. So again, it's a personal choice.

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This Beadlock Training was the beginning of understand as a modification and upgrade in your build. Without getting into a lot more detail they also now make a double Beadlock wheel as well for those who want it for Off-road capabilities. I just got my wheels and I got the double Beadlocks, so they are going to be different in some ways from what we talked about in this training. However, the Beadlock themselves works the same regardless. The double Beadlock just gives you a Beadlock on the inside and outside of the wheel instead of just the outside on the traditional Beadlock wheel. This is definitely an upgrade and modification you only need to make if you are planning to build your Jeep for a lot of Off-road use. We will be sharing more about the double Beadlock Wheel coming up in our new training.

Keep in mind as we are closing this training.....you do not have to get what is popular or what is new.

This is your build, your Jeep and your money! You need to get what it is you want regardless of the reasoning behind it. Let's be honest! You do not need any reasoning if you want to go that direction for your build. (As long as it is a planned and appropriate modification, which after this Design Your Jeep Build you will never have to worry about again!)



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