



BUILD AN ARTICULATION RAMP

Put a figure on that flex!

BY PETER VIEIRA

Sweet! Your pic for #FlexingFriday got a bunch of Likes. But how much articulation does your rig really have? With an RTI ramp, you'll know. RTI stands for "Ramp Travel Index," and it refers to the measurement of a truck's suspension articulation. It's easy enough just to raise a wheel and measure how high it can get before another wheel lifts, but RTI is interesting because it factors in the truck's wheelbase—it's not just a height measurement. The other neat thing about RTI is that you can compare the RTI numbers for trucks of different scales. Any full-size Jeep will be able to lift a wheel higher than a 1/10-scale Jeep as measured from the bottom of the tire to the ground, but RTI will show you how much travel your truck has "in scale." Pretty cool. To calculate a truck's RTI, you'll need to construct a 20-degree articulation ramp, which is the standard angle for full-size articulation ramps. Here's how to do it and how to use it.

With an RTI ramp, you measure and compare flex with off-roaders of any size.

MAKING THE RAMP



GETTING THE ANGLE RIGHT

The tricky part of making an articulation ramp (and it's not even that tricky) is getting the 20-degree angle correct. If you've got a protractor at home, great—use that. You can also use an angle-finding app on your phone or enlarge the ramp silhouette below. Good ol' math works too: once you choose how high you want the tallest part of the ramp to be, just multiply that figure by 2.76 and the result is how long the bottom of the ramp should be to achieve a 20-degree angle. For example, if you want your ramp's height to max out at six inches, then the bottom of the ramp should be 16.56 inches long: $6 \times 2.76 = 16.56$.

Here you go: a 20-degree ramp. Just extend the base and top to make whatever size ramp you need.

HOW HIGH SHOULD THE RAMP BE?

That depends on the type of trucks you plan to use on the ramp. If the ramp is too low, your truck may run out of ramp before it runs out of articulation. Measure how high you can lift a wheel before one of the other three tires lifts, then add an inch or two to that height to be safe. It's better to err on the side of taller than shorter. A 7-inch-high ramp should cover any 1/10-scale truck, while 1/8-scale monster trucks may need a ramp as high as 10 inches.



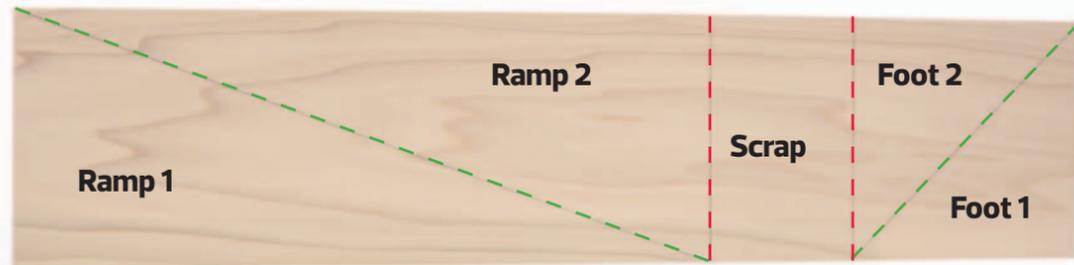
Measure the maximum articulation of the type of truck you'll use the ramp with, and go with a ramp height that's an inch or two higher.

CONSTRUCTION

There's no one way to build the ramp. Any sturdy material can be used. You could even use brass tubing to make a realistic-looking ramp if you've got the skills. The easiest way to make a ramp is to start with a piece of wood, MDF, or any other easily cut flat material (even a few layers of cardboard will work) that is already close in size to the ramp dimensions you prefer. As illustrated on the next page, you then make two cuts to create the ramp shape and a supporting "foot." To label the top edge of the ramp for distance, you can use a ruler to mark increments, or even glue the ruler or a section of measuring tape directly to the ramp.



If you don't have ramp materials around the house, you can get pre-cut boards in small sizes at your local home-improvement store. This 24 x 5.5-inch piece of poplar will make two ramps.



Two cuts will get you the parts for one ramp (green lines). Two more cuts (red lines) will get you parts for a second ramp. If you buy your material at Home Depot or Lowe's, they may even make the cuts for you. Just ask.

Here's an assembled "two-cut" ramp; just glue the two parts together.



Get creative—this ramp is made from a single Home Depot yardstick, so the distance measurements are built in. Total cost: 98 cents!



This ramp uses a section of measuring tape to show the distance traveled up the ramp.



Desktop flex! This cardboard ramp was a 5-minute job. And if you're wondering, this Pro-Line Ambush has an RTI of 791.

Or...Use Any Angle You Want

We're focusing on a 20-degree ramp because that's the standard for an articulation ramp, and using that standard will let you compare your RTI figures with anyone else who uses a 20-degree ramp. But if all you care about is comparing wheel travel among your buddies and you'll all be using the same ramp, you don't have to sweat getting the angle just right. Eyeball it and go have fun.

USING THE RAMP

To determine your truck's RTI, line up a wheel with the ramp and drive up the incline until the tire following it lifts. For example, if you're driving the left front wheel up the ramp, you'll know you've reached maximum articulation when the left rear wheel lifts off the ground. Note the distance traveled up the ramp, then plug that figure into this formula:

$$\frac{\text{DISTANCE TRAVELED UP RAMP}}{\text{WHEELBASE}} \times 1000 = \text{RTI}$$

Note that the formula doesn't require a certain type of units; the math will work out the same whether you use inches or centimeters (as long as you don't mix different units, of course).



This stock Vattera Ascender Chevy K10 has a wheelbase of 11.4 in., and it traveled 13.5 in. up the ramp. So its RTI number is:

$$\begin{aligned} 13.5 \div 11.4 &= 1.184 \\ 1.184 \times 1000 &= 1184 \\ \text{RTI} &= 1184 \end{aligned}$$



When measuring the distance traveled up the ramp, be sure to take the measurement perpendicular to the ramp surface. If you measure straight down, you'll cheat yourself out of a few RTI points.



GET YOUR FLEX ON

Get creative with those ramp builds, and share your flex photos with us on Facebook, Instagram, and Twitter. There are endless ways to build an RTI ramp, and we look forward to seeing what you come up with. Get after it! 📸