

PACO MOTO

HUB STANDS -- VERSION 5.4



Thanks for choosing our Alignment Hub Stands for your chassis setup needs. We hope you'll find them as handy, accurate, and easy to use as we do! Each stand has a max capacity of **1000 lbs**, and fits both 4 and 5 lug vehicles with 12 or 14mm lugs, bolt patterns from 4x95.25 to 4x114.3, 5x100 to 5x130, and a hub center max diameter of 72.5mm. They will fit just about every vehicle under a 4000lb curb weight!

STOP!!!! SAFETY FIRST!!!

ALWAYS USE ON A LEVEL, SMOOTH AND HARD SURFACE LIKE CONCRETE!!! ROLLER BALLS CAN LEAVE INDENTIONS IN SOFT ASPHALT AND CAN PREVENT MOVEMENT! DO NOT USE ON ANY SORT OF HILL, GRADE, ETC... THE VEHICLE CAN AND WILL ROLL AWAY, WHICH CAN RESULT IN VEHICLE AND/OR PROPERTY DAMAGE AND/OR BODILY HARM OR DEATH!!! USING ON A NON-LEVEL SURFACE WILL ALSO PRODUCE INACCURATE ALIGNMENT READINGS.

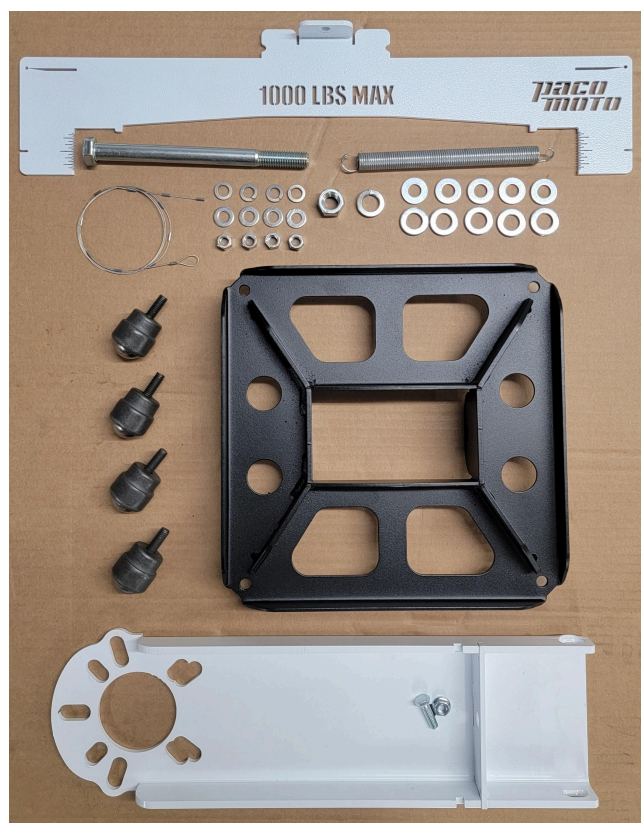
DO NOT REMOVE ANY SUSPENSION COMPONENTS WHILE THE STANDS ARE INSTALLED, WITH THE WEIGHT OF THE VEHICLE ON THE STAND!!! IT IS OK TO LOOSEN CERTAIN SUSPENSION BOLTS TO ADJUST ALIGNMENT, BUT REMOVING THEM CAN CAUSE THE CAR TO FALL, JUST AS WITH A WHEEL/TIRE INSTALLED. WITH HUB STANDS INSTALLED, ALWAYS SERVICE THE CAR AS IF THE WHEELS ARE STILL INSTALLED!!!

ALWAYS USE THE SUPPLIED WASHERS BETWEEN THE LUGS AND FRONT HUB PLATE SURFACE AND TIGHTEN SECURELY. BACK OF HUB PLATE MUST SIT DIRECTLY AND FLAT ON THE HUB SURFACE. BE VERY CAREFUL AND GO SLOW WHEN LOWERING THE CAR TO THE GROUND AFTER INSTALLING THE STANDS. BE SURE THE HUBS ARE NOT ROTATED IN SUCH A WAY THAT THE STAND WILL TOUCH THE GROUND OFF-ANGLE WHEN LOWERING, CAUSING THE CAR TO FALL AT THAT STAND. BE SURE TO HAVE THE CAR IN NEUTRAL WITH THE PARKING BRAKE OFF WHEN JACKING UP AND LOWERING, AND AGAIN, ONLY ON A LEVEL, SMOOTH SURFACE!!! DO NOT ENGAGE GEARS OR ATTEMPT TO "DRIVE" THE CAR WITH HUB STANDS INSTALLED. THIS WILL RESULT IN PROPERTY DAMAGE AND POSSIBLE INJURY!

HUB STAND ASSEMBLY

Shown here are all the parts included for each hub stand. From top to bottom the main 3 parts are: Toe Bar, Hub Plate, and Base. Hardware shown and listed in full kit quantities:

5/8" x 8" pivot bolt - 4x
5/8" split lock washer - 4x
5/8" hex nut - 4x
M12 lug washer - 20x
M14 lug washer - 20x
M8 Flange Nut - 4x
M8 x 25mm bolt - 4x
Stainless braided cables - 4x
Extension springs - 2x
3/8" hex nuts - 16x
3/8" split lock washers - 16x
3/8" flat washers - 16x
Roller balls with 3/8" stud - 16x



Install and securely fasten the four base rollers to the Base as shown. Base roller goes up through the bottom of the Base at each corner, then a flat washer, lock washer, and the nut.

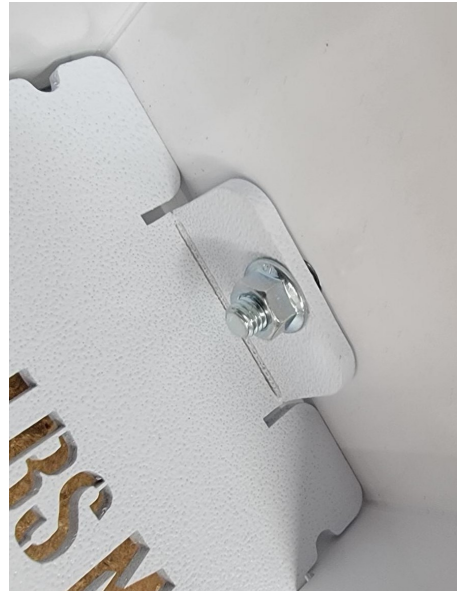


Insert the Hub Plate into the center slot on the Base. Slide the pivot bolt through both pieces and secure with pivot nut.



HUB STAND ASSEMBLY (cont.)

Install the Toe Bar onto the Hub Plate using one of the M8 x 25mm bolts from the back and one of the M8 Flange Nuts on the front as shown. **TIGHTEN ONLY SNUGLY**, making sure the left and right back edges of the Toe Bar seat perfectly flush with the front surface of the Hub Plate. **NOTE: The Toe Bars are designed to fit inside the small slots on the Hub Plate flanges to prevent them from rotating under cable tension, but are NOT designed to bottom out into the slots. The Toe Bar may tilt upward slightly when tightening the bolt. DO NOT apply enough torque on the bolt to bend the center tab into the Hub Plate. The center tab with the bolt should float above the Hub Plate surface with a small gap as shown. To ensure accurate toe measurements, the left and right tabs should be the only edges touching the front Hub Plate surface.**



VEHICLE SETUP

YOU'RE ON A FLAT, CLEAN, AND LEVEL SURFACE, RIGHT???
THE CAR CAN ROLL EASILY MOUNTED ON THESE HUB STANDS!!

Raise the car, remove the wheels, and install the Hub Stands as shown, being sure to use the included lug washers between your lug nuts/bolts and the Hub Plate surface.

Always use the proper 12mm and/or 14mm washers under the lug nuts. You will need to have the **car in neutral and the parking brake off** to orient the lugs such that the roller balls will contact the ground properly, and also so the car's hub can rotate slightly when turning the steering wheel and making alignment adjustments. Tighten lugs snugly, but **DO NOT OVERTIGHTEN**. Full factory torque is not required or recommended. Take care when using aluminum or chrome/anodized lug nuts with the tapered side to the washer. You MAY damage the lug nuts with too much torque, or mar the surface finish. It's not a bad idea to use less than "pretty" lug nuts or perhaps standard hex nuts of appropriate size and pitch in those cases.



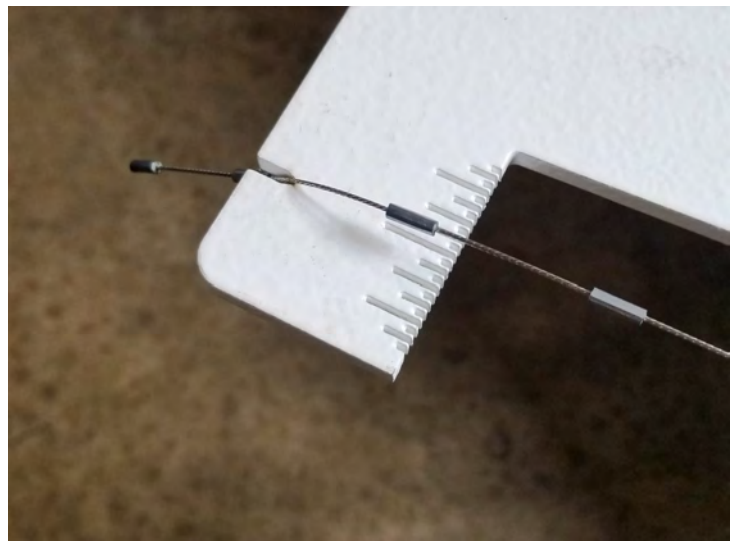
VEHICLE SETUP (cont.)

Take extra care when lowering the car to the ground, move slowly and ensure the spot where the Hub Stand will roll is free of gravel and debris that can prevent it from moving around freely during adjustments. Treat these stands like fine instruments and they will maintain their accuracy and repeatability. **NOTE: You may notice some flexing of the Base as weight is applied. This is intentional such that all four rollers are touching the ground and sharing the load evenly.**



Place the loop ends of two braided cables around the hooks at the end of a spring and position the spring in the middle between the stands on one side of the car.

At either end of the Toe Bars there are slots. At the non-loop end of each braided cable there is a series of crimped sleeves. Hook a sleeve into the end of one of the Toe Bars, pull a bit of tension on the spring and use the nearest sleeve in the other Toe Bar's slot to hold that tension. **Only use just enough tension to keep the cable straight and taut.** Repeat on the other side and you'll be ready to begin taking measurements and aligning your car!



ALIGNMENT MEASUREMENTS

We won't get into the details and science behind wheel alignments, or how to go about adjusting them on your particular vehicle. If you are venturing to do your own wheel alignment, we assume you already have a working knowledge and know what specific settings you're after, and how to make the appropriate adjustments on your vehicle.

We will instruct how to take the four measurements you need to complete the job.

They are: CAMBER, CASTER, TOE, and THRUST ANGLE.

CAMBER

To check the camber setting, you will need either a digital angle gauge or a smartphone with a level app installed. You can purchase the digital gauge at www.pacomotorsports.com. Simply place the angle gauge or smartphone against the vertical surface of the Hub Plate to get your camber reading. If your device has a calibration or zeroing feature, you should calibrate it before use against a known true vertical or horizontal surface.



CASTER

Start with the steering wheel pointing straight ahead. Check caster by SLOWLY turning the steering wheel left or right about 3/4 of a full turn (roughly 20 degrees), then take a camber reading. Then turn the opposite direction, another 3/4 of a full turn past the steering center. Add the two camber readings together and multiply by 1.5 to get your caster measurement.

TOE

Measurements are taken at each axle by using two tape measures. Place the end tab of a tape measure into the narrow slot on one end of the Toe Bar and pull the tape under the vehicle to the opposite side Toe Bar. Do the same thing with a second tape measure at the other end of the Toe Bar. You can use the taper in the narrow slots to help retain the tape ends while you're taking measurements. Take the measurement from the inside edge of the Toe Bar on both sides. Subtracting one measurement from the other will give you the toe measurement. Larger numbers at the front-most tape versus the rear-most tape on the same axle indicates a "toe out" condition, and vice versa for "toe in".



THRUST ANGLE

Thrust angle measurements are taken using the tensioned cables between stands, and the graduated scales at the ends of the Toe Bars. Unless you are running an odd setup for oval or circle track racing, you want the thrust angle to be zero, so the car tracks straight down the road and doesn't "pull" to one side. The adjustment is made with the rear wheel toe settings. To check this measurement, look at where the tensioned cable crosses the graduated scale on the front side of the rear stand, and compare that to the same reading on the opposite side rear stand. Adjust the rear toe settings until these measurements are the same on both sides. Keep in mind adjusting the thrust angle will affect rear toe settings and vice versa.

