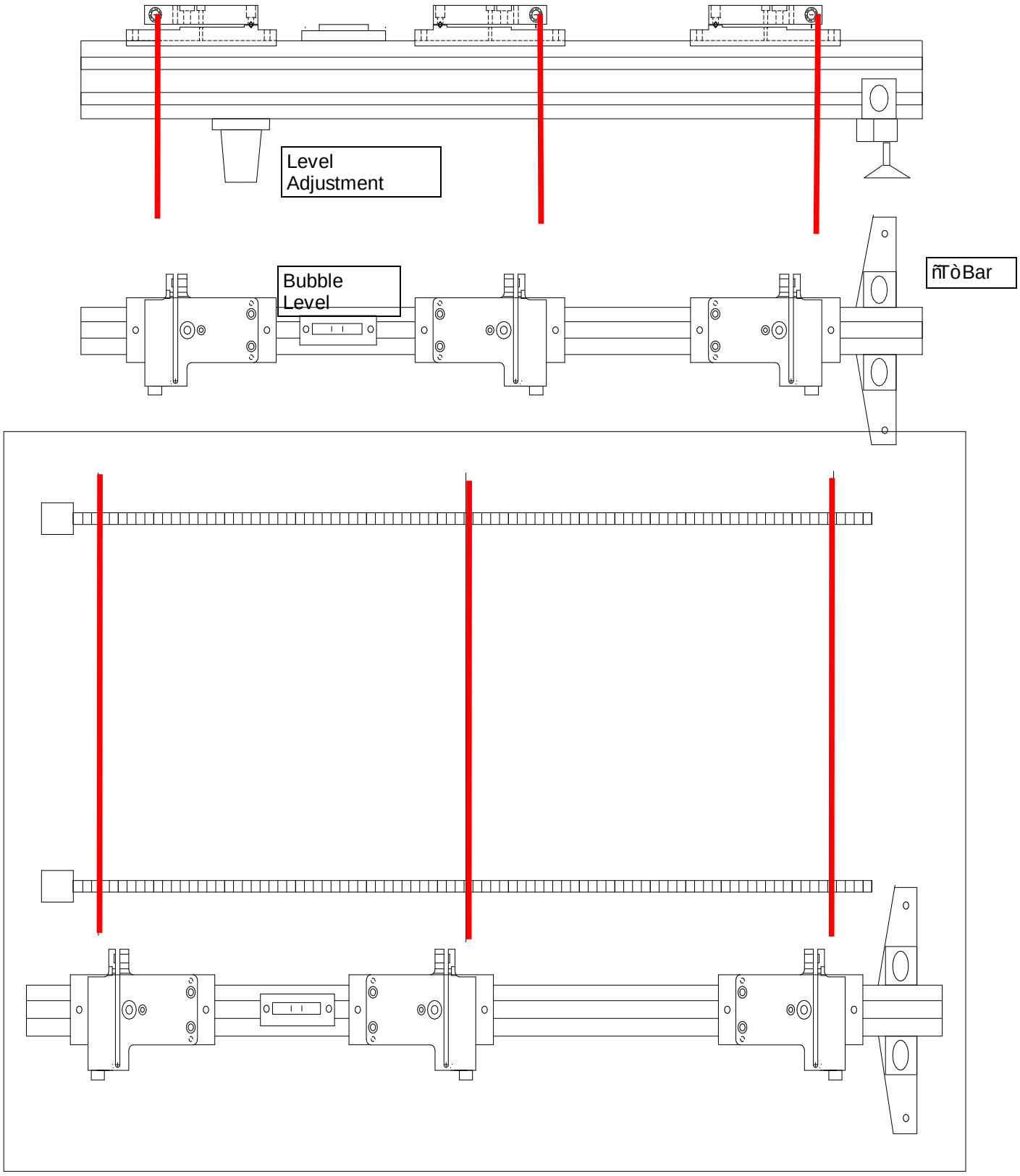
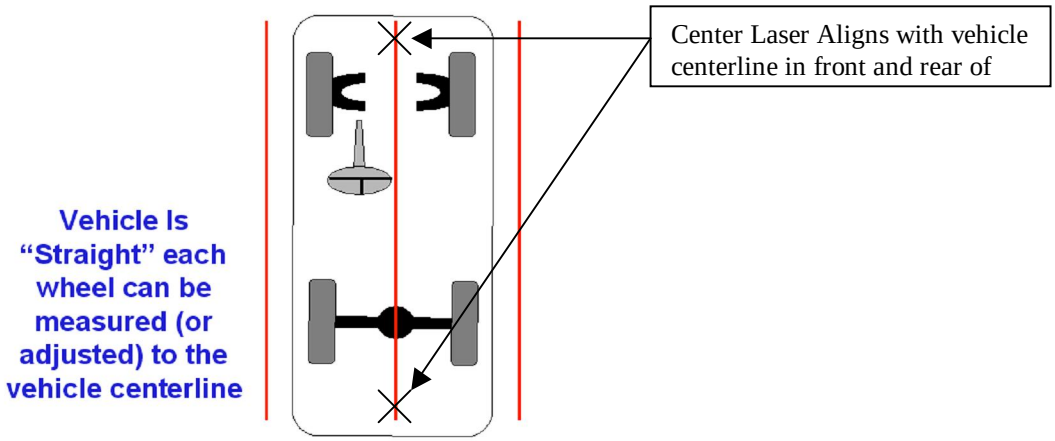
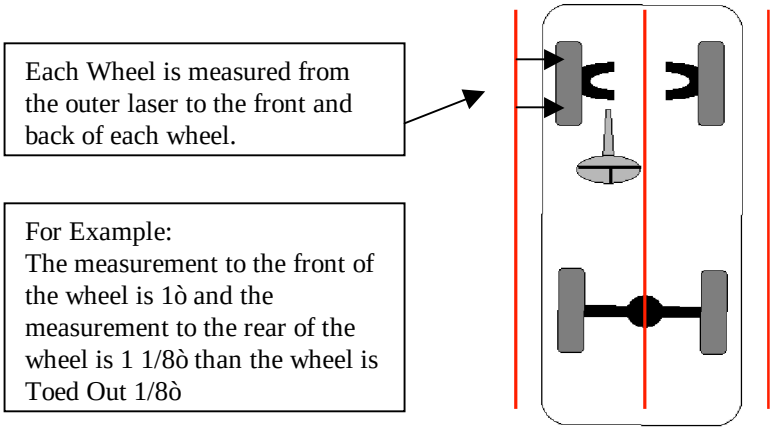
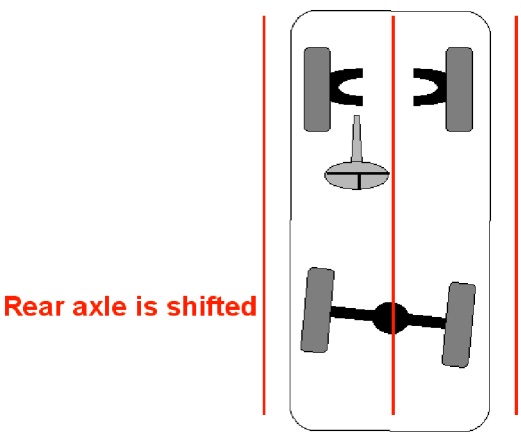
AdvantageWheelAlignment.com

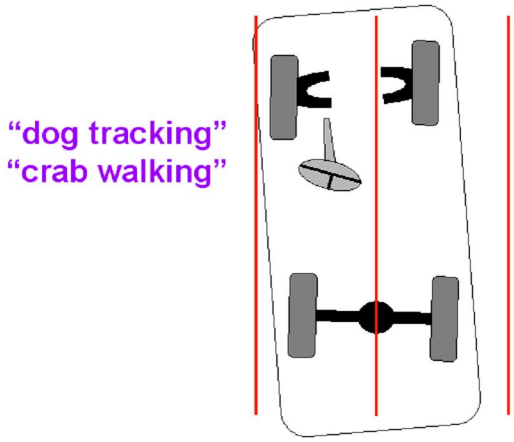
The Triple Laser System uses 3 Optical Lasers to create a "box" or rectangle of laser light. The car is placed into the "box" by aligning the CENTER LASER with the VEHICLE centerline in the front and rear. Once this is done than the vehicle can be measured from each wheel to the outer









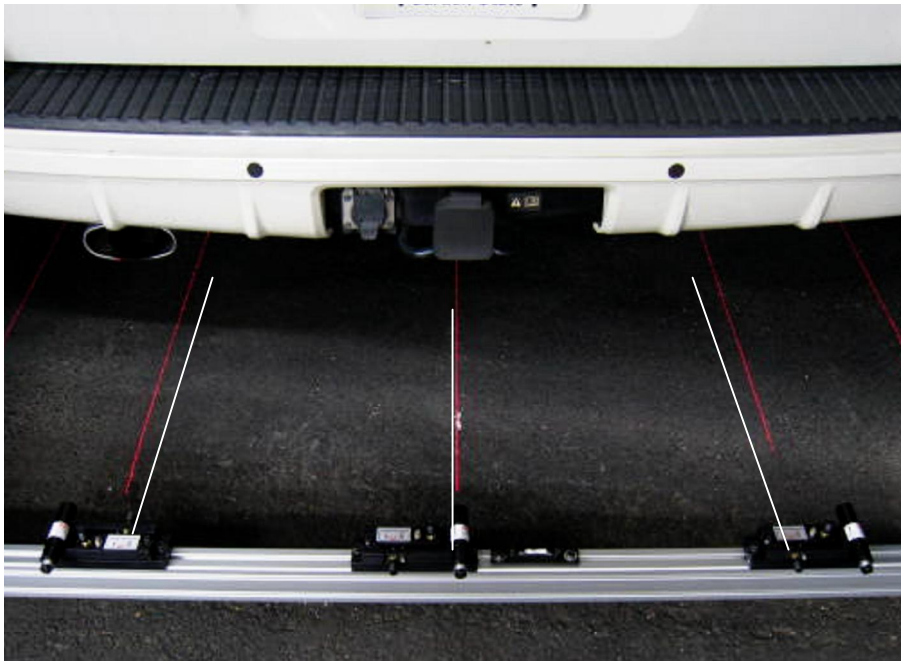


Since we are measuring the vehicle centerline, other problems can be found by measuring to each laser.

How to Use the 3 Laser System

The Concepté

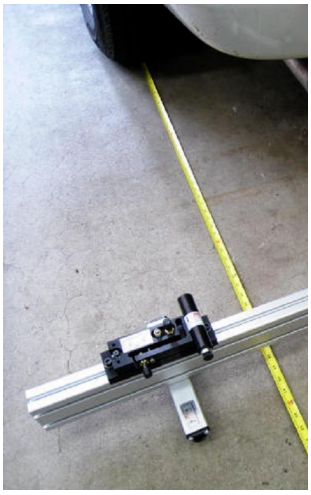
The principal behind the Laser Alignment System is to adjust each wheel individually to the centerline of the vehicle. After calibrating the 3 Lasers, the customer must determine where the vehicle centerline is. The following procedure will aid you in this necessary preliminary step. With a little practice this step can be done on the front and rear of the car in minutes. Once the vehicle centerline is marked, the procedure can be skipped for the life of the vehicle.



How to Starté é é

The first step is place the 3 Laser Wheel Alignment tool in either the front or the rear of the vehicle. While it does not matter which end of the car you start with, often the best results come if the lasers are shining toward the front of the car as the rear normally has more ride height than the front and this allows the lasers to hit more reference points on the vehicle.

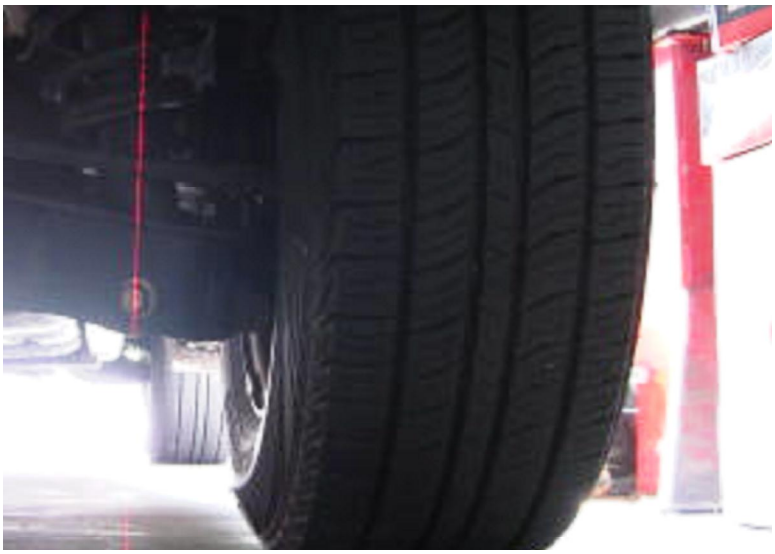
Using a tape measure, measure the distance from the tire to the 3 Laser Mounting bar. While this measurement is NOT critical, it does make sure that the 3 Lasers are not too crooked to the car to start. Be sure to do both sides. See image below.



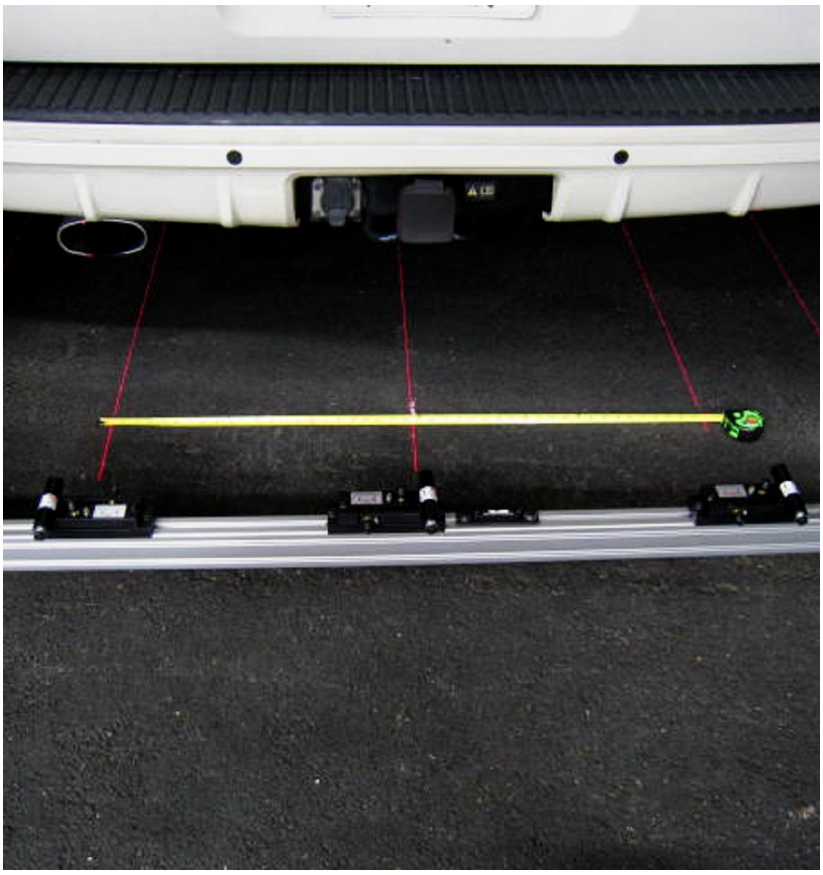
How to Use the 3 Laser System (cont.)

Next, we need to identify the centerline. For the most part, most production vehicles do not have centerline reference marks so they need to be created. When you donôt have reference marks, the typical procedure would be to place the center laser equally between the suspension pivot points on the front and rear.

For example, if we take a vehicle that has four wheels, double arm, independent suspension we will use the lower control "A" arms as reference points. More specifically, the inner mounts on the chassis where the "A" arms connect. Many people also refer to them as "Hard Points". The center point between the two lower "A" arms would be our first centerline. We need to have the centerline marked for both the front and the rear of the vehicle

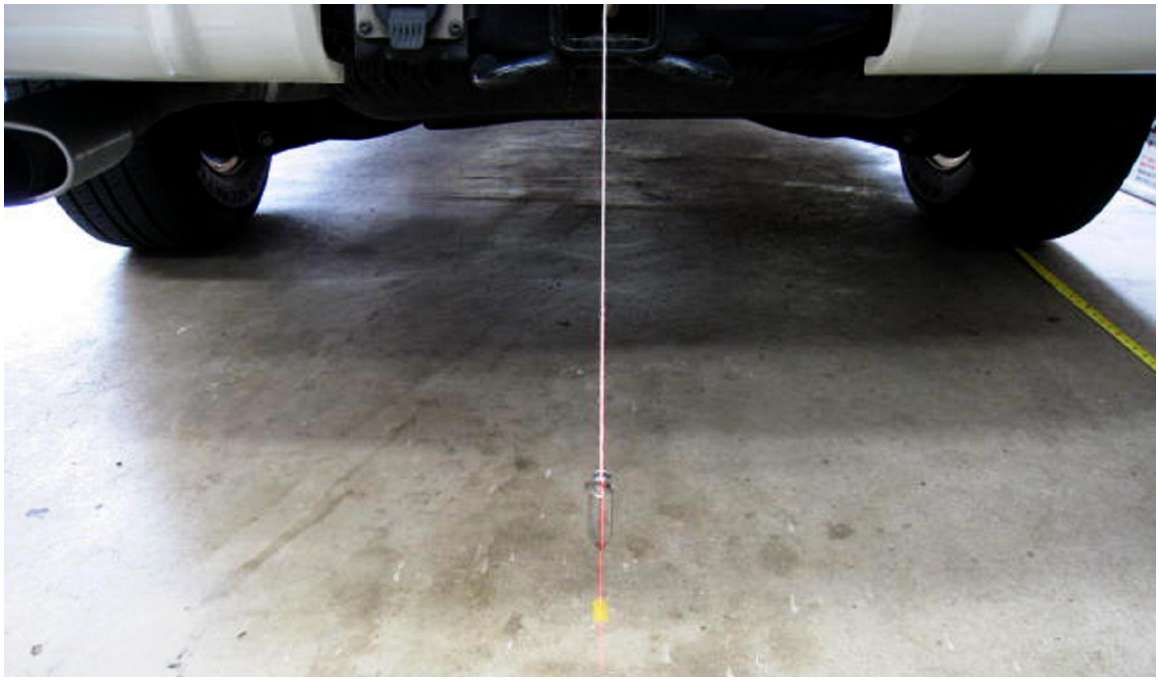


You will slide the 2 outer lasers along the mounting bar until the laser light shines on the lower control arm bolt (or similar suspension point). By aiming the laser under the vehicle, the laser beam will scribe the under carriage of the vehicle. This may aid you; if you have hard points that you cannot just simple stretch a tape measure between.
The photo on the right shows the inner laser shining on the lower control arm bolt.
You would then do the same on the other side using the other ñouterò laser. Once these 2 points are determined simply use a tape measure on the floor and align the center laser to the middle point between the 2 ñouterò lasers. See image below:



How to Use the 3 Laser System *(cont.)*

Once you have established the centerline points you would then mark the chassis. Permanently! If the chassis is of such a design where a mark cannot be made between the hard points then this is where the laser can help you. Simply create a temporary reference mark front and rear. i.e. plumb line, straight edge or carpenters square, or event a quick mark on the floor. . Using plumb lines made of poly fishing line will glow when the laser beam hits it.



To aid in accurately aligning the laser beam, place a piece of paper behind the string, without touching the string and you can see the edges of the laser beam and the center blocked out by the fishing string

Remember you will need to repeat the process with the opposite end of the car, as we need to have 2 centerline markers (1 in the front of the car, and one in the rear of the car) to accurately line up our center laser to.

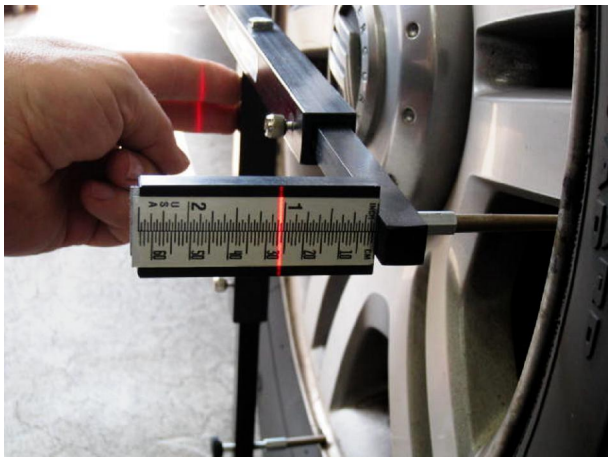
With this complete you will have the laser aligned to the chassis centerline and the center laser beam scribing many points along the chassis from which you can make permanent marks. In working with the Porsche GT team they had an excellent idea of drilling a hole that can receive short threaded rod which makes a perfect solution for reference marks that both provide a permanent mark and also act as a removable target from which the laser can be aligned to.

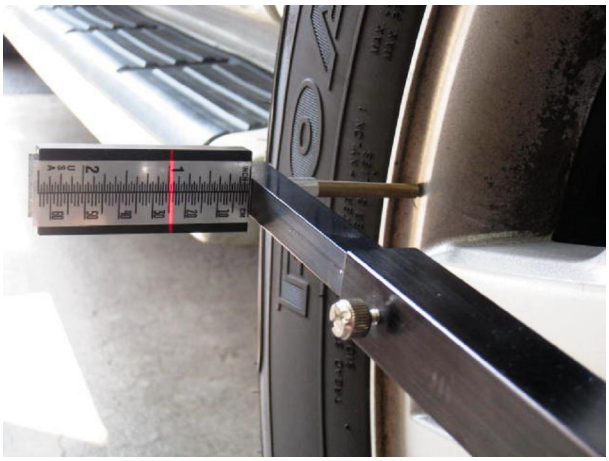
Having made your reference marks or ideally, targets, you simply align your center laser to the targets. Since the two outer lasers are calibrated to the center laser and attached to the same bar, you now have a three line 3D parallelogram from which you can now perform all wheel alignments and chassis interrogation or diagnostics.

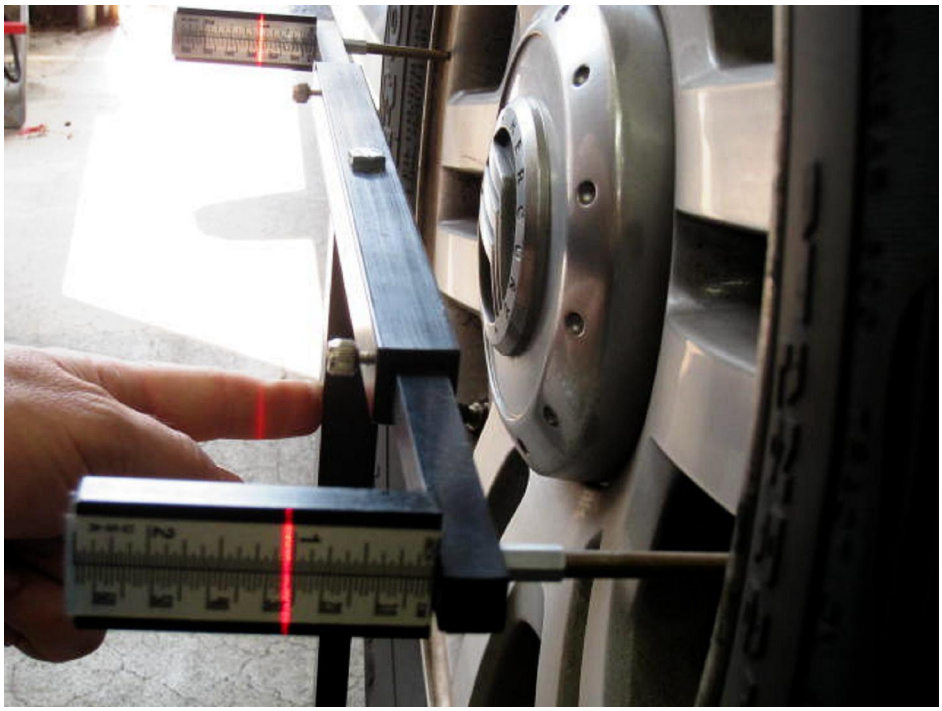
How to Use the 3 Laser System *(cont.)*

Now that you have the center laser aligned with the centerline, the outer lasers are ready to measure the wheels. Using your ñdream stickò toe gauge, measure the distance from the outer laser to the wheel. This will be your Toe In, or Toe out reading.

For Example: If the front of the wheel is further way from laser beam than the rear of the wheel, to wheel has ñtoe inò If the opposite is true the wheel has ñtoe outò







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