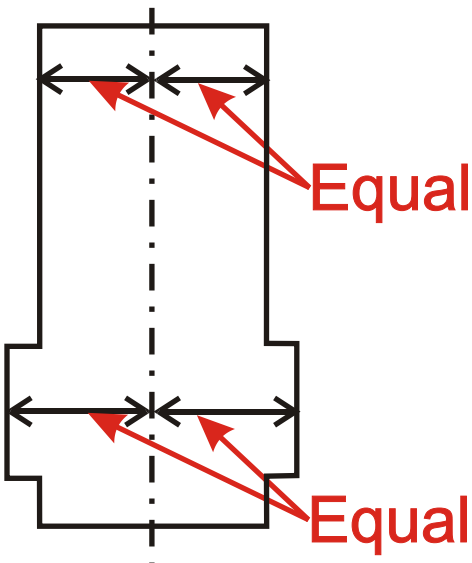


# Measuring The Body



Measuring for wheels begins at the very early stages of kit construction. The first thing you want to do is establish that the outside edge of the wheel wells are equal distances from the body center line. We need to know that the if you put the center line of the body on the centerline of the chassis, that the wheel well edges are going to end up equal distances from the chassis centerline.



If not, we're going to need to adjust the body on the chassis to get the wheel well edges lined up with the chassis rails and ultimately the suspension. What we're trying to get accomplished is to end up with the suspension (wheel hubs) equal distance from the wheel well edges for the front and rear axles. We're not trying to make the front and rear distances the same, just match the front side to side and the rear side to side. Not all bodies are perfect and have the wheel well edges equally spaced from the centerline of the body.

We need to check and see where we are before you permanently mount the body.



# Measuring The Frontspace

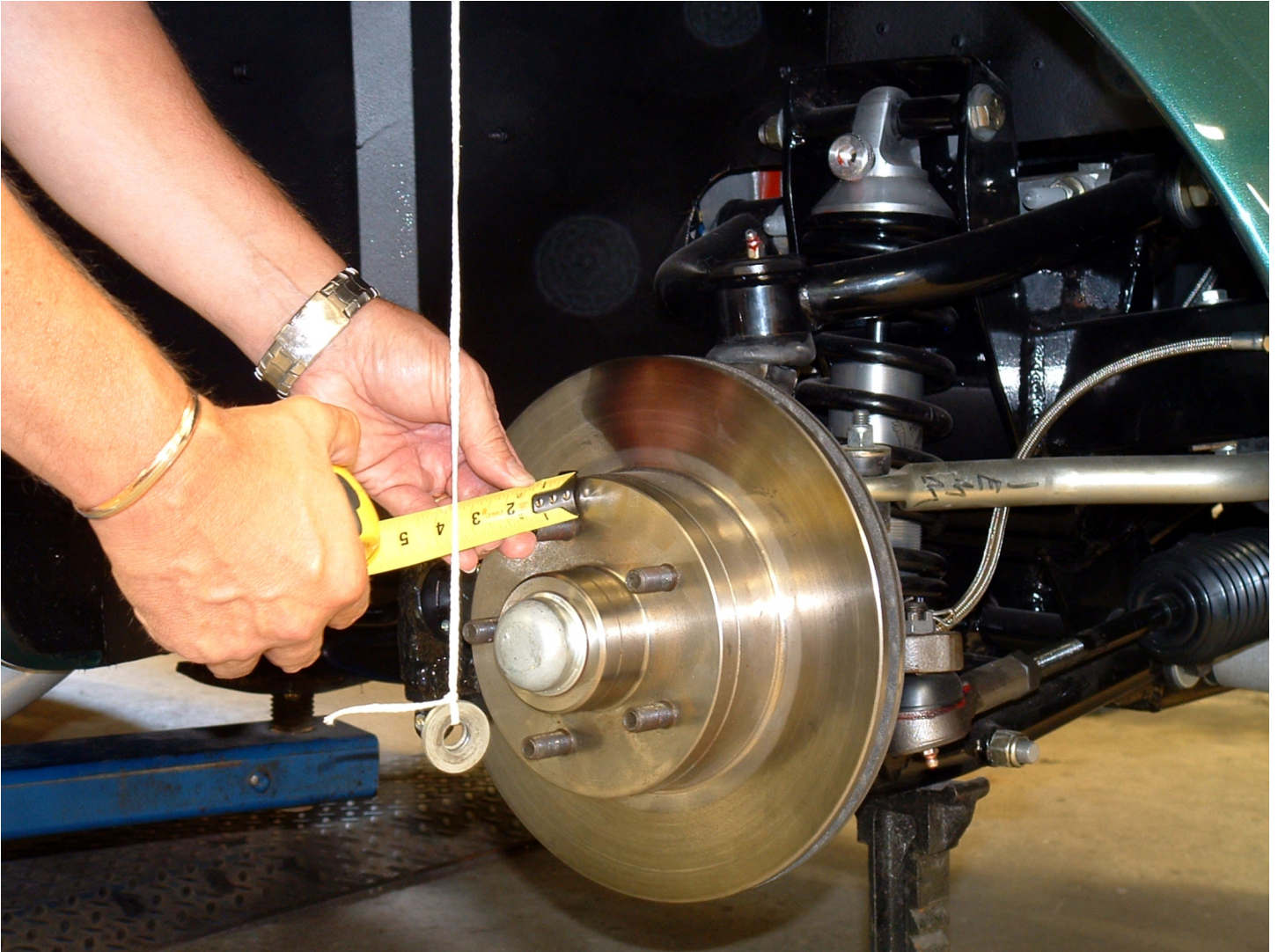


Here we have the car up on jack stands ready to start measuring. Note that we have the jack stands supporting the suspension, not the chassis. This insures that the suspension is in a position that it would be if the car was sitting on the wheels and tires. Also, we need to make sure that the car is level side to side. As you can see in the picture, we are using a plumb bob to define the edge of the wheel well. If the car is not level side to side, then our measurements will be off.

Also, keep in mind that we are going to measure all four corners. Both front and both rear measurements should be the same, but if they aren't, we will need to find out what the problem is. When we measured the body initially before setting it in place, we should have eliminated the problem. However, there might be a problem with how the front suspension or the rear end is mounted. In addition, the car may not be level. We need to make sure the measurements are equal, before we proceed. If they aren't, we need to fix them.



# Measuring The Frontspace Close Up

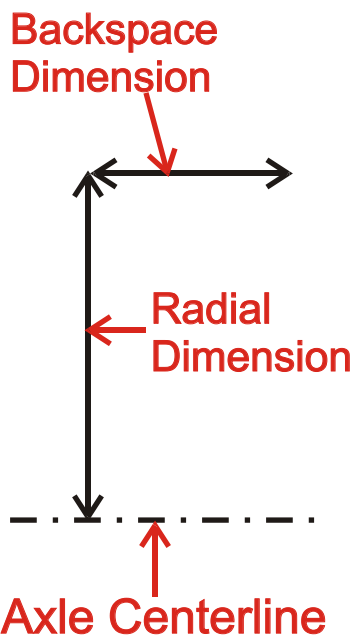


This is a closeup of the frontspace measurement. You can see the high tech plumb bob we're using. If the car is level side to side, this is sufficient accuracy.

Measure your Frontspace and record the distances. This dimension is the key to doing a wheel fitment that looks professional and enhances the look of the car. We want the wheel/tire combination for both the front and the rear to set at the same distance in from the wheel well edge. This gives a smooth, consistent look to the car. Nothing looks more unprofessional than the back tire sticking out and the front tire hidden under the wheel well in the shadows.



# Measuring The Backspace 1



Here we are measuring backspace. This where you can let your creativity run rampant in designing a tool to get these measurements. The tool has to be able to give you two measurements at the same time. The distance from the hub face that the wheel bolts to (backspace) and the distance from the centerline of the axle (radial). You can see our version in the picture. A good solid straight edge and two measuring devices. One gives you the radial dimension and the other the distance to the suspension piece or backspace. Remember to always insure that the ruler taking the radial distance is always zeroed on the axle centerline.

A piece of 1" square tubing works well as the straight edge also. You can drill two holes in it so that it can be secured to the studs. Your going to take a bunch of measurements with this tool to arrive at the maximum distance you can have the wheel extend into the wheel well. We're looking for the back space dimension to use as a maximum before the wheel hits something.



# Measuring The Backspace 2



A couple of additional points.

Make an effort to compress the suspension as much as is safe with the car on jack stands. You want to see if there's something that isn't in the way in the suspension's normal stance that gets in the way when you hit a bump. Also, use your floor jack to place the suspension in a "droop" stance.

On the front you want to turn the steering to full lock in both directions and make sure your maximum backspace dimension keeps you from hitting anything. Again, try to cycle the suspension through compression and droop to make sure your clearing everything.



# Checking a Bare Wheel



We've now processed all the dimensions, talked them over with the wheel company and made a decision on the specifications for our wheels. We've also talked with as many people as possible, including the kit manufacturer, and gotten their experience on what will fit and what won't. When you are at a car show, besides talking to the car owners and noting what they are using for tire sizes and wheel specifications, take a look in the wheel wells (with their permission) and see if you can pick up any rub marks or damaged suspension components that might be the result of wheel/tire interference. The owners idea of a "small rub occasionally" might be your "catastrophe waiting to happen".

Now, when we get our new wheels, the first thing we are going to do is the bare wheel fit. Don't mount the tires, fit the bare wheel to the suspension, torque to specifications, and do all the compression, droop and front wheels lock to lock test with the car on jack stands. If the wheel hits something here, its not going to get any better with a tire mounted on it. Besides, the wheel company will be a lot less likely to take the wheel back if it doesn't fit, if it's already had a tire mounted on it.

In addition, it's a lot easier to see potential problems without the tire in the way. Next, you can tape a piece of Styrofoam to the wheel and cut it to the dimensions of the tire and try all the tests again to see if you hit anything. Or you can just use a ruler on the bare wheel to see if the addition of the tire is going to hit anything. Either way, once the wheel works, see if the tire is going to work before you mount it.



# Checking Wheel/Tire Clearance



We left the car on jack stands and went and got the tires mounted. We mount the wheel/tire combinations to the car and go through all the tests again.

I know, you want to drive the thing, but a bit more time spent at this point can save a problem later. Once your satisfied that between your expertise, the cooperation of the wheel company, the experience of your friends and the guidance of the kit manufacturer, that you have a perfect fit, put the car on the ground and get it aligned. With the kind of money and time you now have tied up in these wheels and tires, spend the additional time and money to make sure everything is perfect.

After the alignment, go have some fun. You deserve it!



# Finished Product



Here's the perfect wheel/tire fitment. Note how both the front and rear wheels sit the same place in relationship to the outside of the wheel wells. The arrows show you what we see as the critical spots on the car.

Get it right there and the effect is subtle, but noticeable. When you see a car that looks a bit awkward or unbalanced in its stance, check it there first. Half the time we'll bet the wheel/tire combination is poorly fitted and the frontspace dimensions are significantly different.

Thanks for reading this. If you have any questions give us a call at 800-621-8408 or email [info@usacomp.com](mailto:info@usacomp.com). Our thanks to Fred Gimble at Autovision for the use of his shop and the cars.