



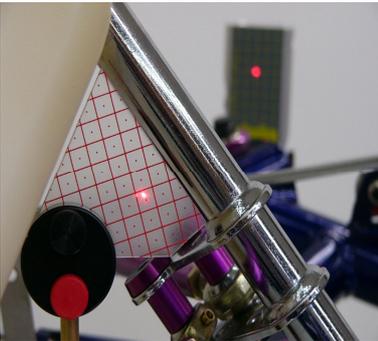
[www.sniper.com.au](http://www.sniper.com.au) **OWNERS GUIDE - V4 Accessory Kit** US Patent 6, 772 524  
Warranty conditions of the country in which the purchase was done, are valid. Keep proof of purchase.



Assemble the stand as shown. The brass rod should pass through the bottom of the stand and we recommend drilling a 6.5mm hole in the floorpan to make it easier to relocate each time. The stand needs to be centered fairly accurately between the kingpins. **Do not** use the steering column as a guide because they are usually offset from the centerline of the kart. The stand needs to be located so that the brass rod clears the pitman arm and the top of the stand clears the tank. We can not guarantee that this stand will fit every kart and you may need to find an alternative way to mount the template.

The supplied template will need to be cut similar to the one shown to clear the tank, steering shaft and pitman arm.

Some kart configurations may not allow the laser beam to hit the template and they may hit the steering shaft instead. In this case you may need to set an equal amount of excessive toe just to set the center

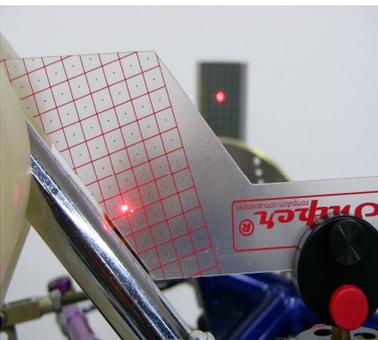


Once the template is mounted on the stand, fit your units and level them both with the steering centered by eye. By then turning the steering wheel, the laser from the unit turning toward the back of the kart will appear on the template. Keep turning the steering wheel until the laser stops moving and actually starts to change direction. Take note of the horizontal position where the laser dot started to move back again.

Repeat this process by turning the steering in the opposite direction. The laser dots from each side should stop in the same position to indicate the correct steering center position. If one dot is moving further you need to adjust the tie rods until the position of the dots is the same. If one dot is higher or lower than the other, this indicates a discrepancy in caster from one side of the kart to the other.



You may now re-check your toe. Center the steering so that both Sniper units show an equal amount of toe. Adjust the tie rods an equal amount each side to achieve the desired toe setting. Your front end is now properly centered.



Due to the increased height of the laser beams when using units mounted on hubs, we have supplied a variation to the stand with this model. The three legs can be adjusted independently to get the correct height and/or the center shaft can be moved up and down. Note that the stand and template in this scenario are mounted in front of the steering shaft. The general procedure for using this stand and template is the same as the one described above.

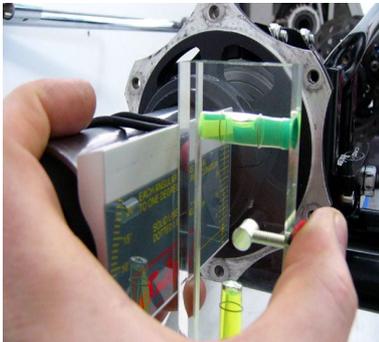


To begin rear alignment, mount the target to the rear axle as shown, using the flexible rubber strap to hold them to the axle. The angular scale on each target should be facing the outside of the kart.

At this stage you may need to lock the brakes by holding down the brake pedal with a zip lock tie or similar means.



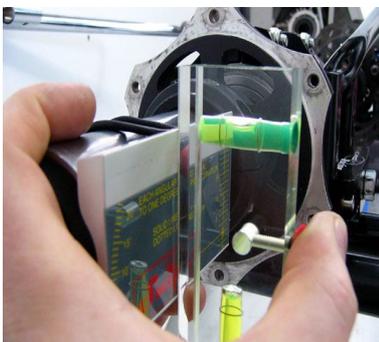
With the V4 units switched on, you will be able to see the laser dot on the target. You now need to adjust the position of the targets to get the dot aligned with the vertical datum line.



You now need to align the targets using the acrylic block vial supplied. This gives a reference between the two targets and also to the units mounted on the front of the kart.



Now readjust the left hand unit by pivoting it slightly until the laser dot is centered on the datum dot of the target. This will obviously cause the unit to now be out of level. You must jack the kart and/or it's stand to bring the unit back to level.



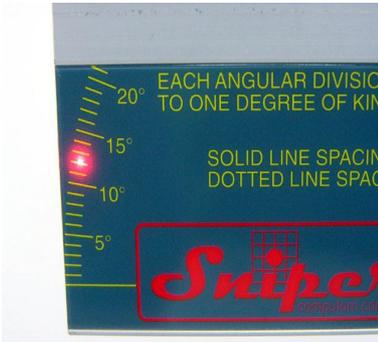
Double check the alignment of the rear target and re-adjust if necessary. You may need to repeat this and the last step until both the target and the left hand unit are both aligned level. You have now created a perfectly level plane through the kart to ensure the most accurate measurements possible. This perfect leveling is really only necessary for accurate caster measurements. If it is not perfectly level you will still get accurate results on toe, camber and rear end setup.



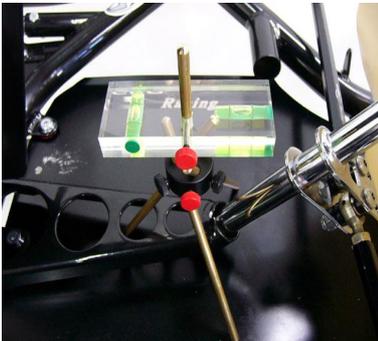
Now re-level the right hand unit. The units should now still be showing equal toe and camber on both sides. You can now use the vertical scale on the targets to compare one side to the other, which will show up any chassis twist or axle height misalignment.



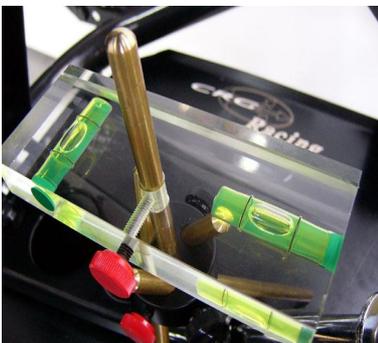
The edge of the target now provides a datum to measure from. You can use this to analyze the chassis for true squareness by measuring to the bearing carriers, or to find a position to set your rear wheels for squareness to the front wheels.



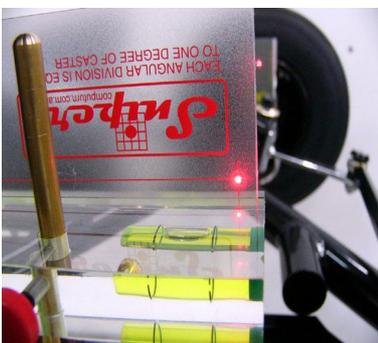
At this point you can also measure compound kingpin inclination angle. By turning the steering wheel, the laser dot will describe an angle from the datum to the angular scale. This is a compound angle which includes any camber set up on the kart. Using this scale you can also measure angular change of camber, as you adjust camber either side of zero (positive or negative).



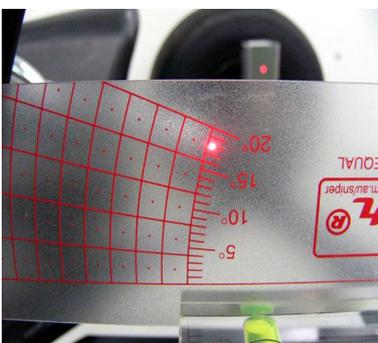
To begin measuring compound caster, set up the caster stand near the center of the kart, between the two units. The tripod design of the stand should allow you to do this on virtually any kart configuration. When in the correct position the caster scale should be able to sit in the slot on the level block so the laser dots point at the datum dot on the scale.



Once the stand is close to position, you need to adjust the level block so that both bubbles are centered between the lines and therefore create a plain parallel to the kart. This is easiest done if you can place one tripod leg facing forward. You can then adjust the front leg to achieve level from back to front and then fine tune the rear legs for level from side to side.



The units should both be showing zero toe and camber before you place the caster scale on the level block. Then fine tune the position of the caster scale and level block so that the laser dots are both pointing exactly at the datum point on the caster scale. While fine tuning this position, make sure the acrylic block stays level. This should be easily done by simply sliding the block up or down on the center shaft of the stand.



By turning the steering wheel, the laser dot will describe an angle from the datum point to the angular measuring scale. This scale represents compound caster angle. This is a compound angle because it is influenced slightly by the kingpin inclination of the kart. You can check both sides of the scale and compare compound caster from one side of the kart to the other.