



www.sniper.com.au **OWNERS GUIDE - Model V4** US Patent 6, 772 524
 Warranty conditions of the country in which the purchase was done, are valid. Keep proof of purchase.

CAUTION! This product contains a Class 2 laser diode. DO NOT stare into beam or permanent eye damage may result. DO NOT attempt to remove the laser diode. **Keep out of reach of children.** This product is not a toy. Young children may not understand the laser warnings on the unit. **The unit should not be exposed to temperatures in excess of 50 degrees Celsius or left in direct sunlight for extended periods.** Damage to the laser module and spirit level vials may result.

Each unit contains a long life 3 volt Lithium battery housed within the switch assembly. To replace the battery, continue turning the switch in the off direction (anti-clockwise) until you can remove it from the unit completely. Your battery should give approximately 15 hours continuous service, but should you need to replace it, the battery code is a CR2 and can be bought at any camera or electronics store.

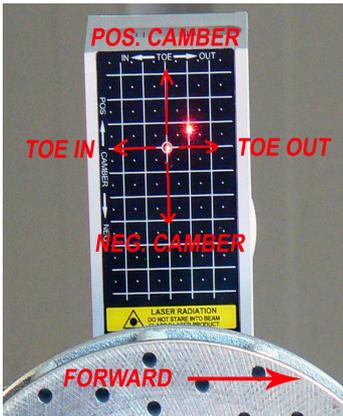
OPERATING PRINCIPLES

The Sniper unit works by essentially re-creating the axis through the two front wheels. The laser in each unit is hand calibrated to be perfectly parallel to each stub axle. The reference axis formed by the laser beam is then projected on to a visual grid system to measure camber and toe simultaneously.

Each horizontal line (the camber plane) on the grid is equal to 2mm camber per side. Similarly, each vertical line (the toe plane) is equal to 2mm toe per side. We have included a dot in the middle of each line as a visual aid to represent 1mm.

Therefore, a movement of one full grid position on the camber plane on each side of the kart would give you what is commonly referred to as "4mm camber". A movement of one full grid on the toe plane each side of the kart would equate to "4mm toe".

To keep your front end geometry symmetrical, both units should have the same toe and camber reading on each side where possible.



In the case of karts with front brakes, firstly you will need to lock the brakes by holding the brake pedal down with a zip lock tie or similar means.

Fit your Sniper units to the kart by placing the "vee" on to the hubs/stub axles with the forward arrows facing the front of the kart, on karts with hubs you will need to use the supplied straps to keep the units on the kart.

Turn the units on by rotating the switches in a clockwise direction.

NOTE: Only apply enough brake pressure to stop the hubs/stubs moving freely so you can adjust the level of the units by turning the hubs/stubs.

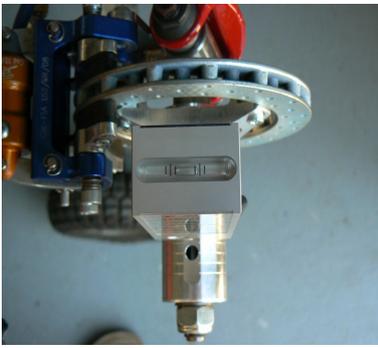


IMPORTANT: Your stub axles must be clean and free of burrs or rust. We recommend using a fine emery cloth or wet and dry sandpaper to clean up your stub axles regularly. The Vee on the unit must also be clean, make sure there is no debris on the magnets.



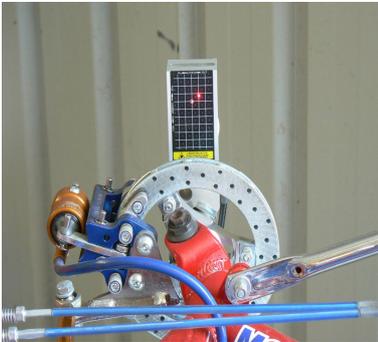
To get the steering centred use a ruler across the bolts on the steering column. The steering is straight once you see an equal distance between the ends of the ruler and the tie rods.

At this point you may wish to lock your steering column with a set of multi-grips or similar on the steering bush.



Centre the vials on the units.

Note: The vials only need to be perfectly in centre when measuring chassis twist and squareness, if you only require wheel alignment of the front of the kart then the vials only need to be on the scale.

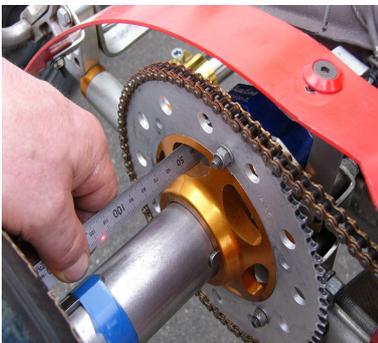


Adjust the tie rods each side to achieve the desired toe setting. Your front end is now properly centered.

At this point you can measure the wheelbase of the kart with a tape measure from the end of the stub axle to the rear axle, and then repeating on the other side of the kart.



Once you have completed your front end alignment, make sure your vials are centred. Looking to the rear of the kart, the lasers want to be pointing above the rear axle. If they do not point above then you will have to alter the height of the front or rear for the kart on the trolley until the lasers shine above as to be able to measure from the top of the axle to the lasers.



Measure with a rule/tape measure from your bearing hanger to the laser beam and record the distance.

Then measure the distance on the other side of the kart from the opposite bearing hanger.

The difference between this distance and the distance you recorded earlier on the other side of the kart is in relation to your chassis squareness.

Note: If you have measured 8mm difference, this means the chassis is 4mm out of square. Through our research Sniper has found that 4mm out of square is an expectable amount by most chassis manufacturers.



Now measure with a rule / tape measure from the top of your axle to the laser beam and record the distance.

Measure again on the other side of the kart.

The difference between this distance and the distance you recorded earlier on the other side of the kart is the amount your chassis is twisted.

Note: Sniper believes that a good chassis should be within 2mm twist.



Check the level vials occasionally as you adjust your wheel alignment, to ensure the most accurate result.

You can then place the kart on a flat level floor and check dynamic settings with the kart loaded. Ensure the driver's legs do not obstruct the laser beams.

Placing more load on various positions of the chassis by pushing it down, can be used to simulate how the chassis reacts under race conditions, and how this effects your steering geometry.

WARNING: Do not drive the kart with the Sniper units on it.

1- Year Limited Warranty

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Sniper Precision Technologies (SPT) warrants its products to be free from defects in materials and workmanship under normal use and service for a period of one (1) year from the date of original purchase when the unit is sold by an Authorized Dealer. The extent and conditions of Limited Warranty are as follows:

1. SPT will either repair or replace at no charge, to the original purchaser, any unit which SPT's examination discloses to be defective and under warranty, provided the defect occurs within one (1) year from the date of original purchase when the unit is sold by an Authorized Dealer and the product is returned immediately to SPT. This warranty is not transferable.

2. The date of purchase must be established by an original sales receipt which must accompany the article being returned for warranty work.

3. This warranty shall NOT apply to any Sniper unit found to have the original factory serial number removed or defaced. All products received (by SPT) for in warranty or out of warranty repair, with their original serial numbers removed or defaced, will NOT be repaired and will be returned to sender, freight collect.

4. The provisions of this warranty shall not apply to any Sniper unit used for a purpose for which it is not designed, which has been repaired or altered in any way, or which has been connected, installed, or adjusted other than in accordance with the instructions furnished in the Sniper owner's manual. Nor shall this warranty apply to any part which has been subject to misuse, neglect, or accident. Accordingly, abused broken glass level vials are not covered by warranty.

5. SPT does not authorize any other persons to assume any other liability in connection with its products. THIS WARRANTY IS THE ONLY EXPRESS WARRANTY MADE BY SPT APPLICABLE TO ITS PRODUCTS. ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THE SNIPER UNIT IS LIMITED IN DURATION TO THE DURATION OF THIS LIMITED WARRANTY. SPT SHALL NOT BE LIABLE FOR THE INCIDENTAL, CONSEQUENTIAL, OR COMMERCIAL DAMAGES RESULTING FROM THE BREACH OF THIS WRITTEN WARRANTY. Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts; so the above limitations or exclusions may not apply to you.

6. Your Sniper unit will be serviced on an in-warranty basis within the warranty period for the correction of warranted defects. If improper operation of your Sniper unit should occur, contact your Authorized Dealer for assistance with the return and factory repair of your unit. If an Authorized Dealer is not available, return the unit including your name, telephone number, return address, a copy of your sales receipt, and a description of the problem to:

Sniper Precision Technologies
Service Department
52 Country Drive, Oakford
Western Australia 6121

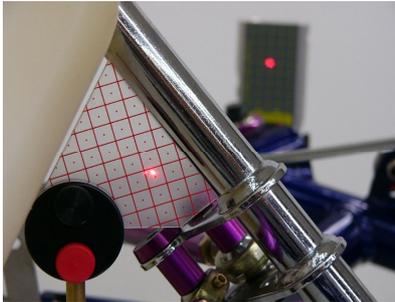
TO RETURN SNIPER UNITS OUT OF WARRANTY: Return the unit, postage prepaid, in the original protective carton. Please include a description of the problem and, if desired, a request for an estimate of repair costs. Unless a request for an estimate is included, the unit will be repaired as necessary.

Mark parcel "RETURNED TO MANUFACTURER FOR REPAIR UNDER WARRANTY"

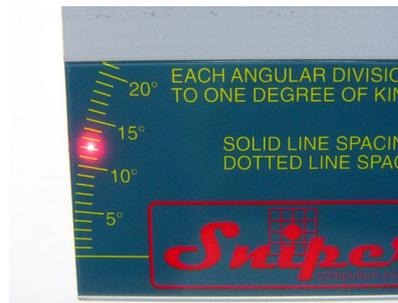
Please contact SPT Customer Service at +61 (0) 8 9397 0022 for questions concerning out of warranty repair charges.

Repaired unit will be returned with an itemized statement, C.O.D.

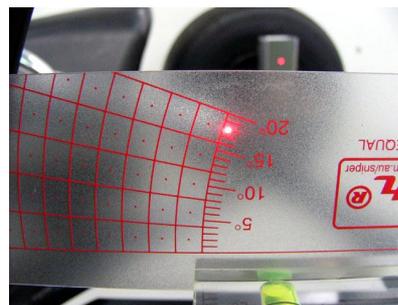
Also Available separately: V4 Accessory Kit



Templates and Template Holders to find the true steering centre.



Rear Targets for measuring Chassis Twist, Squareness and Compound King Pin Inclination.



Templates for measuring Compound Caster