

SNIPER

www.sniper.com.au **OWNERS GUIDE - Model V2** 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.

To switch on the unit turn the black plastic cap on the back of the unit clockwise until it stops. To turn the unit off, rotate the cap anti-clockwise one half turn to make sure the cap will not accidentally make contact when not in use.

To replace the battery, continue turning the cap anti-clockwise until you can remove it from the unit completely. The batteries are CR-1/3N or alternatively you can use 2x LR44 per unit.



The V2 uses a magnetized Vee Block to locate onto the spindles, therefore the spindles must be clean and free from rust, especially make sure that no metallic debris is stuck to the Vee.

Fit your Sniper units to the kart by carefully placing them onto the spindles with the forward arrows facing the front of the kart.



These units will fit any diameter up to 35mm so you may be able to fit the units on to the shoulder of the spindles.

IMPORTANT: You must be very careful if fitting the unit onto the shoulder and make sure there are no inaccuracies, this can be checked by viewing the settings on the spindles and comparing them to the settings on the shoulders.



Centralize the steering by your own preferred method (i.e. Sniper ackerman template, by eye, straight edge across lower steering shaft bracket, or other method recommended by chassis manufacturer), you may clamp the top steering bush with vice grips or similar, if desired.

Align the units to each other by centering the spirit level vials, this should be checked occasionally as you adjust your wheel alignment, to ensure the most accurate result.



You are now ready to begin adjustment of toe and camber. The laser dot in the center of the grid is the beam shining out at the opposing unit. Readings are then taken from the unit opposite to the stub axle being adjusted.

REMEMBER: Each line equals 2mm of toe or camber **per side**. Add both sides readings together for the total alignment setting.

The V2 can be checked for accuracy by recording your settings and then swapping the units left to right and you should see the same settings (toe in/ out will be back to front).



You can then place the kart on a flat level floor and check dynamic settings with the driver in the kart. 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

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.