

RACEFORM LAZER JIG

(Remote Control Car Tire Gluing Jig)

Field of use

This invention provides a solution for remote control car racers to glue tires to rims effortlessly without the use the hands and fingers to peel open the tire bead to apply glue and in most cases, racers always end up with glue on their fingers when using the traditional gluing method.

Background

1/8 scale remote control car racing has been around since late 1970s and racers have to glue at least 4 to 8 wheels per race. Choosing a different compound and inner inserts are usually done on the race day itself and gluing tires within the tight racing schedule is really hard and hectic. If tires are not glued properly, the tires will usually dislodge during a race due to centrifugal force from hard throttling.

Traditionally, racers used hands and finger to peel open the tire bead and apply glue, which is messy and often glue their fingers with CA glue with reference to Figs.1. The traditional method does not ensure a uniform and consistent glue application especially with inexperienced racer, resulting in a failure of tires during races.



Fig.1.

Back in 2012, a top plate compression gluing jig is sold in market. Refer to Figs.2 The top plate will compress and open the full circumference of the tire bead, allowing racers to apply glue into the fully opened bead, and then pop the top plate after glue application.

The disadvantages of this design are,

- 1) Over-stretching the tire bead during full circumference compression*
- 2) Over compress the tire causing lifting of the tire bead and thus reducing the glue contact surface between the rim and tire, refer to Figs.3.*
- 3) Popping of the top compression plate will cause the glue to squeeze outwards and splashing onto user is possible*

Currently, what is needed is a jig that eliminates all this gluing problems that are described above.



Fig.2.



Fig.3. (Tyre bead is not sitting flushed with the rims)

Detailed Description

This invention of the product consists of 5 main parts, refer to Drawing 1-6.

Parts name and purpose as per below:-

- 1) Part Base (Drawing 2-6)– The main chassis of the jig, comprises of a diameter 12mm fixed rod , acting as a center locating pin for the wheels to be slot in and alignment for rotation.*
- 2) Wheel Disc Support (Drawing 6-6) - 3mm black Disc wheel support plate to be slot into the centre locating pin. This plate allows the wheels with rubber tires to be able to rotate freely during actual gluing process.*
- 3) Part Toggle Support Toggle (Drawing 3-6) – This part is permanently fixed onto Base Part. The calculated angle of assembly is according to specs. This part will provide support for the Toggle Part that is fixed by M4 x 20 screw thru the top and a M4 x 5 grub screw to lock the M4 x 20 screw perpendicularly, allowing for a rotation angle of 47.95 degree for 2 positions, Open position and Latched on position. The M3 x 8 Grub screw will allow for micro adjustments for the Latched on position to accommodate for different tire brand , hardness, compound and user preference.*
- 4) Part Toggle (Drawing 4-6) – This part is to hold the Roller Clincher via the M3 Threaded hole on the left. The bottom Thread M4 is to be fixed with M4 x 15 grub screw, acting as a pin to limit the angle provide by Toggle Support Stopper Part. It is to be fixed onto Toggle Support and Stopper Part, with Rotatable fit from the top by M4 x 20 screw as mentioned in the above paragraph.*
- 5) Part Roller Clincher (Drawing 5-6) – This part consist of 2 parts, that is to be assembled with 5x10x4mm sealed bearings in the milled out area by M3 x 8mm screws. The Bearing will be in between the 2 plates, assembled on top Toggle part with a 3mm spacer, refer to Drawing 6-6. in between by M3 x 15 screws, allowing the roller clincher to rotate freely.*

All Parts are Cad designed and CNC manufactured based on Plexiglas not including screws.

Instructions

Step 1) Assuming the tires and inserts are assembled on to the rims to be glued, slot the center hole of the rims into the jig thru the center locating pin. Figs.4.



Fig.4.

Step 2) Rotate the Toggle part from Open position anti clockwise, to the Latch on position. The roller clincher will press down tires and open up the tire bead. Figs.5.



Fig.5.

Step 3) Rotate the wheels to check the opening being constant. At this stage, if the opening is too big, that the inside rim is visible, turn the M3 x 8 grub screw in the Toggle support and stopper part clockwise will reduce opening. If the opening is too little, turn the M3 x 8 grub screw anticlockwise to increase the opening gap. Technically, the bottom of the bead has to be in contact with the rims, so that the glue will stop flowing downwards into the inserts. This adjustment is usually done when necessary and opening gap will be fixed on the same type of rims and tires. Figs.6

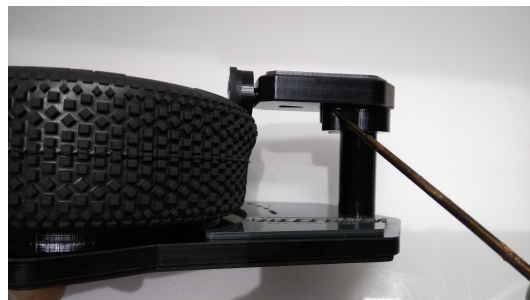


Fig.6.

Step 4) Apply the CA glue with a thin tip nozzle for best results as controlling the flow of glue is much easier and precise, into the bead opening. Watch the glue quickly sits into the gap, turning the wheels and continuously applying glue at the same time. Complete the gluing for a full round. Figs.7.



Fig.7.

Step 5) Release the toggle by turning into Open Position. Remove the glued wheels and secure with a tire gluing band of any brand. Figs.8a and Figs.8b



Fig.8a



Fig.8b

*Step6) Repeat Step 1 to Step 5 for all wheels (one side only), allowing the glue to cure.
Note: Waiting time is dependent on the glue choice.*

Step 7) Repeat Step 1 to Step 5 for the other side of the wheels. Figs.9.



Fig.9.

Claims

System for application of glue to bond Remote Control Car tires to wheels

Main Patent Independent Claim

Patent Claim 1. A Jig system comprising : A Base that consist of a diameter 12mm centering location pin to align wheel , wheel disc support for ease of turning, a toggle support and stopper part, a toggle part and the roller clincher to point compress and peel open the tire bead for glue application.

Patent Dependent Claim 2. The system of claim 1 where in the wheel disc support, where the wheel laid on, allowing the wheel to be able to turn with ease during application.

Patent Dependent Claim 3. The system of claim 1 where in the toggle support and stopper part consist of M3x8 grub screw for micro adjustment of angle in latched on position to adjust the gap of bead opening.

Patent Dependent Claim 4. The system of claim 1 where in the clincher roller consist a bearing assembled within to allow smooth rotation of this part during application.

Patent Dependent Claim 5. The system of claim 1 where in the assembled parts consisting the Toggle support and stopper part, toggle part and the roller clincher are designed to work together, and that once rotate to Latched On Position, the roller clincher will point compress and peel the tire bead for glue application.