

# TRU-SQUARE

## REAR END SQUARING MADE EASY

**The following directions assume the user of the TRU-SQUARE tool knows how to install and square a rear end in a sprint/midget racecar. If you are not familiar with this process, please refer to a setup manual for the correct set up procedure and setup dimensions for your car.**

Your complete TRU SQUARE kit includes; two squaring tools, one centering tool, two long clamps, and three short clamps.

Some manufactures suggest squaring the rear end, while others suggest setting the right side length (engine plate to axle) and then setting the distance the rear end is from the right frame rail. Either way this can be done using **only** the squaring tools if the torque tube is attached to the engine plate.

**DIRECTIONS:** With the rear end in chassis on setup blocks, the torque tube installed and connected to motor plate, and the birdcages installed on axle but no rods or torsion arms connected.

- 1.) Start with both ends of the TRU-SQUARE squaring tool screwed all the way in (shortest position); Place the large end of one TRU-SQUARE squaring tool over the axle directly above the set-up block with the other end facing toward the rear of the car. The large cup on the squaring tool is offset. Put the long end toward the top of the axle.
- 2.) Holding the other end (small end) at an angle up and back from the axle, turn the center section of the squaring tool to lengthen it until the small end reaches the rear upright tube of the chassis. The squaring tool should now extend from the axle to the rear up right of the chassis at an up and back angle. The degree of the angle is not important, you just want the squaring tool to attach to the chassis clear of any obstacles such as gussets, tank mounts etc.
- 3.) Secure the squaring tool to the axle by placing one of the supplied long clamps around the axle and over the flange on the squaring tool. Secure the small end of the squaring tool to the chassis with a short clamp.
- 4.) Repeat Steps 1-3 above with the other squaring tool on the other side of the chassis.
- 5.) Now adjust the length of the right side squaring tool until the axle on the right side is the proper distance from the engine plate (as per the chassis manufacture's specifications)
- 6.) Now adjust the left side squaring tool until the rear end is square and or at the proper side to side distance, depending on the chassis manufacture's set up recommendations.
- 7.) Now re-check both measurements as a small adjustment may be needed.
- 8.) When the rear end is in the proper location tighten the lock nut on each squaring tool to lock the rear end in place.
- 9.) Now with the rear end securely locked in place you can time the birdcages and connect the rod and arms without the rear end moving out of square.
- 10.) Once the rods and arms are attached and properly adjusted, make sure the torque tube rotates freely.
- 11.) Remove all components of the TRU-SQUARE tool from the rear end and the chassis before operating the car.



*TRU-SQUARE tool attached to a sprint car chassis to illustrate the proper installation.*

### **WARNING: Do not operate the car with the TRU-SQUARE tool attached.**

**Optional Use:** If you want to square the rear end without attaching it to the engine plate this can be done with the TRU-SQUARE centering tool.

- 1.) Just like in the steps above you will, have the rear end in the chassis on set up blocks. Attach the TRU-SQUARE squaring tools to the rear end and chassis just like above but do not fully tighten the clamps.
- 2.) Adjust the squaring tools to get the rear end approximately square.
- 3.) Attach the TRU-SQUARE centering tool to the rear end using one of the studs and nuts on the back of the rear end.
- 4.) Attach the other end of the centering tool to the bottom rail of the chassis on either side.
- 5.) Adjust the centering tool until the rear end is in the center of the chassis.
- 6.) Tighten the clamps on the squaring tools.
- 7.) Adjust squaring tools until the rear end is square and the proper distance from the engine plate.
- 8.) Re-check rear end for center and square.
- 9.) Attach rods and arms.

The above process is great for setting up a spare chassis and rear end in the shop, without spending the time to install the engine plate, torque tube, etc. Take the adjusted arms and rods and bundle them up to use later. When the spare chassis is needed the rods and arms are ready to go.

Tips:

- 1.) When using the TRU-SQUARE tools always adjust the tools by turning the center section. By turning the center section both ends will adjust evenly and you won't run out of adjustment.
- 2.) With the rear end securely held in place with the TRU-SQUARE tools you can connect the radius rods. Then adjust the length of the radius rods to level the birdcages without the axle moving out of square.
- 3.) The centering tool should **not** be used together with **both** squaring tools when rear end/torque tube is attached to the engine plate.

### **WARNING: Do not operate the car with the TRU-SQUARE tool attached.**