

# Sprintcar / Wingless Rear End Set Up Tips

## Squaring The Rear Axle ...

1. Put the rear end in the car; using a 5" block on the left side, and a 6" block on the right side. for raised rail cars. For Standard rail cars 6" block on both sides.
2. Bolt the torque tube in place.
3. Put on the left and right bird cages. At this point, do not attach any of the radius rods or torsion bars.
4. Using spacers, put on the axle nuts, and secure the bird cages on the axle.
5. Lightly insert (just) the torsion bar bolts into the bird cages. Do not tighten, just get bolts started two or three round.
6. Put the (greased) torsion bars in the car. At this point, leave the stops and arms off.
7. Roughly center the rear end in the car. This can quickly be accomplished by:
  - a) Measuring from a (centered) bolt on the read end cover plate to the frame rails.
  - b) Measuring from the machined back of the torque tube to the frame rails.  
Approximate measurement should be 10 1/8".
  - c) Line up a (centered) bolt on the read end cover to the torsion bar gusset in the middle of the rear torsion tubes.
8. Pick a side, and measure from the leading edge of the rear axle, to the front edge of the motor plate. Move the axle forward/back and side to side until this measurement is 38 5/8".
9. With the opposite side, measure from the leading edge of the rear axle, to the front edge of the motor plate. Move the axle forward/back and side to side until this measurement is 38 5/8".
10. Repeats steps 6 and 7 until both sides of the race car measure 38 5/8" from the leading edge of the rear axle to the front of the motor plate. Note: this will take numerous attempts to accomplish.

Important Note: Every step after this assumes the rear end remains completely stationary in the car. If the rear end moves in the least, undo each step completed, and start back at step 7.

## Leveling the Bird Cages ...

11. Attach the (rear) radius rods on each side of the car to the bird cages.
12. Pick a side, and measure from the leading edge of the torsion bar bolt (in the bird cage) to the front of the motor plate. Wind the radius rod in/out until the measurement is 39 3/4".
13. With the opposite side, measure from the leading edge of the torsion bar bolt (in the bird cage) to the front of the motor plate.  
Wind the radius rod in/out until the measurement is 39 3/4".

## Attaching the Torsion Arms ...

14. Remove the torsion bar bolts from the bird cages.
15. Attach the left and right torsion bars to the torsion bars (and tighten).
16. Pick a side, and without moving the birdcage, adjust the rod end so the (lower) birdcage bolt slides freely through the rod end and into the birdcage.
17. With the opposite side, and without moving the birdcage, adjust the rod end so the (lower) birdcage bolt slides freely through the rod end and into the birdcage.

## Recheck and Tighten ...

18. Recheck all the of the measurements above to ensure nothing moved during squaring. If any measurement is not accurate, undo all the steps, and restart the entire process at step 7.
19. Once all measurements are correct, tighten all jamb nuts (being careful not to move anything until all jamb nuts are tight).