



## Race Team General Safety Check List

Remember Safety is #1 priority before anything else at any time at the track. We have come up a reminder list of general safety checks that should be checked but not limited to for every race team to make their race day a safe day.

### **Don't leave home without Racer Safety Equipment**

- Helmet (see ASN requirements)
- Drivers suit (see ASN requirements)
- Racing shoes (see ASN requirements)
- Racing gloves (see ASN requirements)
- Rib Protectors (see ASN requirements)
- Neck protector (see ASN requirements)

### **At the Race Track Pit Safety equipment**

- Copies of medicals of registered drivers on hand
- All team pits/trailers must have a Min "CLASS B" fire extinguisher
- All team trailers must have a fire detector ( Ontario Fire Marshalls requirement )
- All fuel and flammable chemicals & materials must be stored in proper containers in well ventilated areas of the trailer and/or pits at the track away from running karts , generators, and BBQ's
- Proper containers to dispose of any used oil , chemicals ,and rags
- Garbage bags to keep your pits area neat and clean in case of any emergencies

### **Chassis and race day safety check list**

- see Official Pre Technical Inspection Self Declaration sheet
- if you have any questions on this sheet please see one of the Club's board members or Club's Technical officials

### **Practise, Pre grid & grid safety checks for Drivers / Mechanics.**

- be sure drivers shoelaces are tied tight & not dangling or able to be caught up on anything while driving or in case of an accident
- check tire pressures
- check all safety wire , cotter pins and safety clips are all secured
- double check for any loose nuts, bolts , wheels , and chains
- double check the chassis for any cracks in the welds and frame
- double check for any cracks in the seat
- check for loose fuel lines and wiring (zip tie and all hose line connections )
- fuel and oil caps are all tightly secured
- Make sure there are no tools and equipment still on floor pan or attached to the kart.
- check that exhaust & header mountings are all tight and secure
- Driver's helmet and neck brace are secured properly.
- Be sure any long hair is tied up into the helmet and not hanging out.
- **completely check over braking system before sending any Kart onto the track**
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### **Post practise/race kart safety checks (Do not touch anything on kart if instructed to go to official post race technical inspection on race days)**

- All drivers must raise their hand when exiting the track to notify other drivers
- Drivers safely check brakes before entering pit area or post race scale lines after practise or racing. (if no brakes stay on track and proceed to safely drive into the infield grass to a stop )
- **completely check over braking system after every on track session**
- double check for any loose nuts, bolts , wheels , and chains
- double check for any cracks in the seat
- double check the chassis for any cracks in the welds and frame
- check for loose fuel lines and wiring (zip tie all hose line connections)
- check exhaust & header mounting is all tight and secure



## General Chassis tuning tips

Keep an open mind! No matter what anyone tells you, do what works not what is supposed to work. When in doubt leave it alone. If you don't have time to test a change before the race and you aren't positive it will be a good change, don't do it. To make your chassis work properly you need to balance the amount of bite in the chassis. You need a neutral chassis without too much bite and not too loose. The perfect setup is easy to drive. Everyone has different driving styles and can use different setups to find perfection. Only make one change at a time.

### If you need more traction or bite

- Rear – add seat struts
- Rear – Longer rear wheel hubs
- Rear – Stiffer rear axle
- Rear – Raise your seat
- Rear – Add rear torsion bar
- Rear – Tighten the nerf bars
- Rear – Use stiffer seat
  
- Front – Lower your front spindles or raise the chassis
- Front – Add caster to the front spindles or raise the chassis
- Front – Increase the camber on the front spindles (Angle the top of the spindle away from the tire)
- Front – Raise tire pressures

- Front – Raise weight on the kart

## **If you need less traction or bite**

- Rear – Loosen or remove seat struts
  - Rear – Shorten rear wheel hubs Rear – Remove rear torsion bar
  - Rear – Loosen the nerf bars
  - Rear – Use a softer seat
  - Rear – Lower your seat
  - Rear – Use softer axle
  - Rear - Lower tire pressures
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- Front – Raise your spindles
  - Front – Reduce the caster angle (Move the top of the spindle toward the front of the Kart)
  - Front - Reduce the camber on the front spindles (Angle the top of the spindle toward the tire)
  - Front - Lower tire pressures
  - Front – Lower weight on the kart

### ***Axle bearing adjustment***

**Problem:** Lack of rear grip.

**Solution:** On karts using a 3 bearing rear axle design, under certain conditions where grip level is low extra grip may be gained by loosening the center bearing. Remove the 3 bolts from the alloy bearing flange and loosely fit three cable ties through these holes. If you have seat struts fitted you will need to remove the seat strut from the alloy –bearing flange

**Problem:** Kart is two wheeling excessively through corners

**Solution:** Raise axle in chassis.

**Problem:** The back slides/ the kart oversteers going into the turns

**Solution:** Make sure the back axle is located full down in the chassis (i.e. the kart with maximum rear ride height)

### ***Spindle height adjustment***

**Problem:** The back slides/the kart oversteers going into the turns

**Solution:** Raise the front ride height i.e. lower the front stub axles in the chassis by one spacer at a time.

**Problem:** There is too much steering or front end bite on turn-in

**Solution:** Lower the front ride height i.e. raises the front stub axles in the chassis by one spacer at a time

### ***Brake Adjustment***

**Problem:** The engine has no top end speed

**Solution:** Verify the brakes are not dragging. If needed, increase the gap between the rear brake pads and the disc by removing shims between the calliper piston and the brake pad.

**Problem:** Excessive pad clearance between each pad and the disc

**Solution:** Reduce the gap between the rear brake pads and the disc by fitting a shim between the calliper piston and brake pad. You must do this on both sides to ensure pad clearance to the disc is equal. Remove the pad safety pins and fit a shim between the calliper piston and the brake pad. Refit the safety pins. You can fit additional shims as the pads wear more, however, ensure you do not fit too many shims as this could cause the pad return springs to spring bind and this will seriously affect your brake performance. Should you encounter difficulty fitting the shims then remove the four pad return bolt/springs, fit the shim and refit the return bolt/springs.

### ***Crash bar adjustment***

**Problem:** Understeer from the apex and out of the corner

**Solution:** Loosen or remove the bolt at the front mounting point of both side supporting bars (nerf bars) to the chassis.

### ***Front end Alignment***

**Problem:** Engine lacks mid-range punch when applying throttle from the apex of the corner

**Solution:** Increase the amount of Ackerman by moving the steering links to the inner mounting holes on the spindles.

**Problem:** The back slides/the kart oversteeres going into the turns

**Solution:** Reduce the Ackerman setting by one hole on the spindles

**Problem:** There is too much steering or bite on turn-in

**Solution:** Reduce the Ackerman setting by one hole on the spindles

### ***Adjustable camber and caster***

**Problem:** The back slides/the kart oversteers going into the turns

**Solution:** If camber/caster adjusters are fitted on the kart, reduce the caster setting

**Problem:** There is too much steering or front end bite on turn-in

**Solution:** If there are camber /caster adjustors in the kart, reduce the caster.

**Problem:** There is understeer all the way through the turn

**Solution:** If there are camber/caster adjustors in the kart, increase the caster

### ***Front track***

**Problem:** Understeer on turn-in to the apex of the corner

**Solution:** Widen the front track by a 5mm spacer at a time

**Problem:** Oversteer or very sensitive front steering causing the rear to slide

**Solution:** Narrow the front track width by a 5mm spacer at a time

### ***Rear track***

**Problem:** There's no traction/the kart is oversteering coming from the apex out of a corner

**Solution:** Reduce the rear track width by 5mm on both sides at a time

**Problem:** The back slides/the kart oversteers going into the turns

**Solution:** Increase the rear track width by 5mm on both sides at a time, being careful not to exceed the maximum regulation width overall of 55 inches.

**Problem:** There is understeer all the way through the turn

**Solution:** Increase the rear track width by 5mm on both sides at a time, being careful not to exceed the maximum regulation width overall of 55 inches.

**Problem:** There is bounce in the rear

**Solution:** Increase the rear track width by 5mm on both sides at a time, being careful not to exceed the maximum regulation width overall of 55 inches.

**Problem:** The track is very bumpy giving the car a lot of bounce

**Solution:** Increase the rear track width by 5mm on both sides at a time, being careful not to exceed the maximum regulation width overall of 55 inches.

**Problem:** The kart has a tendency to lift up on two wheels through the corners

**Solution:** Increase the rear track width by 5mm on both sides at a time, being careful not to exceed the maximum regulation width overall of 55 inches.

### ***Seat struts***

**Problem:** There's no traction/the kart is oversteering coming from the apex out of a corner

**Solution:** Mount seat struts on either side of the seat, in certain applications 2 sets of seat struts can be fitted.

### ***Torsion bars***

**Problem:** There's no traction/the kart is oversteering coming from the apex out

**Solution:** Run torsion bar at "full stiff"

### ***Tire Pressures***

**Problem:** The engine has no top end speed

**Solution:** Raise rear tire pressures by 1psi

**Problem:** The back slide/the kart oversteers going into the turns

**Solution:** Raise the rear tire pressures by 1psi



**Problem:** There is too much steering or front end bite on turn-in

**Solution:** Lower front tire pressures by 1psi

**Problem:** There is understeer all the way through the turn

**Solution:** Raise the front tire pressure by 1psi

**Problem:** Understeer on turn-in to the apex of the corner

**Solution:** Raise the front tire pressures by 1psi

**Problem:** Understeer from the apex and out of the corner

**Solution:** Lower rear tire pressures by 1psi

### ***Rear wheel hubs***

**Problem:** Understeer from the apex and out of the corner

**Solution:** Replace the rear wheel hubs with shorter units.

**Problem:** There's no traction/the kart is oversteering coming from the apex out of a corner

**Solution:** Replace the rear wheel hubs with longer units.