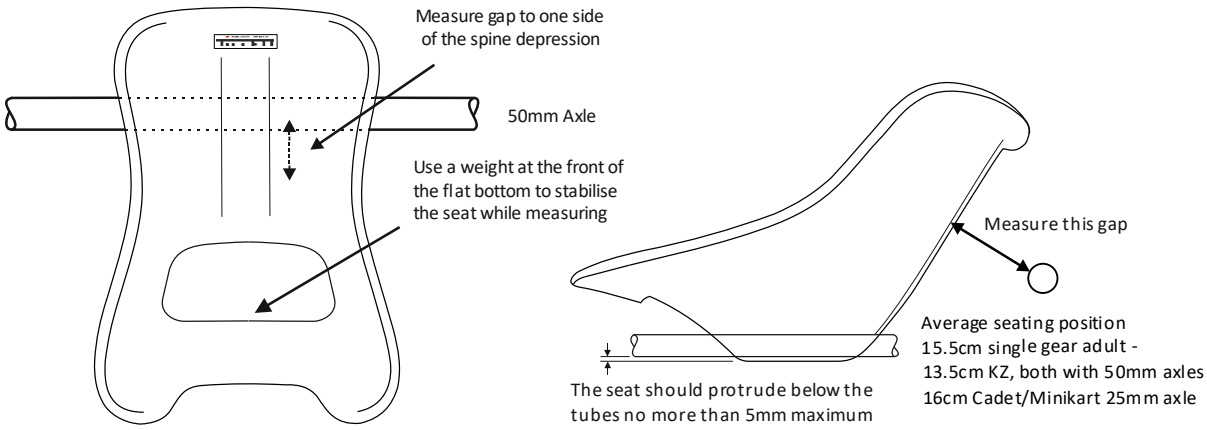
Kart seat positioning

Kart seat positioning is a difficult but important job. The driver is half the weight of the vehicle and if their weight is out of position the kart will be unbalanced and difficult to set up. Many manufacturers will give you a set of dimensions which can be confusing, unless you are using the exact shape and size of the seat that was used to get the information in the first place. Therefore, to get the correct balance in the chassis it is important to understand where the drivers back is in relation to the rear axle. These instructions are to help with attaining the most common position for the average 70kg driver. Sometimes a compromise position will have to be used for smaller or larger drivers.

To accurately fit a kart seat, place a flat sheet of plywood, or something similar, on your kart stand, then space the chassis tubes from the wood to give you the correct ground clearance. (Using the Tillett T Board product will make this part of the job more accurate.)

5mm is usually the maximum dimension below the tubes with a modern chassis. If you do not have this low point information, set your kart up on a flat piece of ground with the correct tyre pressures. Take a note of the distance the seat protrudes below the chassis tubes when you have around 15mm clearance between the floor and the seat base. Next place the seat on the wooden board or T Board, like this it is stable and easy to hold in the ideal position. (Tip: A weight placed inside the seat will help keep it stable and upright.) If the seat has a flat bottom it is usually best to use the set angle provided.

Using the height of the flat on the base of the seat and the important “axle to drivers back” dimension shown in the diagram below, you can put any seat in any kart and the driver will always be exactly in the same position in relation to the rear axle. The current average seating position and a good place to start with a 70kg 1.80m tall driver is 15.5cm, whereas with a KZ chassis the dimension would be closer to 13.5cm. A shorter junior would use around 18cm.



Be aware that Historic karts always had the seat set further away from the axle. Pre-2005 chassis with a 40mm diameter axle used around a 21.5cm gap and karts aged from 2005 to 2009 with a 50 mm axle approximately 18cm. If the kart has a 30 or 40mm axle you will need to compensate for this by changing the gap dimension accordingly.

Please note that bolting a substantial amount of lead weight to the back of the seat can make a difference to the seat position. It forces you to position the seat further forward to achieve the same balance.
With the seat in position, check that all seat stays are parallel to the composite. If the flat metal tabs are set at a different angle, bend them with a large adjustable spanner until they exactly match the angle of the composite. They do not have to be bent to be close to the composite and the gap can be filled with nylon or aluminium spacers without a performance penalty. But do not use rubber as not only will this break the edges, but the bolt will act like a saw, moving in and out, cutting a slot in the seat.

To mark the holes, place a blob of paint on the end of a long bolt and pass it through the four main stays spotting all four holes without moving the seat. If there is a gap between the seat and the stay, make sure you pass the bolt through at 90 degrees to the seat stay. Drill all four holes accurately and when fitting the bolts use the correct number of spacers so that the composite is not twisted out of position, put all four in loose and then tighten the bolts until very tight. Use the correct number of spacers to keep the composite from being pulled out of its natural shape and to maintain the seat in the desired position.

The seat is then in place and you can then fit any extra seat stays and lead weight required. Weight bolted on the sides and under the front between the legs should be slightly spaced away from the seat with nylon washers. This helps the seat flex around the rigid lead and stops breakages. Also bend the lead in an arc under the front, this is done so as not to pull the composite out of its naturally moulded shape. If water pipes and data cables are to be fitted, make sure that any hole drilled for a cable tie is more than 5mm away from the edge. Holes drilled too close to the edge can cause a crack.

Keep the head of the extra seat stay bolts away from the top edge of the seat. Fasteners that are fitted too near the upper edge will bruise the ribs. Try and use a low profile washer up around the rib area if possible. This will not only help the ribs but also stop any hard rib protectors from damaging the race suit. The countersunk washer from the lead bolts should also be kept away from the contact point where the hip and leg bones touch the seat.

When you are fully satisfied with the performance of the kart, record the position of your correctly fitted seat. Keep the “seat to axle surface” gap and the seats lowest point dimension. For a specific driver setup, it also helps to keep a measurement from the centre of the Tillett badge to the top of the steering wheel and one from the front toes of the seat to the pedals. Finally, make a note of the size, shape and rigidity that you have used. To prepare the seat for wet weather, drill two holes for water drainage at the lowest point of the seat.

Your seat is then ready for use on the track.