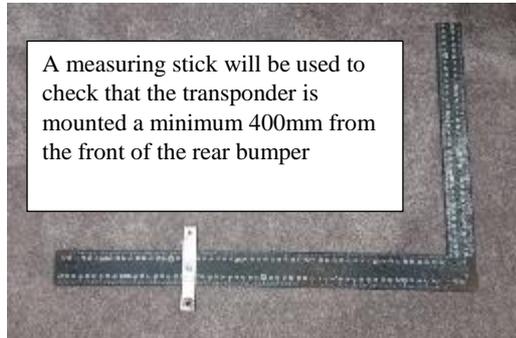




Mounting the transponder

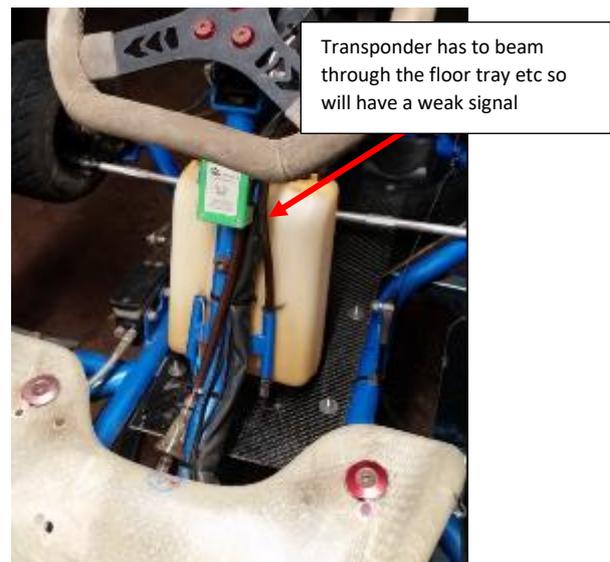
Transponders are to be fitted no closer than 400mm from the front of the kart. This is measured 90 degrees up from the floor tray.

The transponder can face sideways, backwards, or in any direction, as long as it is as vertical as possible.



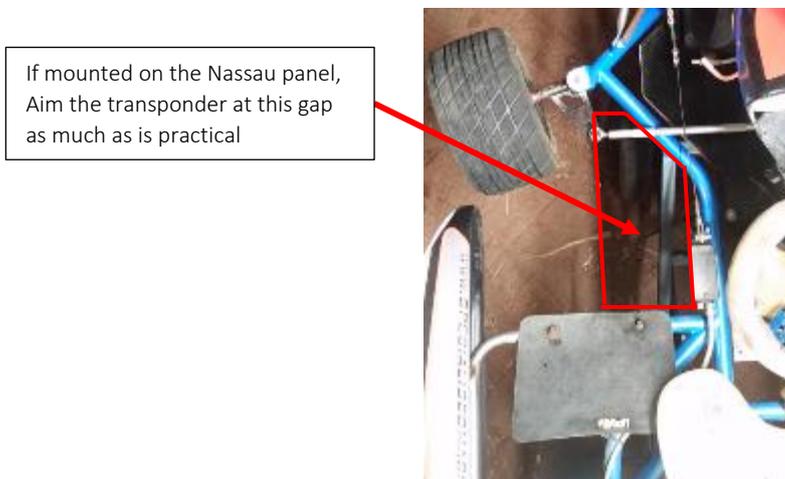
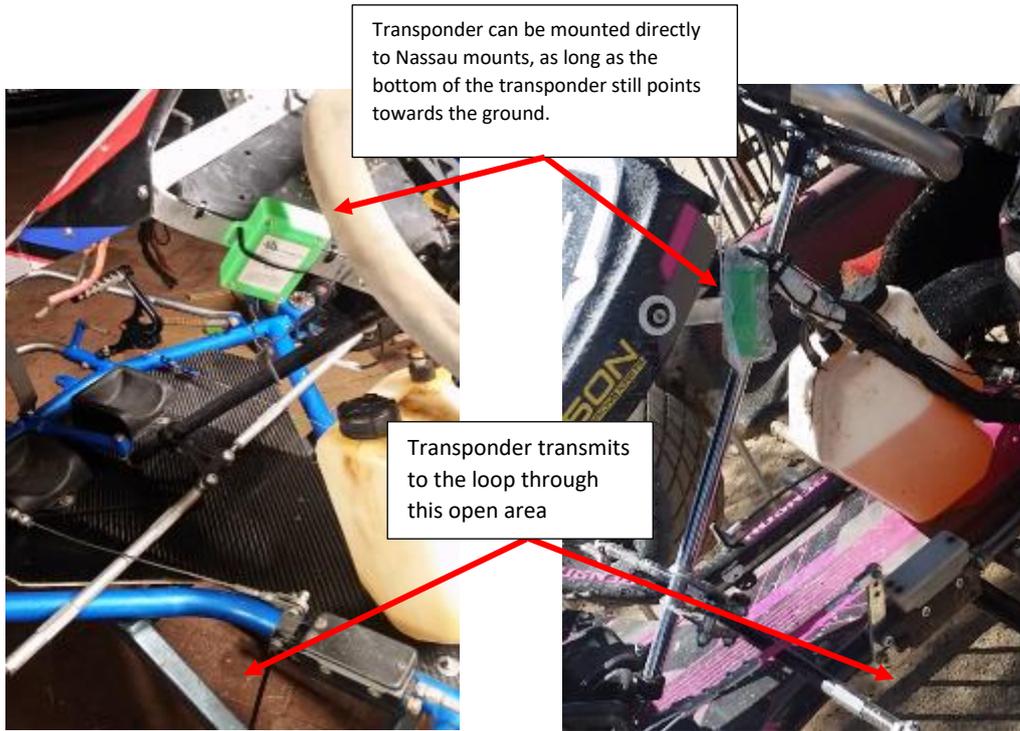
Examples of Poor mounting

These places should be avoided as the signal may be weak





Examples of Acceptable Nassau Panel Mounting





Examples of other Acceptable mounting positions

Below are some more examples for mounting if the Nassau panel cannot be used.

All methods are close to vertical, and have a good clear path to the ground



Tranponder can be mmounted anywhere on seat



Clamps Used to stop transponder rotating



About the transponder

The activated transponder operates using an internal lithium battery. There are two LEDs, one green and one red on the transponders. When the transponder has been activated and is in the on state, the green LED will blink once a second. When the battery is starting to run low the red LED will blink once per second. When the transponder is within the activator's signal range the green LED will flicker rapidly.

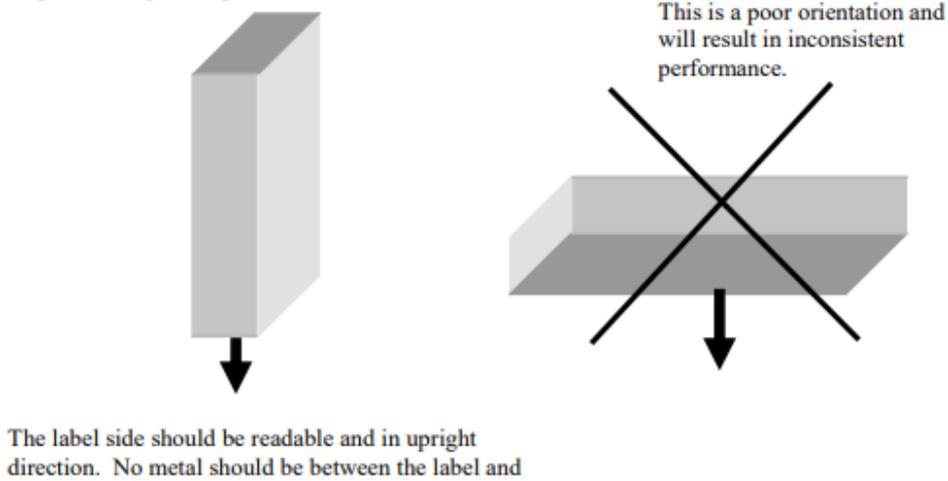


Fig 1 Activated Car Transponder

Activated transponders may be mounted to the vehicle with zip ties, pouches or a plastic holder.

Note: Be sure to securely fasten the transponder to the vehicle before use. Unsecured transponders can be hazardous if they fall on the track.

The best possible orientation of the transponders is shown below in Fig 2. **It is important that the transponder has no metal or carbon fiber between it and the track surface.** Metal and carbon fiber will block the signal emanating from the transponder and the system will not be able to pick up crossing transponders.



IMPORTANT: The transponder is water resistant, not water proof. They should be removed for washing etc.



Fig 2 Orientation

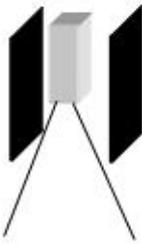
- Label side of the transponder is upright and readable. It does not matter which way the lights face. Those are just indicators of battery life.

Note: There are other transponders, such as the rechargeable transponder, that use a different orientation. Be careful about mixing the orientations.

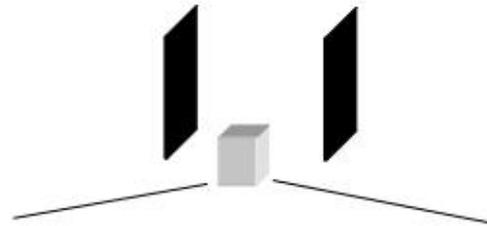
- No metal or carbon fiber between transponder and track. The transponder must have a clear shot to the ground.

Note: Signals can go through plastic so it is possible to use a piece of plastic as a mounting plate.

Recessing the transponder can create problems such as shown below.



Poor location: Narrow window for detection. The signal can't be seen well.



Good location: No metal to block the signal. The detection window is very wide.

After track testing, it has been decided that the transponders will be mounted as follows:

1. Transponders are to be fitted no closer than 400mm from the front of the kart. This is measured 90 degrees up from the floor tray.
2. The transponder can be mounted above plastic, but not steel or carbon fibre as this may block the signal. Test have found that transponders mounted at the top of the Nassau panel usually have enough of a path to the ground, whereas transponders mounted closer to the stub axle region can suffer from weak signal. This is the purpose of the setback measurement.
3. The transponder can be mounted to the Nassau panel, however the transponder needs to have the clearest signal path to the track as possible. This can be achieved by mounting the transponder as far from the centre of the kart, as high as is practical, towards the edge of the Nassau panel. The transponder may need to be tilted slightly away from the floor pan to the outside of the kart.
4. If the Nassau panel is impractical, then mounting directly to the chassis or the back of the seat can be used as these areas provide a better signal anyway.
5. The transponder can face sideways, backwards, or in any direction, as long as it is as vertical as possible.



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6. The transponder must be mounted to a rigid structure. Care must be taken to avoid mounting it where it can rotate around a bar by using P clamps etc. instead of cable ties.
7. The transponder must be mounted in a position where it is easily visible to the steward, so that the functionality and mounting position can be checked at any time. The lights must be easily visible. This is particularly important to make sure that the transponder has been activated on the out grid.
8. Stewards reserve the right to request that the transponder location is changed at their discretion. This will be mainly to increase signal strength if required, or mount the transponder more rigidly.

NOTE: Tilting the transponder forward will not make it register sooner. The system looks at the output pattern over time as the transponder travels over the loop. It then uses pattern matching to determine where the transponder crosses the centre of the loop. The output pattern over time is more complex than a simple hump where power increases as the transponder approaches the loop and then decreases as it moves away from the loop. Therefore, it is more important to mount the transponder securely, than trying to face it forward to get it closer to the track.

It does not work like this:

