Tuning Guide

Key Notes
- **Tuning is always performed at 5 km/hr**
- Tuning will be easier to perform on flat ground
- If using a Trimble EZ-Steer it is recommended that you set the motor speed before you proceed. The motor speed matches the Trimble motor with the effectiveness of the tractor steering. This is particularly important for tractors with sensitive steering (which should have the motor speed set to low). This setting is found in Settings › Vehicle › Steer Kit Wizard

Tune sets include:
1. **Sensitivity**
2. **Aggressiveness**
3. **Overshoot**
4. **Speed Adjust**

Before attempting to tune a vehicle, ensure that all the setup configuration procedures have been completed as per the manual. If these settings are not entered and configured correctly it is almost certain that you will not be able to tune for satisfactory performance.

All values run from 50 to 150, 50 being lowest and 150 being the highest. A setting of 100 is the factory default setting so if you wish to start over with the factory settings change all settings back to 100.
- It is important to note that the effect these settings have may vary from one steer kit to the next. This means that small changes in one tuning parameter may have a dramatic effect on the steering performance, while the same changes for another steer kit may have a reduced effect.
- There can (and often is) a difference between how large the effect will be depending on if you are below or above 100 (i.e. A change from 55 to 56 may have a very different effect to a change from 130 to 131).
- Sensitivity and Aggressiveness are the parameters that have the greatest bearing on the vehicle's steering performance.
- It is advised that all tuning parameters are set back to default before tuning is started. The default value is 100 regardless of vehicle type or steer kit.

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1. Sensitivity

The first tuning parameter that needs to be set is the sensitivity. This parameter affects how reactive the overall control of the vehicle is. As the sensitivity is increased the steering and control will be sharper and more reactive (possibly even too reactive if set too high).

Tuning the sensitivity is done as follows

1. In an open area mark an A/B line that you can drive to. Leave the sensitivity at 100.
2. The most critical thing to do as part of the sensitivity tuning is to watch the steering wheel or wheel angle. Manually get the tractor aligned with the AB line and then engage the steering. Watch the steering carefully. If the steering is over-reacting, causing the nose of the vehicle to twitch, you will need to reduce the sensitivity until the steering is smooth while on the line (it is recommended to reduce the sensitivity a little further than it takes to remove the twitch). If the nose of the vehicle is wandering away from the line you may need to increase the sensitivity.
3. It is important to note that this setting is not steering you towards the line, it is simply holding the desired heading.
4. You may need to refine the sensitivity setting after you have made changes to other tuning settings.

Once you have the vehicle steering smoothly in one movement towards the desired heading you can move onto the next tuning step.

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2. Aggressiveness

Aggressiveness, put simply, is how aggressively the vehicle drives towards the AB line. Making this value higher means the vehicle will turn sharply to get onto the line quickly and be more aggressive in holding the line, while a low value will result in a slower approach and be more likely to drift off the line. Be aware that simply setting a high aggressiveness will not necessarily acquire and hold the line nicely – it may result in severe overshoot and steering back and forth across the line.

Drive parallel to the marked AB line, approximately 3 to 6 feet (or 1-2 meters) to either side, and engage the steering

- If aggressiveness is set correctly you will see the vehicle steer promptly and smoothly onto the line in one movement. A little bit of overshoot may actually be good for towing an implement.
- If the vehicle overshoots the line too much, the aggressiveness may be set too high (or the overshoot setting may be too high). If it takes some time to acquire the line, the aggressiveness may be set too low (or the overshoot may be set too low).

Note: As a general rule, although not in every case, you should see either a high sensitivity (above 100) and a low aggressiveness (below 100) or a low sensitivity and a high aggressiveness.

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3. Overshoot

The overshoot setting affects how soon or how late the vehicle will straighten up onto the line. Reduce the overshoot setting if you notice the vehicle straightening up too late and overshooting, or increase the overshoot setting if it is straightening too early and being slow to get to the line.

To set the overshoot, drive parallel to the line about 3 to 6 feet (1 to 2 meters) to either side. Engage the steering and observe the response

- If the vehicle approaches the line and then starts to straighten up too early increase the overshoot value and try again.
- If the vehicle straightens up too late and overshoots the line decrease the overshoot value and try again.

4. Speed Adjust

As noted at the top of this document, all the previous tuning steps were performed at 5 km/hr. The aim of the speed adjust is to improve the steering performance over the full range of working speeds.

To tune this parameter
1. Start at 10 km/hr and observe the steering performance. If you find it has degraded simply increase or decrease (trial and error) the speed adjust value.
2. Change this tuning setting until you achieve steering performance that matches what was seen at 5km/hr. Repeat this process in increments of 5 km/hr up to 25 km/hr (or your maximum operating speed). Note that the console will not steer at speeds of 30 km/hr or higher.
3. It is important to note that once the speed adjust figure for the top speed is determined, this is the figure that remains. The console will automatically make adjustments to the entire tune set values for operation across all allowable speeds.

Note: It is possible that this step be left at default if the steering performance is acceptable at all speeds. Only adjust if poor steering performance is observed at higher speeds.

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