



Gear Position Calibration Procedure for Go Karts Using MyChron3 Plus or Gold

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As I have made my many rounds through the pits, race after race, I've noticed that the majority of shifter kart owners sporting either the MyChron Plus or Gold don't have their Gear Position Indicator enabled. This is a fantastic feature that not only allows the current gear position to be displayed while driving, but also during the "Real Time" playback mode in the display's memory. Additionally, it enables a "hidden" measure/channel in the Analysis software that can be displayed along with speed, rpm, lateral G's and temperatures in a plot versus time or distance.

After some investigations and inquiries, the main reasons given for not using this feature were:

- 🕒 **"The instructions were too confusing, vague, or missing"**
- 🕒 **"I tried and tried and finally gave up"**
- 🕒 **"I need a sensor for that, don't I?"**
- 🕒 **"I never could figure out a good reason for using it"**
- 🕒 **"This isn't a shifter kart, Scott"**

I accept personal blame for that last reason. I'll even take responsibility for each additional reason given before that. My intentions are to give you a simple, clear cut, method of setting up the gear position calibration procedure and a few good reasons why you should take the time to make sure that yours is working.

A Brief Explanation:

Unlike certain cars and bikes, go karts do not have any sort of sensor to indicate which gear position is currently engaged. Therefore a calibration method is used to "teach" the MyChron. Using RPM and wheel speed data, the MyChron learns to reference the different plateaus of RPM created by the different gear ratios and calculates just how many there are. Then it assigns a numerical value to each of these plateaus based on parameters given during the set up. The end result is the appropriate red numeral associated with the current gear position appearing in the dark black void at the very top of the MyChron's display.

There are three total steps involved with the gear position calibration. This includes the **enabling** of the calibration, the **collection** of the data to be used for the calibration, and finally, the **calculation** of these samples.

Once the calibration has been enabled by the user, the procedure is initialized *once the MyChron "sees" RPM and speed data*. The MyChron then continues to record and sample this data throughout the duration of the time out on the track. Once the test concludes and the MyChron

no longer sees data from either of the two data channels, the calculation process begins. This all takes place automatically. In fact, when describing this procedure to people, the quote "Just set it and forget it" comes to mind.

I. Gear Calibration Procedure:

1. Confirm that you have firmware version 1.53 or later installed.
2. Verify that wheel speed and RPM data both are stable and accurate.
3. Shut off the kart's engine. *(The MyChron cannot be set up to run the gear calibration if it is currently monitoring RPM)*
4. Enable the gear calibration. (see section II below) *(Use the set-up method found in the display's menu)*
5. Once the gear calibration has been enabled, push the "On/View" button so that "Gear Calibration Running" is scrolled across the top of the MyChron's display. *(This will also set up your MyChron for normal viewing conditions while driving)*
6. If the engine has not been warmed up, shut off the MyChron. Fully warm up your engine before turning the MyChron back on.
7. Turn the MyChron on and exit the grid. *(Allow the MyChron to "see" first gear for a few seconds as you leave the grid and for a few more seconds as you return to the grid)*
8. Drive as you normally drive. Keep in mind that the calibration procedure needs you to run through all of the gears for a minimum of at least 5-15 seconds. *(The more time spent out on the track, the more accurate your gear position indicator will be)*
9. Once you have returned to the grid or pits at the end of your session, shut off the engine, BUT DO NOT TOUCH THE MYCHRON. The absence of RPM and speed signal will activate the final step of the calibration procedure and begin its calculations.
10. Once the AL1 light has shut off (anywhere from a few seconds to a couple of minutes), you will briefly see the message "Saving New Config" on the MyChron's display and then it will return to a normal viewing screen.
11. The MyChron has now been calibrated and you will see true gear position on your next outing.
12. If tire size is changed by more than 1/4" or gearing has been drastically changed, you may need to recalibrate the gear position.

II. Setting up the Gear Calibration:

1. DO NOT USE THE "ENABLE GEAR" FOUND IN THE RACE STUDIO 2 SOFTWARE. This is reserved for automobile and motorcycle set ups that have an onboard gear position sensor.
2. Select the "Menu/⟨⟨" button found on the MyChron and repeatedly press it until you see "Gear Calibration".
3. Press the "Mem/OK" button to enter the gear calibration menu.
4. Scroll through the options using either the << or >> buttons found on the MyChron until you see "Gear Computed" on the screen.
5. Press the "Mem/OK" button.
6. Using the scroll buttons, select the correct number associated with the highest number of gears used by your vehicle.
7. Press the "Mem/OK" button.

8. You will now see the MyChron save these new settings and eventually, the display will return to the “Gear Calibration” menu.
9. Press the “On/View” button. It should now read “Running Gear Calibration” across the top of the display confirming your success in setting up the procedure. Return to step 6 in section I above.

III. Common Mistakes to Avoid:

1. Firmware older than 1.53 or using an improper procedure to set up the Gear Calibration. Firmware that is older uses a completely different procedure that is detailed in the current manual. Updated manuals will soon be available.
2. Poor RPM and/or wheel speed data.
3. A missing speed or RPM sensor.
4. Attempting to enable the gear calibration while the engine is running.
5. Warming up the kart (resulting in erroneous RPM data with no correlated wheel speed data) while the MyChron is on and displaying the “Running Gear Calibration” message.
6. Not driving enough sample laps or spending enough time in each gear position. (Note: Unique track layouts will determine how much time is spent in each gear per lap. Therefore, some tracks will require more laps and other will not.)
7. Changing the set up to your kart (tire size or gearing) and not recalibrating the gear position.
8. Selecting buttons, other features, or powering off the MyChron while it is calculating the sampled data.

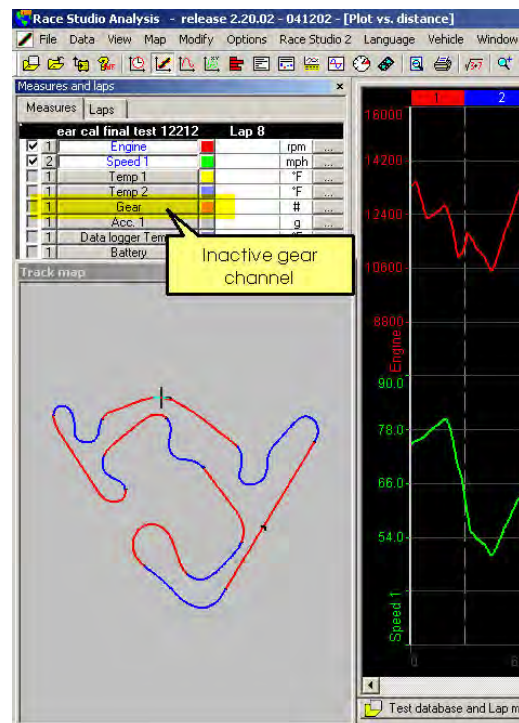
IV. Benefits and features:

The gear position indicator offers some obvious benefits to the driver. It is a great learning tool for the beginning shifter kart driver. It also provides an invaluable reference when reviewing the real time lap memory playback.

However, the most exciting feature is activated once the gear calibration is complete.

When reviewing your data using the Race Studio 2 Analysis software, you may have noticed a channel titled “Gear” in the Measures and Laps toolbar (Different variations of this channel name will appear depending on which version of Race Studio 2 you currently have installed).

Previously, this channel had no apparent function when selected.



Now, a plottable trace is able to be selected and displayed. This trace not only shows you exactly which gear you were in at any certain point during the lap, but more importantly, how long you stayed in each gear, when you shifted *or* when you missed a shift.

