

Gearing

You can “adjust” the power delivery of the standard engine to suit track conditions by changing gearing. This allows you to utilize a different portion of the engine’s power range at a given throttle setting. New gearing may provide the change you are looking for without the need to consider further modifications.

The portion of your engine’s power range you use can be adjusted by changing the final drive ratio with different sized rear sprockets. Gearing changes allow you to more closely match the type of terrain and the available traction.

Normally, a change of one tooth on the driven sprocket will be sufficient.

There is a choice of both higher and lower final drive ratios with two optional driven sprockets. Like the optional springs, these sprockets are listed in the Optional Parts List section of this manual (page 160).

Unless you have the required mechanical know-how, tools, and an official Honda Shop Manual, sprocket changing should be done by your Honda dealer.

Higher Gearing (less driven sprocket teeth)

- increases top speed in each gear (provided the engine will pull the higher gearing)
- reduces frequency of shifting (wider gear ratios)
- reduces engine min^{-1} (rpm) at a given throttle setting or ground speed (which may allow better rear wheel traction on slippery or loose terrain)

However:

- the engine may not pull the higher gearing
- the spacing between gears may be too wide
- engine min^{-1} (rpm) may be too low

Lower Gearing (more rear sprocket teeth)

- decrease top speed in each gear
- increases frequency of shifting (narrower gear ratios)
- increases engine min^{-1} (rpm) at a given throttle setting or ground speed (which may provide more power-to-the-ground on good traction surfaces)

However:

- spacing between gears may be too narrow
- engine min^{-1} (rpm) may be too high

Some tracks may be watered heavily prior to the first race, then lightly or not at all during the day. This results in a track surface that is slippery during the first few races, then changes from good to great and back to good and possibly ends the day with a slick rock-hard consistency.

Ideally, your gearing should be adjusted to suit all these conditions.

- Wet and slippery or sandy conditions: use a higher gear (less teeth) to keep engine min^{-1} (rpm) down, and avoid unwanted wheelspin. The engine may bog in certain corners so you’ll need to slip the clutch to compensate; downshifting may be too drastic a change in speed.
- Average conditions: use the standard sprocket.
- Hard (but not slippery) track conditions: use lower gearing (more teeth) to keep the engine min^{-1} (rpm) high where the engine produces the most power. This may require an extra upshift on certain sections or perhaps you can just rev it out a bit longer.

For tight tracks, consider lower gearing to avoid having to slip the clutch frequently. Repeated fanning or pulling of the clutch lever in a turn to raise engine min^{-1} (rpm) may eventually damage the clutch system.

A gearing change may help for riding in sand, where you want to keep the front end light so it can float from the peak of one sand whoop to the next. Generally, with higher gearing, it is easier to maintain that perfect attitude (maximum rear wheel traction and a light front end) because you remain in the powerband longer in each gear. The higher gearing allows you to steer more efficiently with throttle control and body English.

If you are riding a track with sections where you choose to over-rev the engine temporarily rather than shifting up, higher gearing might help.

Sometimes you have to sacrifice performance on one section of the track to gain a better overall time. Your goal is the fastest overall lap time, even if the cost is some sections where the gearing feels wrong.

If you decide to try a gearing change, have someone check your times with a stopwatch (before and after the change) to get an accurate appraisal of the change. “Seat-of-the-pants” feelings can’t be trusted. Eliminating wheelspin with a gearing change can make you feel like you’re going slower when, in reality, you’ve decreased your time by increasing your speed with better traction.

These gearing recommendations should be evaluated by considering your ability, your riding style, and the track.