



Transmission Undercutting

What exactly is undercutting? The transmission gears lock together with a series of "dogs" or "dogs and slots". Under hard use, the gears can begin to separate until the dogs become disengaged, which causes the transmission to jump out of gear.

Undercutting a transmission involves machining angles on the engagement dogs and slots to prevent the transmission from jumping out of gear under load.

Now notice in the above photo the dogs that are in the circle. They both have angles cut on them where they meet. This causes them to lock together. They cannot separate without first backing up to unload the angles. This is an undercut. On Spears transmissions, all of the dogs get these precise angle cuts.

Roadrace "up and down" cuts have angles machined on both sides of the dog so it works the same way under acceleration load and deceleration load.

Up and Down Cut: Both sides of the dog are cut to also prevent jumping out of gear on downshifts. This is recommended for road racing.

Undercutting Notes: If dogs are rounded off due to repeatedly slipping out of gear or missed shifts, they cannot be undercut. You will be notified by Spears Racing staff if any of your transmission parts are unusable. There are times when small things like clips and spacers are unusable. These parts will be replaced at a nominal charge when servicing transmissions.

Thank you for looking,

Gregg Spears