



Johnson Engineering
v-twin drivetrain performance
**SportGear Close Ratio
 Fifth Gear Replacement Kit**

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SportGear is designed and manufactured in the USA by:

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SportGear is a 5th gear close ratio gear set for 1991-up Sportster, Buell, and Buell Blast. Designed for the undergeared Buell, it allows this streetfighter to achieve full potential without giving up acceleration in the sub-100 mph range.

While swapping pulleys can increase the top end or limit cruising revs, the bike either bogs badly through the gears or has no top end. With SportGear and the recommended 55/29 pulley setup, engine rpms in fifth gear are reduced over 16%, while first through fourth are reduced less than 5%, for a corresponding 30 mph (appx.) top end (with enough horsepower) increase.

The one piece countershaft features an integral 5th gear and a longer, 160,000 psi tensile retention screw that ends loosening of the countershaft. Delivering the efficiency of direct drive with the rpm reduction of overdrive, Sportster owners, especially 883s, can benefit significantly. SportGear is much more efficient and economical than buying horsepower for around town acceleration.

Helical vs. Straight Cut Gears

The reason helical cut gears aren't used more often is cost to manufacture. Helical gears mesh more smoothly than spur gears which have no helix or twist to ease engagement, they also increase the contact ratio for superior tooth strength and reduced transmission noise.

Strength is also enhanced by a high pressure angle and more gear width. The helical twist provides a face contact ratio of 1.1, resulting in at least one tooth in contact at all times. The involute gear profile results in at least one tooth in contact at all times, so together there are at least two teeth in contact at all times.

Massive Bearing Strength

Even moderate horsepower engines generate lateral movement of the inner drawn cup bearing, which can eventually work its way out of the main drive gear.

SportGear replaces this low-cost bearing with a heavy duty caged roller featuring 3.5mm diameter heavy duty rollers and three times the load capacity of stock bearings. Snap rings on both ends now retain the bearings, making movement impossible and as a bonus the cap seal is secured, ending messy oil leaks.

Five speed trapdoor style transmissions use deep-groove ball bearings. The radial capacity of the SportGear four-point ball bearing is double that of deep groove designs, with a correspondingly huge increase in axial capacity.

Easier Shifting For Better Performance

Better shifts result in faster acceleration and longer transmission life. Shifting into 5th gear is much smoother due to increased clearance on the main drive gear dogs, which are factory back-cut for positive engagement. Porting the dogs is no longer necessary for high-speed shifts.

Specifications	SportGear	Stock
Ratio	42/22	42/25
Profile contact ratio	1.4	2.0
Face contact ratio	1.0	0.0
Total contact ratio	2.4	2.0
Pressure angle	29°	20°
Gear rim thickness	no rim	0.29"

Complete kit includes the following:

- 1) SportGear main gear
- 1) SportGear countershaft w/integral close ratio 5th gear
- 1) caged four-point ball bearing
- 1) caged roller bearing, assembled
- 1) drawn cup needle bearing, assembled
- 1) triple lip oil seal, main gear
- 1) chamfered spacer