



May, 2001 rev 01/03  
 designed and manufactured in the USA by:

Johnson Engineering  
 100 Blake Road  
 Denver, IA 50622  
 (319)984-9298  
 (319)984-9299 fax  
 info@twistgear.net  
[www.twistgear.net](http://www.twistgear.net)  
 (click on the link to go to our website)

WideGear is a close ratio 5th-gear replacement assembly for 1991-up Evolution, Twin Cam, and other comparable H-D style 5-speed transmissions.

Manufacturer: Johnson Engineering  
 Product: WideGear  
 Description: close ratio 5th gear replacement  
 Fits: 1991 — current Harley Davidson™ type 5-speed transmissions  
 Design: helical cut gears  
 Construction: nickel/chrome/molybdenum 8620 carburized steel  
 Part no.: 105008 extended primary drive kit (required for chain drives)  
 105003 transmission extension kit only (required for belt drives)  
 105010 engine case extension kit only (required for belt drives)  
 105011 bearing assembly for the sprocket nut (optional for chain drives)

Description: primary drive extension  
 Application: 1991 - current Harley-Davidson™ type 5-speed transmissions  
 aluminum spacer for Softail™ transmission standard  
 aluminum plate for Dyna™/FL transmission special order  
 for 170mm-up rear tires

**Features:**  
 30mm (1.18" total width) outboard extension  
 60mm tire width increase with 1 1/2" belt final drive  
 100mm tire width increase with 3/4" chain final drive  
 no engine or transmission offset  
 state of the art helical gear technology  
 50% more oil seal capacity (BT '94-up)  
 provision for engine shaft nut bearing support  
 reduced transmission noise  
 close ratio for quicker acceleration  
 better reliability  
 reduced drivetrain fatigue  
 longer gear and bearing life  
 in-frame installation  
 eliminates excessive shifting  
 final drive reduction remains 1:1  
 RPM reduction (w/sprocket and/or pulley change)  
 NO modifications to transmission case



### NEW! Cast Spacer for STs



### Helical vs. Straight (Spur) Cut Gear Teeth

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

WideGear helical gear twist delivers a face contact ratio of 1.1, resulting in at least 1 tooth in contact at all times. The involute gear profile gives a contact ratio of 1.4, resulting in at least 1 tooth in contact at all times. When they mesh, there are at least 2 gear teeth in contact at all times.

### Main Gear Bearing Strength

High and moderate horsepower applications generate lateral movement of the inner drawn cup bearing, which will eventually work its way out of the main gear. WideGear replaces the weak drawn cup bearing with a high performance caged roller capable of much higher load and torque. Plus, we install snap rings on both ends to eliminate bore movement. Our bearing also features 3.5mm

diameter heavy duty rollers. That's three times the load bearing capacity of OEM 2.5mm needles.

The trapdoor radial capacity of the JE four-point ball bearing is double that of deep groove designs for even greater strength and reliability.

### Superior One-Piece Design

OEM and aftermarket spur cut countershafts are two separate pieces, resulting in a thin cross-section between the splines and teeth roots, resulting in a high stress concentration factor of 1.7. WideGear's much stronger one-piece gear and countershaft has an ideal stress concentration factor of 1.0 for superior fatigue resistance.

### Quicker Shifting, Lower RPM's

Replacing a stock ratio 32/17 or 41/22 5th-gear set with WideGear's 41/20 ratio helical gears delivers 10% shorter 1st through 4th ratios, giving six speed performance without the fatigue of shifting or the expense of a new transmission. As an added bonus, rear wheel torque is also increased.

### Easier Shifting Equals Better Performance

Better ratios mean quicker 1st through 4th shifting, and shifting into 5th is much smoother due to more clearance on the back-cut main drive gear dogs. Porting the dogs is no longer necessary for high-speed shifts.

### Improved Oil Sealing Prevents Leaks (BT '94-up)

WideGear's main drive oil seal has three sealing lips for 50% greater capacity and longer seal life, compared to conventional seals with only two outer lips. In addition, our composition polyacrylate oil seals are rated to 340°F as further insurance against premature failure.

JE's main gear is delivered fully assembled and ready for in-frame installation. Transmission case modification is not required.

### Why is WideGear better?

Customers have been demanding increasingly wider rear tires over the last several years. To accommodate them, builders have had to space out the primary at the engine (or move the engine itself) and shift the transmission from its original position to provide the chain with enough clearance to pass by the rear tire.

This is the easiest, least expensive approach, but it's not always the right method. Depending on the amount of offset, this can result in a bike that's unbalanced, awkward, even difficult to control. WideGear extends only the primary drive outboard, leaving the center of gravity undisturbed.

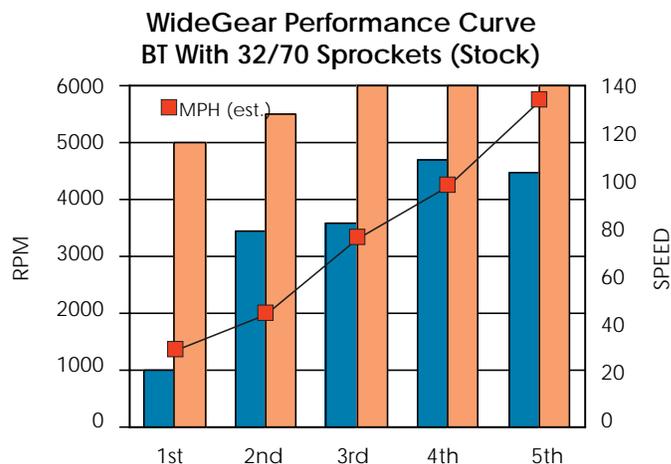
### What about vibration?

Extending the primary may cause a negligible increase in vibration when used with stock engines. In high output applications, the vibration level can be dampened by adapting the outer primary to the optional engine shaft sprocket nut bearing.

### Complete kit (PN#105008) includes the following:

- 1) WideGear main gear (41T)
- 1) WideGear countershaft (20T)
- 1) mainshaft, 30mm extension
- 2) caged four-point ball bearing, trapdoor
- 1) caged roller bearing (installed)
- 1) drawn cup needle bearing (installed)
- 1) triple lip oil seal, main gear
- 1) extended clutch push rod
- 1) cast transmission spacer (NEW)
- 1) engine spacer
- 1) sprocket spacer
- 1) compensator shaft extension
- 1) compensator sprocket nut
- 1) compensator sprocket spacer
- 1) starter coupler
- thrust washers and retaining clips
- bolts

\*fits BT 1994-up



Above chart shows outstanding improvement in acceleration throughout the gears when WideGear is installed using stock 32/70 pulley setup.