

April, 2003

Oil Seal and Spacer Kit  
Oil Seal Installation Tool  
**Johnson Engineering**  
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Manufacturer: Johnson Engineering  
Product: sprocket spacer & seal kit '91-up BT-XL  
Part no.: 105007  
Description: replacement oil seal and spacer  
Application: 1991 — current Harley Davidson™ type big twin 5-speed transmissions  
Design: triple lip oil seal  
          chamfered spacer  
Construction: polyacrylate oil seal  
              coated alloy spacer  
Features: temperature rated to 340F  
          100% more sealing capacity  
          better reliability  
          in-bike installation  
          increased service interval  
          no modifications to transmission case or gearsets  
          easier spacer installation

### **Main Drive Oil Seal**

The function of a transmission oil seal is to keep fluid inside the case and contamination out. The outer lip (in multiple lip designs) is supposed to keep dirt and debris away from the inner lip, which performs most of the actual sealing work.

When dirt becomes imbedded in the rubber outer seal, whether through extreme service, lack of maintenance, or material failure, a severe grinding surface is created which generates additional heat as a byproduct of friction. The end result is a premature wearing of the seal lip, seal fatigue due to high temperature, and a grooving of the spacer, all of which allow oil to leak past the seal.

Johnson Engineering's oil seal has three sealing lips, compared to conventional seals which have only two. By providing 100% more lip sealing surface, our seals are much more effective in preventing contamination of the inner lip, in turn promoting a long, useful seal life and the longest wearing, easiest installing, best performing seal in the industry.

Major improvements include new spring tension, improved rubber compound, and a new self-locking feature that eliminates the need for staking, loc-tighting, or other methods of anchoring the seal in place.

Utilizing a manufacturing method developed for the automotive industry, the Johnson Triple Lip features an exposed metal outer surface coated with a locking compound that securely locks the seal in the bore. Halfway up the surface transitions into a more familiar rubber coating that completes the sealing process.

Other significant features include a high temperature polyacrylate seal material rated to 340F for added protection against premature wear and fatigue.

Use of the Johnson Seal Tool installer (below) is required for product benefits.

## **Sprocket Spacer**

Stock spacers are usually made from stainless steel, which provides acceptable service life at reasonable cost. Unfortunately, dirt is easily imbedded in the seal and can quickly cut grooves in the spacer, requiring premature replacement of both the seal and the spacer.

If a grooved spacer is reused when the oil seal is replaced, the seal will probably leak since the seal lips won't match up with the grooves in the spacer. Johnson Engineering has substantially increased spacer life by using special materials and manufacturing processes.

Our spacers are made from a specially coated, extremely hard alloy steel which resists grooving and wear. The coating provides superior surface lubricity and increased corrosion resistance, while dramatically decreasing both surface roughness and the coefficient of friction.

Our coating provides superior performance compared to materials such as hard chrome, nickel plate or stainless steel. The result is easier spacer rotation in the oil seal, resulting in lower lip temperatures and minimal component wear.

Finally, we've designed our spacer with an increased lead-in chamfer to ease installation, which is easily accomplished without removing the transmission.

The full benefits of an optimized oil control system are not realized until all the improved features of Johnson Engineering's belt sprocket spacer and triple lip oil seal are combined.

oil seal spacer kit is available in kit form or as individual parts

Included: 1 triple-lip main drive gear oil seal

Included: chamfered alloy spacer

Product: oil seal installation tool  
Part no.: 300001  
Description: 5-spd seal install tool  
Application: 1991 — current Harley Davidson™ type big twin 5-speed transmissions  
Design: one piece  
Construction: steel  
Features: easily installs seal square to bore  
prevents crimping of outer edge  
prevents damage to outer lip  
greater reliability  
simple in-bike installation  
increased service interval  
uses main gear as press

## **Oil Seal Installation Tool**

The new Johnson Oil Seal Installation Tool is simply the cleanest, easiest method of insuring optimum results from transmission oil seal R&R. Using the main drive gear as a press, the tool quickly and efficiently seats the new seal securely in place, without cocking, pinching, or distorting the seal surfaces. Required for proper installation of the Johnson Triple Lip.