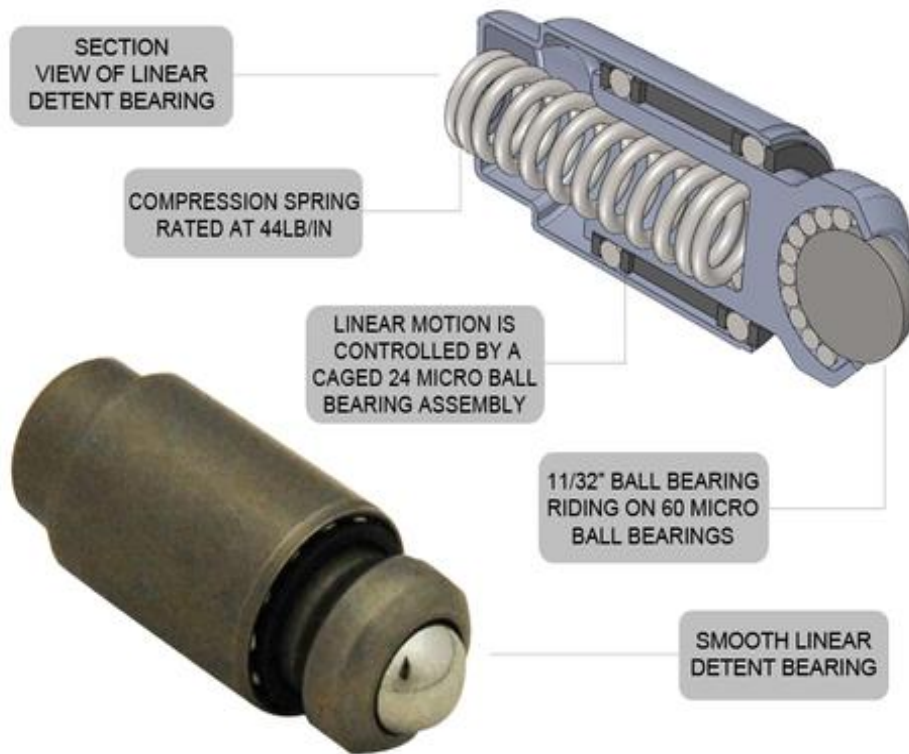


Shift System

The shift drum utilizes many of the same features we have learned over the years, and incorporated into our other designs. Make the shift drum as light as possible, close tolerance design of the drum tracks matched with specific angles of the drum tracks 'events'; make for smooth and positive shifting. Our specifically designed neutral position on the shift drum detent clover leaf make it easy to find neutral, every time. The close tolerance drum design paired with the gearset lay out, yields tight, repeatable dog tooth gaps that are not possible with mass production, cast shift drum designs used on the stock transmission. The linear detent, a design first used in the OEM car world. We were the first to introduce it to the V-Twin world on the Torque Box transmissions, and we have used it on the DD7 as well. It produces the lowest friction possible, with the controlled nature of using a coil spring in a strictly linear manner. The amount of precise control possible with a linear detent, can not be realized with the stock scissor spring and lever wheel detent design found on the stock gearset. All of these changes along with the billet steel machined, hard chrome plated shift forks, make it the smoothest transmission we have made to date.



DD7 vs Stock Shift Drum



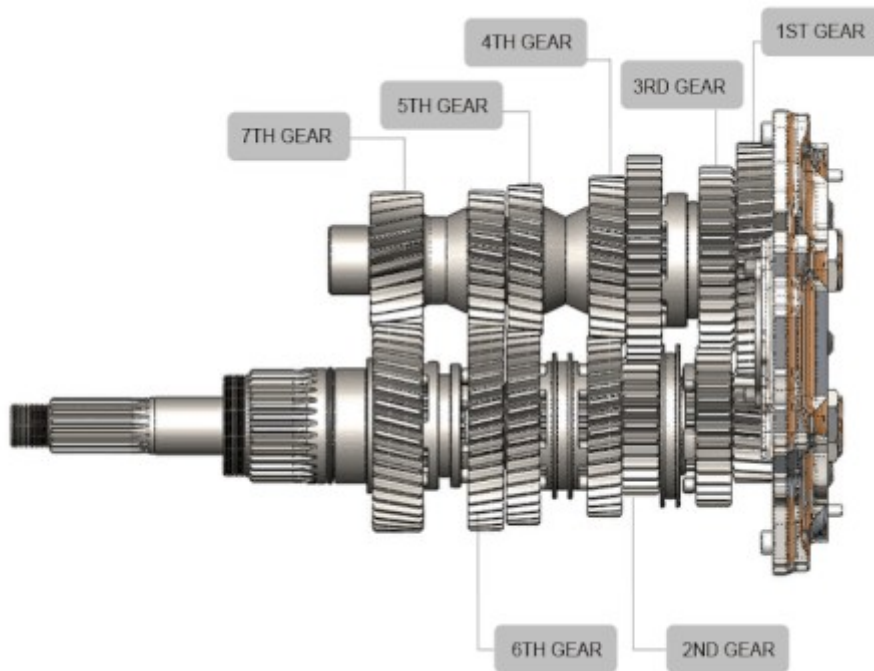
Linear Detent Plunger

Gearset

The factory 6 speed has a 1 piece mainshaft with gears 1-4 machined out of one forging. This is easier and cheaper for high volume manufacturing, but yields a mainshaft that weighs over 5 lbs. This heavy one piece design is largely responsible for the clunk heard on every shift. This heavy rotating mass crashes into the gears on every shift. The DD7 has a 1 piece mainshaft (8620 steel) that only incorporates the small diameter 1st gear and weighs 3 lbs less than the stock unit. Whereas the stock gearsets utilizes a straight cut gear for 1st, and helical for 2-6, the DD7 uses straight cut 2 and 3rd gears, with the remainder being of a helical design. The largest amount of torque is put to the ground in 2nd 3rd gear, and straight cut gears handle that power the best. There is not a lot of cruising going on in these gears, so the strength benefit of straight cut teeth outweighs the noise reduction factor inherent with a helical tooth design. The stock gears have tooth profiles that are cut on a shaper machine after heat treat, the BAKER gears are shaper cut before heat treat then precision ground with diamond coated tooling after heat treat (58-62 Rockwell 'C'). This extra steps ensures not only a quieter gear pair, but enables much tighter backlash control. Further enhancements have been made to the male-female dog tooth pocket interactions, the tightened up radial gap on our design reduces the on-off throttle lag time and gear clunk noise found on the stock transmission.



DD7 Gears vs Stock



DD7 Gearset Layout

DD7	Ratio	Stock	Ratio
1st Gear	3.76	1st Gear	3.34
2nd Gear	2.75	2nd Gear	2.30
3rd Gear	2.06	3rd Gear	1.71

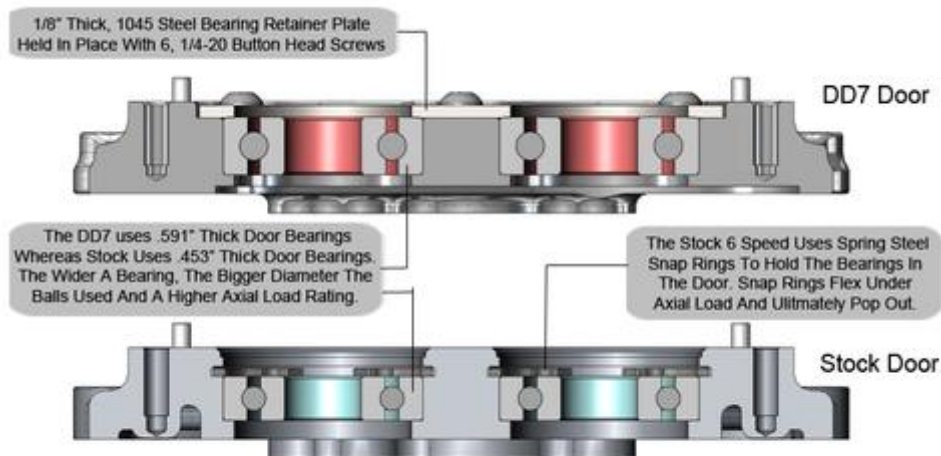
4th Gear 1.55 4th Gear 1.41
5th Gear 1.27 5th Gear 1.18
6th Gear 1.10 6th Gear 1.00
7th Gear 1.00 7th Gear N/A

Bearing Door Assembly

The stock bearing door is cast aluminum, the DD7 door is machined from virgin billet 6061-T6 aluminum. Billet is stronger and this instance is no different. The stock gearset's cause a phenomenon we call 'Ghost Lever'. Starting from low RPM's in 2nd or 3rd gear go right to WOT and then get off the throttle. Watch the clutch lever walk in and out from the handlebar. This is the shafts in the transmission walking left and right in the case due to the flex of the bearing door and the skinny stock door bearings. We use 28% wider roller bearings in the door and used a cold rolled 1045 steel plate to hold them in place, rather than the stock snap rings. No more Ghost Lever and much more power (up to 160 ft-lbs) can be thrown at it without the bearings breaking a sweat.



DD7 vs Stock Door



DD7 vs Stock HD Door Assembly, Section View

PN	Description	Fitment
DD7-37601	DD7 Builders Kit, Chrome Door	2006-Later Dyna, 2007-Later Softail/ Touring
DD7-37603	DD7 Builders Kit, Wrinkle Black Door	2006-Later Dyna, 2007-Later Softail/ Touring

Fitment Note: Cruise Control will only work in 7th gear and the Red Line will be 5200 RPM with the DD7 on Throttle-By-Wire bikes equipped with stock ECM's. No other motorcycle functions are affected in these instances. The 6th gear indicator light will come on when the DD7 is shifted into 7th on all models and all ECM's. Aftermarket tuners such as Daytona Twin Tec and TTS-Mastertune will allow cruise to function in all gears, like stock, on Throttle-By-Wire bikes when coupled with the DD7 gearset. Dynojet can also flash your stock ECM to adjust the cruise control the cruise and red line, while still allowing the ECM to work with piggy back units like Power Commander. Any questions on this, please give our tech line a call.

Recommended Fluid Level

Picking the right transmission fluid ensures the life and durability of your transmission, that's why BAKER recommends a fully synthetic GL-5 rated gear weight oil of 75W-140. If a GL-5 rated gear lube is not available, these commonly carried viscosities (weights) will work 75W-90, 75W-140 and 85W-140. BAKER does not recommend the use of Syn3 (20W-50).

- BAKER DD7 Fluid Capacity Dry: 30-32fl-oz
- BAKER DD7 Fluid Capacity Wet: 26-28fl-oz