

Overdriven: Making Informed Decisions

Bert Baker, Baker Drivetrain

In life, there are some things that are best left to personal choice. Like scotch or bourbon, blonde or brunette, chocolate or vanilla. But when it comes to which kind of 6-speed transmission is right for your bike (Overdrive or Direct Drive), personal choice isn't what should be considered; the cold hard facts need to be used. One of the biggest issues we often find with our customers, are people who buy, or want to buy an Overdrive 6-speed, when their bike really would perform better with a Direct Drive 6-speed (or vice versa). The hard facts relating to the type of bike and riding style need to be written down on a bar napkin to make that decision between Overdrive and Direct Drive.

The Overdrive 6-speed is our most well known transmission because we introduced it over 11 years ago; it's been around a while. Also, the name "overdrive" sticks real well in the minds of those who watch re-runs of *Home Improvement* and it sounds cool to say it sitting on a bar stool. Over the years we've evolved the original design with incremental improvements to keep the design fresh. So the people who would do best with an OD6, are the ones with the following scenarios in play: 110" and larger engines or super high output custom builds, Supercharger, Turbocharger, or Nitrous equipped machines, drag racers, burnout, wheelie, and hole-shot kings, high payload applications, or anybody running an open belt drive (because the DD6 requires 28-tooth comp chain sprocket). Basically, anybody with an engine putting out 120 ft-lbs of torque or more is an OD6 candidate. The OD6 is a pure Overdrive transmission and is going to get the most power and performance out of your bike due to all six gear pairs being straight cut (reference last issue's column). The OD6 also has 4-degree dog tooth angles, which minimize gear "hop-out" in bigger more violent engines. Three optional 1st gear ratios, two 2nd gear ratios, and two 6th gear ratios are available along with different shift drum patterns.

If you're curious about a DD6, Direct Drive 6-speed, you would be someone who falls into these scenarios: Dresser, Softail and Dyna riders that enjoy quiet comfortable cruising, up to 120 ft lbs torque, up to 110" motors, stock to mildly modified, primarily those who want the smoothest and quietest transmission available and are not planning on going to Bonneville or the moon. The DD6 uses helical cut gears in 4th, 5th, and 6th, which yields super quiet cruising in 4th-6th gears. 1st, 2nd, and 3rd gears are straight cut for uncompromised performance out of the hole. All gears have 1-degree dog tooth angles for super smooth and audibly quiet shifting. The DD6 transmission gives the effect of an

Overdrive by reducing the cruising RPM, but not by overdriving the transmission itself. The DD6 kit comes with an overdriven sprocket, which effectively overdrives the primary. Two optional first gear ratios and two shift drum patterns are available.

Gear ratios are also something to take into account when deciding on which 6-speed to buy. BAKER offers different gear ratios for different riding styles. Note DD6 gear ratios are higher than the equivalent OD6 ratio because DD6 uses a different primary drive ratio with the sprocket that is supplied with the DD6 builder's kit.

3.24 1st gear OD6 or 3.77 1st gear DD6 uses:

- Stock dressers
- Frequent 2-up riders
- Trailer towers
- People, who enjoy low speed maneuverability with feet up, clutch out (parades, formation riding, riding through the campground at Sturgis naked, etc.)
- Stock up to about 100 hp in a dresser application

2.94 1st gear OD6 or 3.42 1st gear DD6 uses:

- Stripped dressers over 100hp that are ridden in a "sporting" fashion rather than 2-up with heavy baggage
- Stoptlight racers
- Lighter bikes (Dynas and Softails) with modified engines
- Anybody that feels "Every time I whack the throttle from a stoptlight, I need to shift to second before I can even get my feet up!"

R-RATIO gearing uses (2.82 first, 2.08 second) – OD6

- Maximum effort no bullshit dressers (140 hp + that are ridden very aggressively)
- 125+ hp lighter bikes
- Drag racers

.86 overdrive uses (OD6)

- 99.5% of all users (typically provides a 400-450 rpm drop at 70-75 mph)

.80 overdrive uses (OD6)

- Maximum effort machines with surplus hp (140+) with low frontal area that desire to cruise at 90+mph or machines that are specially geared with a very high (numerically) overall gearing and very high horsepower.

As you can see there is much to consider when choosing a six-speed transmission for your motorcycle. Your riding style, personal preferences, engine set-up as well as the particular performance characteristics of the product will all influence your choice. Whether it's blonde or brunette, scotch or bourbon, Overdrive or Direct Drive, it's best to be well informed! **IW**

