

Evo Upgrade **Part 2**

Baker 6-Speed: Put another cog in your Hog

story by Jerry Smith
photos by Dana Shirey



Baker 6-speed kit (left) comes with everything you need. Stock Harley 5-speed can be saved, sold, or re-installed if you sell the bike.



After the stock transmission is removed from the case, slip the Baker unit right back in. Don't forget the new cover gasket.

In the last issue of *IronWorks* we showed you how to use a Delkron 120-inch engine to put new life into an old Evo. That engine, sold by Delkron as a long block, was completed by Posie at P&M Powertrain in Dillsburg, Pennsylvania, using his own HSE components package installed in a customer bike. But Posie didn't stop there—he wanted to put the 120's power to the ground through an improved transmission, one that offers more useful ratios for open-road riding. And for that Posie turned to a Baker 6-speed.

"Six-speeds are real nice for highway running," Posie says. "We have customers who want to go out long-hauling on their bikes, 200- to 300-mile runs at a shot. A 6-speed allows the motor to work just as efficiently but without spinning up as many RPM. Depending on the engine and how the bike is set up, you can drop anywhere from 500-1,000

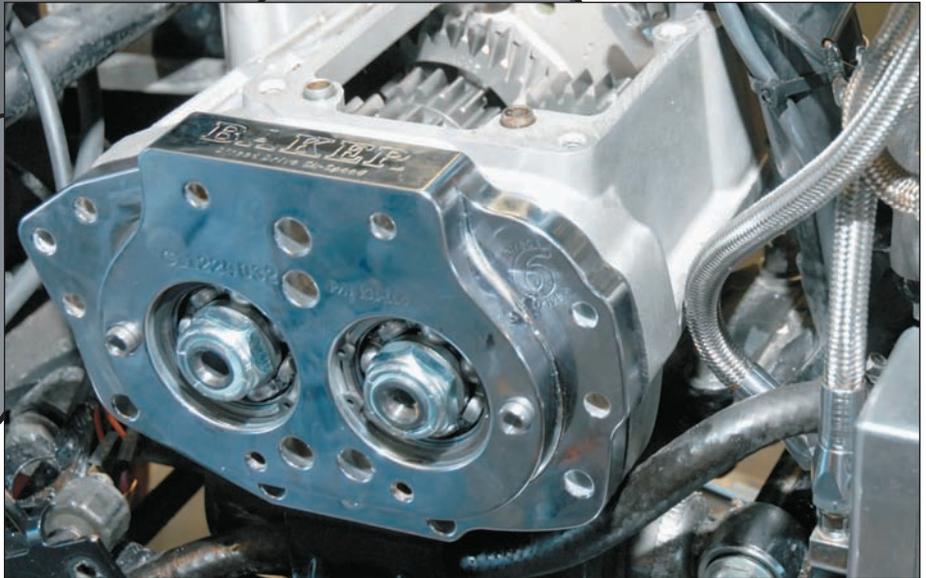
rpm in top gear.” That’s especially useful on Evo Softails, because their rigid-mount engines make them susceptible to fierce vibration in the upper end of the rev range. Reducing engine speed on the highway can mean the difference between a buzzy, fatiguing ride, and a smooth, relaxing day in the saddle.

Posie says the demand for 6-speeds can be traced back to a time when Harley-Davidson equipped its bike sold in Europe with higher final-drive gearing. “The bikes sold in European countries were running a smaller rear pulley. They were geared taller so they could run on the European highways. Everybody here wanted that. Six-speeds, when they came out, allowed you to do that without changing the pulley.”

But why not just change the rear pulley on a made-for-America Harley to make the engine turn fewer rpm at highway speeds? Doing it this way gives you a taller fifth gear, true, but it also results in a taller first gear, which makes the bike sluggish getting away from a stoplight. Spacing out the ratios of the five existing speeds so fifth is taller and first is still low enough puts big gaps between gears, slowing acceleration through the gears.

The solution? Six speeds, with a low first, a tall sixth, and the four gears in between spaced proportionally to provide the smallest gaps between shifts, and therefore the best acceleration. The Baker kit comes complete, including all the gears and shafts, the transmission cover, and all the internals—a shift drum, shift forks, a shift fork shaft, hardware, bearings, circlips, and gaskets. Baker

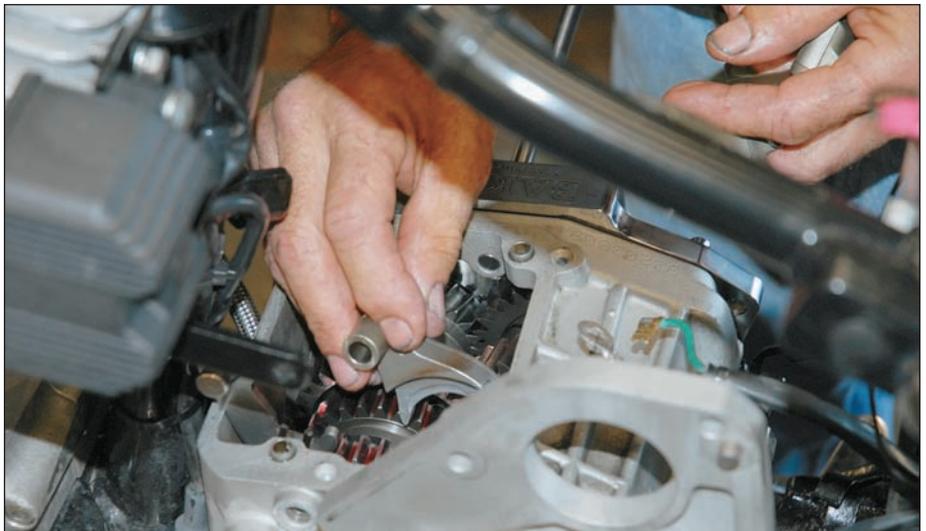
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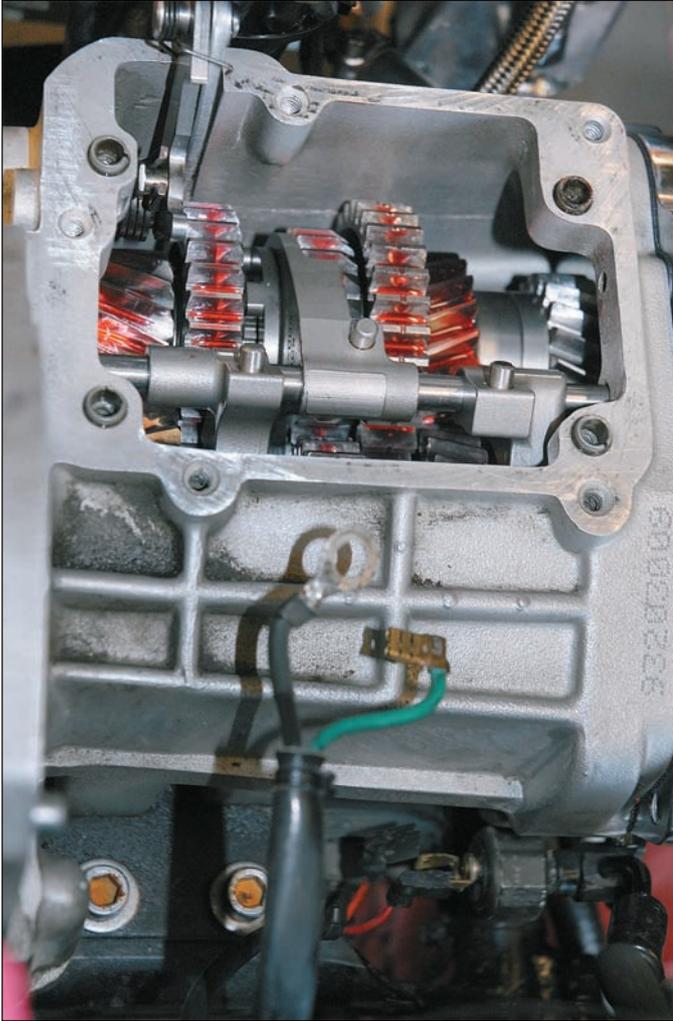
Baker gears and shafts installed. The polished cover lets your buddies envy what they can't really see.



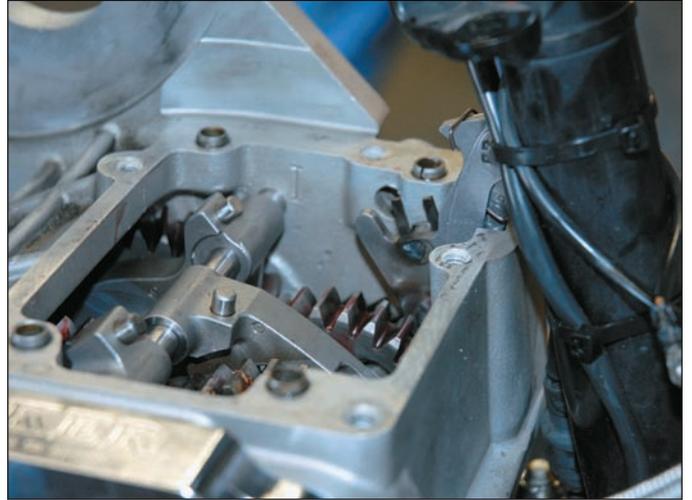
Posie trial-fits the Baker shift forks to the shaft before installing them. The Baker shift drum is seen at left.



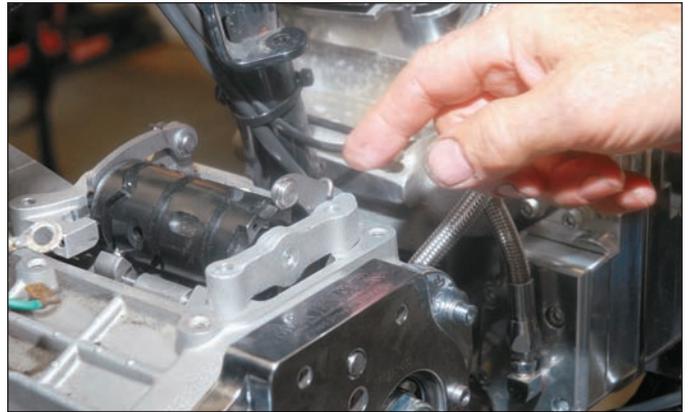
Shift forks are placed onto gears from above. After forks are in place, the shaft is guided through them.



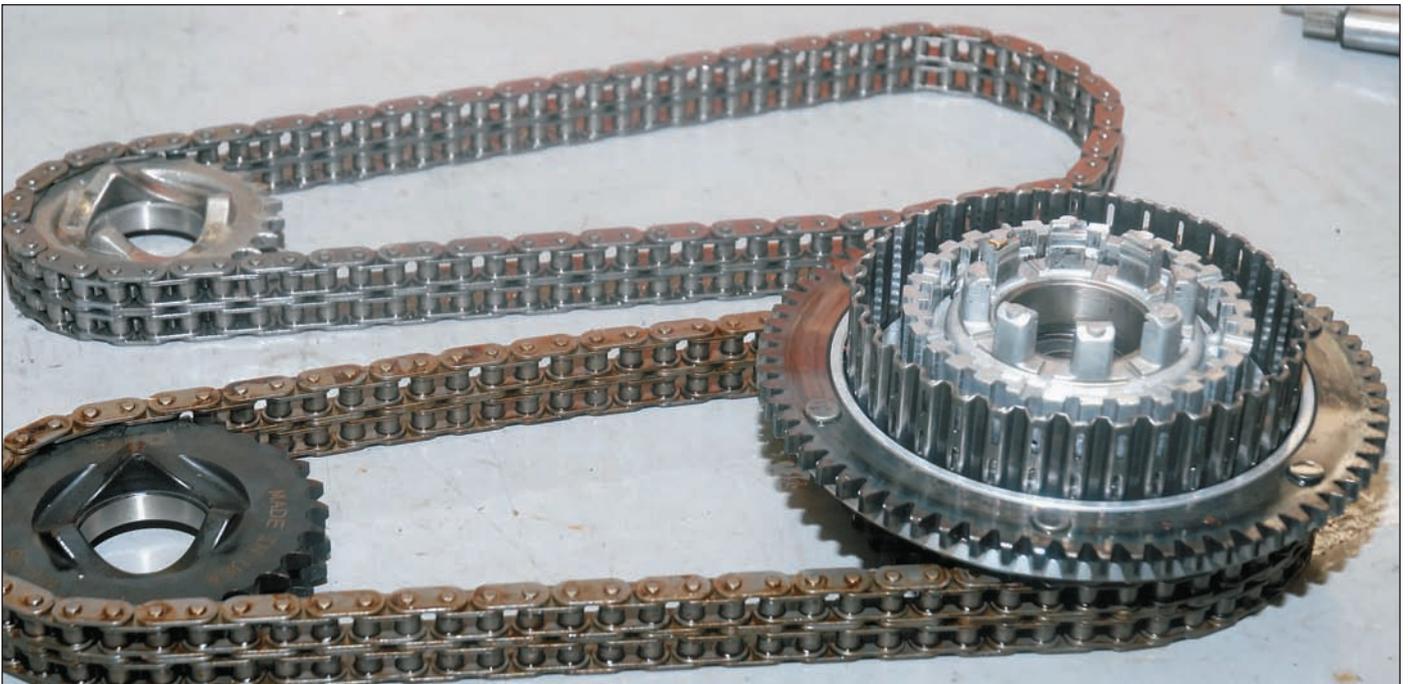
Posie uses Torco assembly lube on all gearbox internals. It's a cheap way to protect expensive parts during break-in.



Shift forks are in place atop gear shafts. Pins on the shift forks will align with slots in the shift drum.



Shift drum is placed on top of forks, with pins aligned with slots. Make sure the shift pawl (left) is correctly positioned.



Baker 6-speed kit comes with a larger compensator sprocket and longer primary chain. Stock clutch sprocket is used.



With the transmission buttoned up, it's time to add oil. Don't skimp on gear lube—use only the best.

even includes a larger compensator sprocket and a longer primary chain in its six-speed kit to make sure the overall gearing is ideal.

Most riders will have a shop install a kit like this, but Posie says it can be done at home, too, with the right tool and little bit of savvy. "The biggest thing with any of these gearbox swaps, especially with a Softail, is getting to it," he says. "You have to pull the oil tank out, and you have to pull the primary system apart, and push the bearings out. But if a shop or a guy at home has the right tools, it's pretty simple to install it."

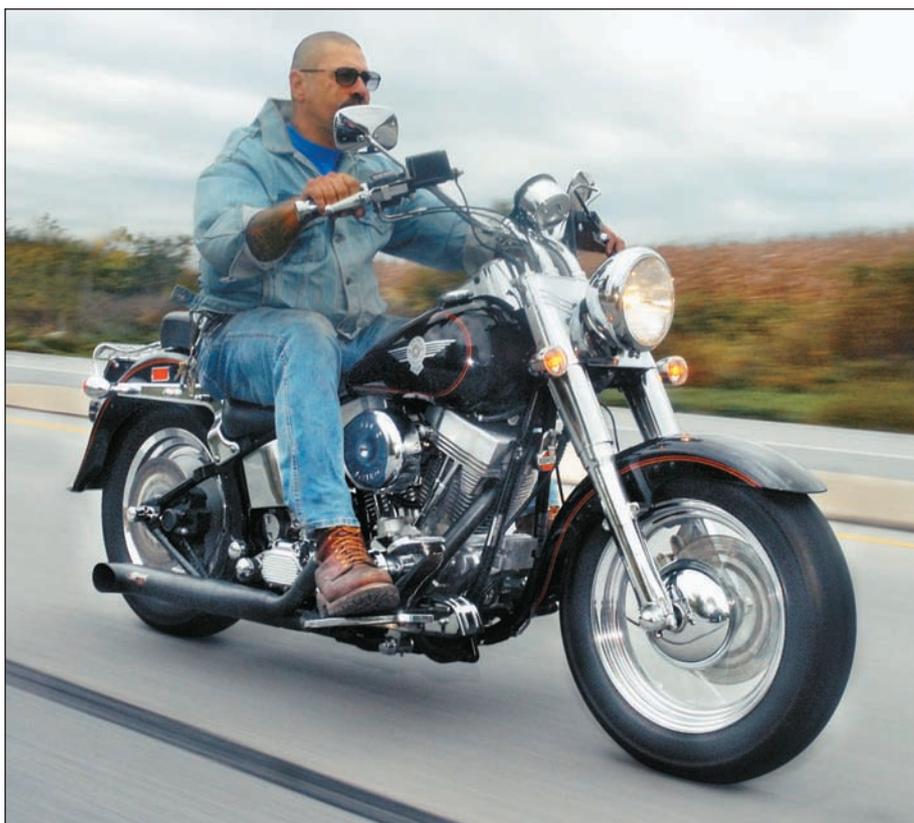
One thing Posie does that might not occur to the home-based mechanic is to trial-fit everything first. "No matter what happens, or what stuff comes in to us, we always fit things before we try to assemble them. You always hear, 'Oh, that bolts right in.' Well, we've seen too much stuff over the years that didn't." Another thing Posie does is use assembly lube on all the gearbox parts as they go in.

"We use Torco assembly lube on everything we put together here," he says, even though the transmission case is going to be full of oil before the engine is started up. "Old habits die hard. To us, it's just cheap insurance."

Posie has done a lot of these conversions to tired and worn-out Evos, and every one of them has turned out just as nicely, thanks in large part to the cost-effectiveness of the Delkron/HSE 120-incher, which Posie helped Delkron develop as a drop-in motor. "Most of the guys we deal with work in a factory from five in the morning to six at night, and they have a bunch of kids to feed. You go buy other motors and they cost you a ton of money and you have to cut your frame up to get them in there. We didn't want our guys to have to go to any more expense than was necessary, and we also wanted to give them a product that gave them all the bang for their buck they could ever want, and would last them a long time."

Originally powered by an 88-incher with a stock Harley 5-speed, the finished donor bike now boasts a 120-inch Delkron motor, a Baker 6-speed transmission, and a very happy owner named Freeze. "It's a whole new bike," beams Posie. "In fact the word I'm getting from Freeze is he calls it his NASCAR bike. Last time I talked to him he was in love again."

If there's a tired Evo in your garage, and you've been thinking about trading it in on a Twin Cam, compare the price of a new bike to that of breathing new life into your old one. You might just love what you discover.



Last step before a test ride is to reassemble the shift linkage. This is a good time to lube all linkage components, too.

Resources

P&M Powertrain, Ltd.
Dillsburg, Pennsylvania
717-432-1585
www.pm2powertrainltd.com

Baker Drivetrain
Haslett, Michigan
877-640-2004
www.bakerdrivetrain.com