Shimano Shuns Cables for Full Electronic Shifting

By Eric Hegeman 2 hours ago

Japanese parts manufacturer Shimano is launching an electronic shifting system for high-end road bikes that it claims will vastly improve performance and reduce maintenance. By replacing the conventional levers that pull wound-steel cables through protective housings with solid-state switches and rubber-coated wires, there’s no chance for road gunk to clag things up and interfere with shifting, or, for that matter, your post-ride beer.

The principle of an electronically controlled drive train is to execute perfect shifts every time, thus “reducing mental overhead,” in the words of Shimano marketing manager Devin Walton. This is a resource cyclists find in short supply during epic rides. Thursday’s announcement that the system, called Di2, will hit shops in January 2009 settles a question first raised in 2005 when prototypes began cropping up on the bikes of select Shimano-sponsored racers in the pro peloton. The system’s development has been photographed, chronicled and Angled over ever since.

But if the existence of electronic shifting comes as no surprise, its weight certainly should. During a recent telephone interview, an industry insider who spoke on condition of anonymity stopped cold amid a why-do-we-need-this diatribe, upon learning that Di2 weighs less than Shimano’s current generation of parts. According to the company, Di2 will be 67 grams lighter than the current Dura-Ace 7800 and only 68 grams heavier than Dura-Ace 7900, the snazzy forthcoming 2009 suite of parts. “I’ll be going to hell,” said the source, who then fell silent — no doubt converting grams to ounces to fractions of a pound to the limitless advantages of such weight savings. That’s at least an extra Clif Bar.

Shimano plans to offer the electronic setup as an upgrade option within the 7900 group -- which is pressuring for $2,600 -- so parts such as the two-tone cranks and brakes will be the same. (No word yet on the additional cost for electric; it could be double.) Di2 consists of two brake-and-shift levers, two derailleur whose springs have been replaced by servo-motors, a 7.4-volt lithium-ion battery pack, and the wiring harness that connects everything.

The derailleur, whose job is to move the chain from gear to gear as you shift, talk to each other and automatically adjust as the chain doesn’t rub. They also calibrate themselves, so you don’t have to play with cable tension to maintain shift quality as cogs stretch and the chain and cogs wear. And although the control buttons have been placed in the traditional location behind the brake levers -- so as not to confuse anyone or overly tax that mental overhead -- they could be integrated with the ends of time-trial bars, the top of the handlebars or just about anywhere a rider might find convenient.

Still, the advantage that people who’ve experienced the system talk about is how little effort it takes to change gears. A quick nudge to one of the shift switches signals a motorized worm gear in the derailleur to instantly move the precise amount it needs to:

Frac-ions of a second later, the chain snaps into position.

This ad zapped.

Diz’s front derailleur automatically adjusts itself so the chain doesn’t rub as you shift.

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