



CYCLING FACT SHEET No. 34

Automatic bicycles finally get into gear

Automatic bicycles have been in the pipeline for many years, but only recently become commercially available.

First steps toward the development of an automatic gear system for bikes were taken in the 1970s, when American manufacturer Browning released details of a unique shifting mechanism incorporating a hinged sprocket. Until that time, this Seattle-based company was most famous for building machine guns.

Browning initially employed its system on BMX bikes and then in the late 90s, began successfully integrating it into comfort and mountain frames. Other manufacturers, such as Shimano, quickly joined the party and today there are several types of automated gearing systems to choose from.

Although moving a lever isn't exactly hard work, finding the ideal gear can be tricky and even experienced cyclists tend to undershift or overshift from time-to-time. An automated system takes the guesswork out of which gear to choose and the resulting changes are surprisingly smooth rather than clunky.

The Shimano Cyber Nexus automatic gear system used on Mercedes-Benz Smover bikes sold in Australia, has a computer integrated into the chain case. An on-board display attached to the handlebars gives a read-out and can be removed for safekeeping.

Shimano's mechanism for Mercedes-Benz works by monitoring the speed and momentum of the bicycle via wheel-mounted sensors.

Its advanced eight-speed automatic transmission has planetary gears that mesh together with a ring gear to drive the rear wheel. The computer constantly recalculates the optimal combination of front and rear gears to keep the rider at a consistent cadence.

Major bicycle makers including Giant, Raleigh and Trek have all introduced hybrid models in North America that incorporate a simplified three-speed multi-mode version of the Shimano automatic system, that sell for under \$600.

These budget models are not currently available here but it is possible to buy the Shimano Auto D mechanism as a group set and then fit it to a frame with the correct type of rear fork.

Most automatic systems either use batteries or rely on a front hub generator to provide power, and can be overridden by dialling in a manual mode if the rider wants to take control of the shifting.

Auto transmissions add weight to a bicycle compared to standard derailleurs and are best suited to commuting or recreational riding. Racing cyclists usually like to have complete control over acceleration.



This fact sheet is one of a series dealing with the use of bicycles for recreation and transport in Western Australia. The series looks at a range of cycling-related topics including ride routes, touring tips, maintenance, safety, road rules, insurance and product reviews. You can find more cycling fact sheets online at www.transport.wa.gov.au/cycling

Cycling Unit
Department of Transport
441 Murray Street, Perth WA 6000
Tel: (08) 9216 8000
Fax: (08) 9216 8497
Email: cycling@transport.wa.gov.au