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## Land Rover introduces on-demand all-wheel drive Evoque SUV also gains torque vectoring

24 August 2013 · [Simon Bickerstaffe](#)



**GKN 2035**



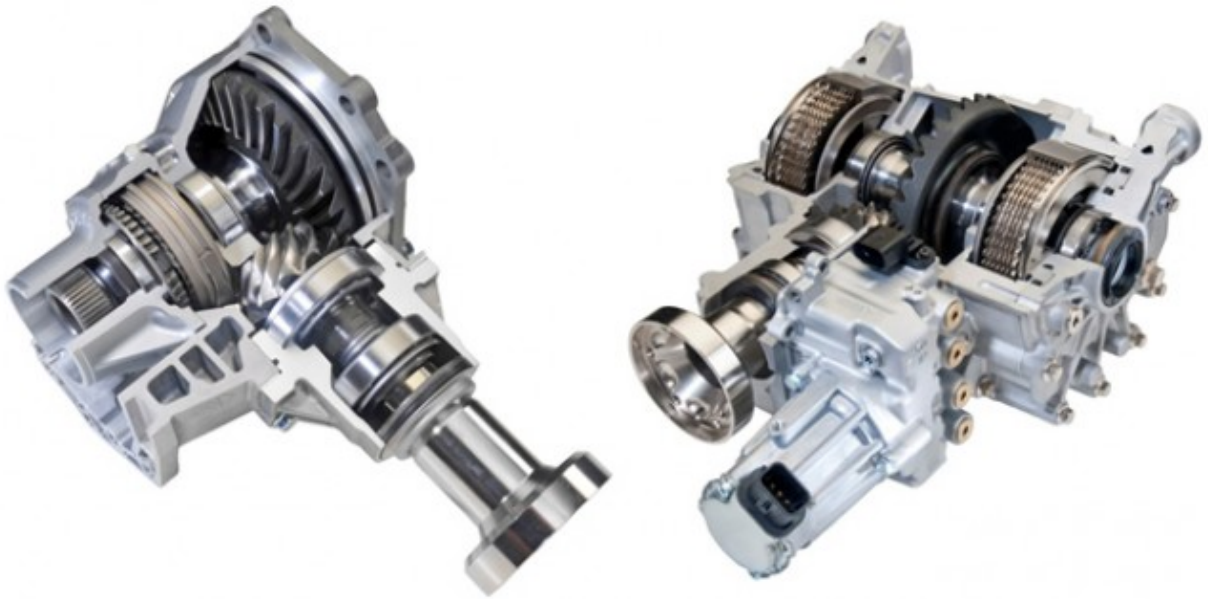
The Range Rover Evoque compact SUV will feature on-demand all-wheel drive to reduce fuel consumption and emissions. The technology, developed with Tier One GKN, cuts system parasitic losses by around 75% on the test cycle by decoupling the rear axle. It will be launched on the gasoline engine variant as part of the 2014MY update, together with a ZF nine-speed automatic.

The driveline improves fuel efficiency by operating in front-wheel drive only during steady-state driving at speeds above 35km/h. It monitors vehicle dynamics and automatically reconnects four-wheel drive within 300 milliseconds whenever it is needed.

Jaguar Land Rover's senior manager for driveline engineering, Steve Mullane, said: "We have the ability to disconnect the driveline system. The components come to rest, achieving maximum fuel economy. We also have the ability to lock the rear drive unit and also to transfer torque to the left or right wheels."

Most on-demand systems use a coupling in the power transfer unit (PTU) to disconnect drive to one axle. But, the half-shafts still spin the hypoid gears, incurring energy losses due to oil slashing inside the differential casing. GKN's system uses a triple cone synchroniser in the PTU to disconnect drive at the transmission and electronically-controlled wet multi-plate clutches to decouple the driveshafts.

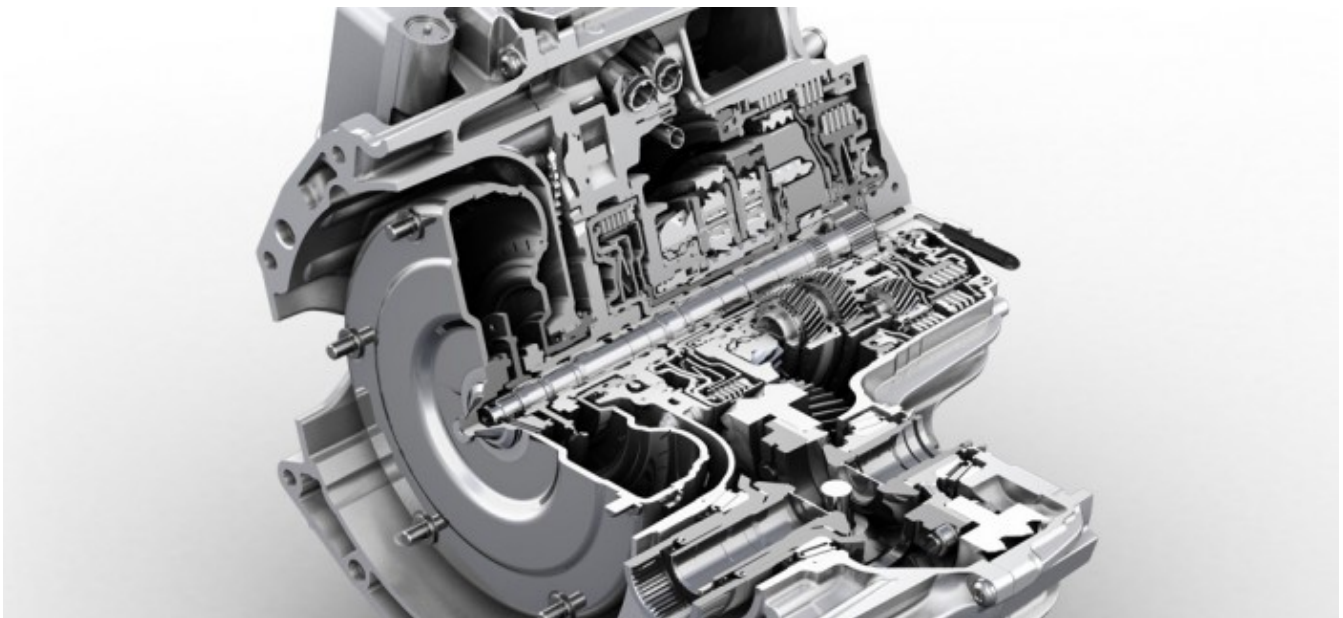
This also enables a torque vectoring function when the vehicle operates in all-wheel drive mode. The system's performance is enhanced by the ESC system's brake-based torque vectoring function, which can be applied to all four wheels.



The first model to get the feature is the top-of-the-range gasoline model. The turbocharged four-cylinder develops 177kW/340Nm and is coupled to a ZF 9HP nine-speed automatic transmission.

The wide ratio spread of the ZF transmission means that first gear is lower, enhancing control in low speed manoeuvres on rough terrain, while the ninth-speed is optimised for lower fuel consumption at cruising speeds.

The introduction of the on-demand driveline and the ZF nine-speed 9HP automatic will, Land Rover said, cut consumption and carbon emissions by 11.4% and 9.5% respectively.



Range Rover Evoque Active Driveline





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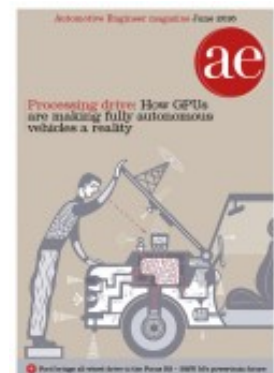
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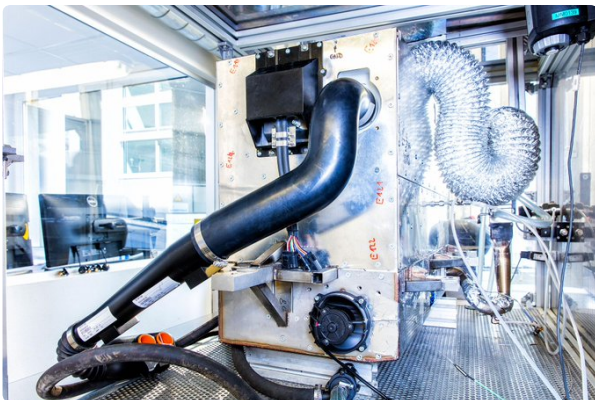


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