Dual Injectors to Boost Fuel Economy: The Future of Small Engines?

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Abstract:
Nissan's dual injectors, Honda's twin injection, Suzuki's dual jet... regardless of the name used by each company, more and more gasoline engines are being built with two injectors per cylinder.

Suzuki adopted a dual-injector design in the Swift in July 2013, followed by Honda in its N-WGN in November of the same year. Nissan started even earlier, though, putting two injectors on its Juke design from 2010. And now all three offer the technology.

Some people have suggested that future engines will all be direct injection designs, but in fact dual injectors delivers better fuel economy than direct injection in low-displacement engines. The technology seems likely to establish a place for itself as a viable engine design choice.

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Dual-injector engines are on the market

Japanese automobile manufacturers are adopting dual-injector engines in the past few years. Nissan Motor Co., Ltd. commercialized the technology in its Juke in 2010 (**Fig. 1**), following by the Swift from Suzuki Motor Corp. in July 2013 (**Fig. 2**), and the N-WGN from Honda Motor Co., Ltd. in November 2013 (**Fig. 3**).

All three firms were quick to adapt the technology to other models. Suzuki added the same dual-injector engine as the Swift to its Solio, with minor modifications, in November 2013 (**Fig. 4**), and in December that same year Honda switched its enormously popular N-BOX and N-BOX+ models over to dual-injector engines (**Fig. 5**). These additions contributed to major growth in the number of dual-injector vehicles being manufactured. Nissan, meanwhile, mounted the same engine as the Juke in its Cube and AD/AD Expert models in the Japan market (**Fig. 6**), revealing its trust in the

Fig. 1 Head cross-section of Nissan's dual-injector engine

Each port has its own injector.

Fig. 2 Suzuki's Swift

Fuel economy has been improved by 21%, improving the firm's "energy charge" effect.

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