

Honda Develops New Automatic Transmission System for Motorcycles

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HFT, the infinitely variable hydraulic mechanical transmission system.

Honda Motor announced that it has developed the Human-Friendly Transmission (HFT), a new automatic transmission system for motorcycles using Honda's own infinitely variable hydraulic mechanical transmission. Easy to operate, the HFT realizes outstanding relaxed riding comfort, riding feel with direct response and excellent transmission efficiency. The HFT will be installed on the DN-01, a new motorcycle scheduled for market launch to be introduced at the 40th Tokyo Motor Show.

With Honda's own infinitely variable hydraulic mechanical transmission, this HFT realizes the lightweight and compact configuration required for motorcycles. To meet the wide range of rider needs, HFT offers a

selection from two fully automatic shifting modes—D mode for ordinary riding and S mode for a sporty riding experience—or the 6-speed manual mode, which gives riders the option of riding with a manual transmission feel. The HFT creates a unique riding feel through easy operation, ranging from relaxed and laid-back riding to nimble and sporty with direct throttle response.

With the aim of providing products useful in the every day lives of customers, Honda has developed and sold motorcycles equipped with easy-to-operate automatic riding technologies. As a pioneer in the era of automatic systems, Honda launched the Super Cub C100 in 1958, equipped with an automatic centrifugal clutch mechanism, which allowed riding without the need of clutch operation.

The Eara (750cc), released in 1977, was a first large-sized motorcycle featured a torque converter in Japan. In 1980, Honda put the Tact on the market, a machine equipped with the Honda original continuously variable transmission, the V-Matic, and Honda has continued to develop a variety of new mechanisms up into the present.

A transmission system with a wide range of functions in a single unit, the HFT is a compact and highly efficient infinitely variable transmission system encompassing functions for starting, power transmission and shifting, all on a single shaft. The basic configuration of the system consists of an oil pump for converting engine power into hydraulic pressure, and an oil motor for converting the hydraulic pressure back into power for output. Both are made up of multiple pistons, a distributor valve and a swash plate for piston operation, while the cylinders are integrated into the output shaft, forming the characteristic structure of the HFT.

The HFT also features the world's first lockup mechanism for an infinitely variable hydraulic mechanical transmission. When cruising,

this lockup mechanism works to minimize transmission efficiency losses, contributing to improved fuel economy.

Source: Honda

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