



Managing Difficult Terrain With Fine-Tuned Power

- **The ZF-Ecomat transmission system convinces in military vehicles thanks to its perfectly adapted power transfer characteristics, a high level of off-road suitability, comfort, and safety.**
- **For special off-road applications, the automatic transmission was made even more powerful and robust.**

Maneuvering a military vehicle through difficult terrain is indeed hard work: Frequent gearshifts, holding the ideal course, and, in parallel, moving ahead as efficiently as possible, these are the requirements a driver has to cope with. Here, the ZF-Ecomat automatic transmission provides excellent support thanks to fine-tuned gear steps and electronic control for optimum engine torque utilization: The perfectly harmonized communication between engine and transmission provides for selection of the correct speed level at the right point in time.

The ZF-Ecomat transmission range models, equipped with a hydrodynamic torque converter, get you to your destination. For example, the HP 902 which is mainly used in military applications, heavy armored wheeled vehicles, as well as off-road, multi-axle, or all-wheel drive military trucks. They have up to seven gears at their disposal and shift automatically without interruption of the tractive force which constitutes a major asset when traveling at the low speeds required for uphill/downhill motion or operation on soft ground. With an increased input torque of 2 100 Nm, the integrated converter enables smooth setting off, even on extremely steep inclines.

Efficient and easy handling of the Ecomat transmission not only increases comfort but, in parallel, also improves driving safety: Thus, even under difficult circumstances, the driver can focus on steering the vehicle, and the optimum shift strategy is provided by the automatic ZF transmission.



Since the first and second gear are particularly often used in difficult terrain, ZF has optimized the HP 902 transmission by using modified materials, coatings, and improved lubrication. Additional safety is provided by the standard primary retarder that proves particularly valuable during downhill travel. It powerfully and consistently decreases the speed and thus minimizes wear on the automatic transmission and the service brake.

Thanks to their positive characteristics, ZF-Ecomat transmissions are installed in various military vehicles by different manufacturers. All renowned armored personnel carrier (APC) manufacturers are on the reference list, such as the Finnish defense Group Patria, the Swiss special vehicle designer called Mowag AG, the Rheinmetall Landsysteme GmbH, the French defense Group Nexter, and FNSS Savunma Sistemleri A.S. from Turkey. The latest order was filed by Renault Trucks Défense (RTD): The Indonesian Department of Defense ordered 150 vehicles of the PANSER 6x6 type with RTD which will be equipped by the Indonesian company Pindad with the ZF-Ecomat transmission. Transmission delivery will be effected between August 2008 and the first quarter of 2009.

Caption:

Also off-road, the ZF Ecomat automatic transmission ensures optimal power transfer at all times.

Photo: ZF

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ZF is a leading worldwide automotive supplier for Driveline and Chassis Technology with approximately 64,000 employees at 119 locations in 25 countries. In 2008, the ZF Group achieved sales of approximately EUR 12.6 billion. In order to continue to be successful with innovative products, ZF annually invests about five percent of its sales in Research & Development.

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