



ZF with innovations at the Agritechnica

- **ZF-TERRA⁺ starter generator (fig. 1) 50 and 70 kW power**
- **Eccom 5.0 (fig. 3) for articulated tractors from 400 HP to 650 HP**
- **Tractor steering axle TERRASTEER (fig. 4) from 180 HP to 230 HP**

ZF will present its latest product highlights at the Agritechnica between November 08 and November 14, 2009 in Hall 9 Stand C27. "Being a technology leader, we are constantly striving to improve our products with new developments", says Eberhard Wilks, Vice President of the business unit Agricultural Machinery Systems. "In this respect, we are always concentrating on customer benefit". Under the motto "ZF - The way to your success" these innovations will be presented for the first time on the market.

Both the product innovation of the **starter generator TERRA⁺** and the novelty of the **electromechanical parking brake** have been incorporated into the continuously variable S-Matic transmission (fig. 5) of ZF.

With the **starter generator** ZF offers the use of electric power outputs between 50 and 70 kW in tractors and self-propelled harvesters. The starter generator is available in different types and versions. The user benefit of these additional components includes fuel savings thanks to the customized drive of the auxiliaries installed and the increased productivity due to the provision of electric power inputs of the mounted implements. Environmental responsibility is also assumed by reducing emissions.

With the ZF Powershift Transmissions of the T-7000 series emissions have also been taken into account and fuel savings have been improved. Rated engine speed can be reduced to 2100 rpm, according to exhaust emission standard COM 3. The T-7200 series (fig. 6) has been expanded upwards with the new, more powerful



model T-7232, capable now for tractors up to 200 HP engine power.

The electromechanical parking brake provides additional safety at standstill, e.g. on slopes and assures that the position of the tractor is stable even on a 30% slope. The electromechanical parking brake is available optionally for all rear axles of the ZF transmissions. In addition to the standard functions like engagement and disengagement by pushing a button, the electromechanical parking brake offers a variety of additional functions. Starting-aid on slopes and the automatic engagement when shutting off the ignition are features facilitating the operation of the vehicle for the driver and increasing safety at the same time.

The **continuously variable transmission Eccom 5.0** is now available for articulated tractors in a new design with extended performance range and improved conception.

The continuously variable Hydrostatic Power Split Transmission (CVT), which has been developed for high-tech tractors and other agricultural vehicles between 400 HP and 650 HP, offers special user benefits and provides smooth build-up of maximum draw bar pull force and more efficient power transfer for large-scale farming applications.

Operation of the vehicles is effected in a highly comfortable manner by means of electric controls with many additional automatic functions which provide optimum work results, to help relief the driver to a major extent. Automatic guidance systems can increase productivity in field work by reducing overlapping in soil cultivation and reduce the use of operating supplies at the same time – integrated in superordinate vehicle control systems, CVTs help to further improve productivity also for articulated tractors.

With the **TERRASTEER** front axles ZF is extending its performance within the product portfolio of the steering axle family AS-3000. The new generation of ZF Steering Axles is presently designed for tractors having a power range between 180 and 230 HP with a speed range of up to 50 km/h.



Thanks to the continuous product improvement of the tractor steering axles with regard to the individual requirements on the market, an axle with increased modularity is now presented to the vehicle manufacturer. A variety of additionally selectable options makes the available standard version of the TERRASTEER axle easily adaptable to further customer specifications.

The TERRASTEER is featuring further efficiency increases, which is leading to reduced fuel consumption as well as lower operating costs.

As an individual, independent partner ZF's consistent target is to optimize the driving performance of tractors and combine harvesters. A comprehensive performance range, combined with customer-specific complete solutions (fig. 7) is a matter of course to achieve this goal. The product portfolio ranging from basic to premium units, right through to high-tech products is tailored to the individual market requirements. "In coordination with the customer, ZF develops globally marketable products according to the BestTech success: faster, best-priced and safer." According to Eberhard Wilks the customer benefit is the rapid positioning of the products on the world market and the reduction of the overall development costs.

Thanks to many years of ZF development competence in driveline and chassis technology and due to the synergy effects of a large automobile supplier this also means that there is no product and development risk for the customer involved.

ZF Sachs products are increasing safety and driving comfort. With its cabin dampers the division driveline and chassis components of ZF Friedrichshafen AG offers the suitable design for all requirements: covering the whole range from steel spring module, air spring module, to cabin air leveling module CALM (fig. 17) with integrated leveling control or the electronic damping system CDC (Continuous Damping Control) (fig. 18).

In addition to this the clutches provided by ZF Sachs ensure optimum power transmission. Rapid and reliable engagement and disengagement of the power flow jerk free drive away, damping of engine vibrations, ease of operation, high lifetime with no



compromises in terms of comfort and minimum installation space requirements.

A positive driving experience in the tractor is no luxury, but the precondition that the driver can work with his vehicle safely, relaxed and attentively. As a system supplier ZF develops and manufactures cabin suspensions (fig. 21) for all tractor applications – including springs, vibration dampers and rubber metal components. In this context the solution offered by ZF is optimally adapted to the specific requirement. The drivers are profiting from a comfortable working place with reduced jerking, rocking and rolling motions.

ZF Services rounds off the comprehensive performance and service spectrum of ZF as competent partner. The benefits of ZF Services include innovative products, rapid availability and worldwide proximity to customers. Together with the established product brands ZF Parts, Sachs, Lemförder and Boge the new business unit will offer a wide parts spectrum in the field of driveline, chassis and steering technology as well as the complete performance spectrum in terms of service. At the Agritechnica an extended offer of Lemförder steering and chassis components will be presented, in particular for agricultural machinery from John Deere, Case IH und Ford New Holland.

Fig.:

- 1.) ZF-TERRA+ starter generator 50 and 70 kW power in combination with the continuously variable S-Matic transaxle.
- 2.) ZF-Terra+ starter generator: architecture complete hybrid system with hybrid battery.
- 3.) The new CVT Eccom 5.0 with extended performance range up to 650 HP.
- 4.) Tractor steering axle ZF-TERRASTEER with performance range 180 – 230 HP.
- 5.) Continuously variable S-Matic transaxle with electromechanical parking brake.
- 6.) T-7200 with performance range from 130 – 200 HP.



- 7.) Tractor powertrain: Stepless S-Matic transaxle connected with a driven steering axle of the AS 3000 series.
- 17.) ZF Sachs: CALM[®] - Cabin Air Leveling Module
- 18.) ZF Sachs: CDC[®] - Continuous Damping Control
- 21.) Continuously variable S-Matic transaxle with cabin support for tractors.

Pictures: ZF

Press contact:

Gernot Hein, Head of Marketing and Communications

Tel.: +49 (8 51) 4 94-24 80, Fax: +49 (8 51) 4 94-90 24 80

E-mail: gernot.hein@zf.com

Wolfgang Wohlgemuth, Team Manager Market Communications

Tel.: +49 (8 51) 4 94-27 03, Fax: +49 (8 51) 4 94-90 27 03

E-mail: wolfgang.wohlgemuth@zf.com

The ZF Division Off-Road Driveline Technology and Axle Systems specializes in the development and production of transmissions and axles for agricultural and construction machines as well as axle systems for buses and trucks. With 7,500 employees the division generated a turnover of 1.9 billion euros in 2008.

ZF is a leading worldwide automotive supplier for driveline and chassis technology with approx. 60,000 employees at 119 locations in 25 countries. In 2008 the Group generated a turnover of 12.5 billion euros. ZF is among the top fifteen companies on the ranking list of the largest automotive suppliers worldwide.