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Case IH marks 175th anniversary with launch of the first full-track CVT tractor and updates to mid-range models

New CVXDrive transmission option enhances productivity and efficiency of mid-range Quadtrac models / Eight-step powershift ActiveDrive 8 option now available on Maxxum Multicontroller tractors / Puma range gains front suspension, steering and ISOBUS upgrades

PRESS RELEASE

The industry's first articulated tracked tractor with continuously-variable transmission is to be launched at Agritechnica 2017 by Case IH, alongside upgrades to its mid-range Puma and Maxxum tractors, marking a series of significant product introductions in the brand's 175th year.

Founded In 1842, in the US town of Racine, Wisconsin, where the worldwide headquarters of the Case IH agricultural business remain today, the original business of Jerome Case was centred on the design and manufacturing of threshing machines, but by 1886 the JI Case Threshing Machine Company had become the world's largest producer of steam engines. In 1902, separate developments saw five companies all involved in the production of grain harvesting equipment merge to form the Chicago-based International Harvester Company, which produced its first combine in 1915, the first Farmall tractor in 1923, and the Axial-Flow combine design in 1977. Case IH was formed in 1985, when the-then parent of JI Case acquired the agricultural division of International Harvester. Eleven years later Case IH launched the Quadtrac, the industry's first articulated high-hp rubber-tracked tractor.

"Launching at Agritechnica the industry's first articulated tracked tractor with a continuously-variable transmission is a fitting way to mark 175 years in the farm equipment business," says Peter Friis, Case IH commercial marketing director for the Europe, Middle East and Africa (EMEA) region.

"It's a reflection on our guiding principles of innovative engineering, efficient power and agronomic design, which create a philosophy that will continue into the future. The enormous transformation that has taken place in agriculture over the past 175 years makes it very exciting to look forward to what might be achieved during the next 175."

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The industry's first CVT in an articulated tracked tractor

Continuously-variable transmissions have, until now, never been available in an articulated tracked tractor. The CVX transmission in the Quadtrac 470, 500 and 540 CVX models brings benefits including ease of use – particularly for inexperienced operators – faster acceleration to field or road speed, reduced operator fatigue, full power availability at low ground speeds for special applications/implements, and full hydraulic flow availability at low ground speeds, for applications such as drilling/planting. The result is increased productivity with faster cycle times and maximum fuel efficiency.

Providing stepless travel from 0-43km/h, and 0-17km/h in reverse, CVX allows the storing of three adjustable target speeds from 0km/h to 43km/h, adjustable via the thumb-wheel and buttons on the Multicontroller. The transmission incorporates a kick-down feature which ensures maximum acceleration, and 40km/h is achieved at just 1,440rpm. The transmission features four mechanical ranges, for maximum efficiency and operator comfort, with automated range-changing, and the first time 100% mechanical power transfer takes place is below 10 km/h, matching heavy draft application requirements. Four multi- plate wet clutch packs, mounted on the four planetary gear sets, change the ranges without power interruption, with equal clutch speeds guaranteeing smooth shifting without clutch wear.

Active Hold Control means the tractor, when brought to a halt on a hill, can remain static without the operator applying foot or hand brake. The park brake is automatically applied if it remains in this state for longer than 45 seconds.

In place of a foot throttle, Quadtrac CVX models feature a foot pedal which, in automatic mode, acts as a drive pedal, controlling the tractor's ground speed. Maximum ground speed can be adjusted with the thumbwheel and speed range buttons on the armrest-mounted Multicontroller. In manual mode, the foot pedal acts as a conventional foot throttle. The Multicontroller also incorporates a power shuttle switch, which works in parallel with the shuttle lever on the left of the steering column. The Eco Drive dual hand throttle allows the setting of minimum and maximum engine speeds to maximise efficiency and minimise fuel use, and the engine droop function, which determines the engine speed down to which the rpm can drop under load

The tractor can be stopped temporarily – such as at road junctions – using only the brake pedal, with the tractor returning to its previous speed once the pedal is released. Fast reduction of forward speed is possible by drawing back on the Multicontroller. Three different response levels for acceleration, deceleration and power shuttle modulation can be set using the Multicontroller armrest.

Key among the operating systems for the Quadtrac CVX tractors is Automatic Productivity Management (APM), designed to ensure the most efficient operation of the machine, whether the operator or owner target is minimum fuel use or maximum output.

APM co-ordinates the engine and transmission with the Multicontroller and drive pedal, automatically reducing engine speed to the minimum required for the tractor's workload, to minimise fuel wastage. The tractor can also be operated in manual mode, without APM, with the transmission controlled via the Multicontroller and the engine speed via the foot or hand throttle.

The variable displacement pump which supplies the Quadtrac CVX hydraulic requirements is a pressure- and flow-compensating type, providing a maximum 216 litres/min of oil flow (428 litres/min option) at 210 bar, supplying up to eight remote valves. These and the 8,949kg-capacity rear linkage are controlled electronically via the Multicontroller armrest.

New eight-step powershift option for Case IH Maxxum tractors

A new semi-powershift transmission offering eight powershift steps in each of three ranges is now available for Case IH Maxxum tractors, with the launch of the ActiveDrive 8 transmission. It joins the existing four-speed semi-powershift and continuously-variable transmission options available on Maxxum tractors, which respectively have been renamed as ActiveDrive 4 and CVXDrive.

Available on Maxxum Multicontroller models, ActiveDrive 8 provides a total of 24 speeds in both forward and reverse. The transmission incorporates a number of features designed to make the tractor more efficient and the driver more relaxed.

Covering speeds up to 10.2 km/h, range one is specifically designed for heavier draft work. For special applications requiring very low speeds, such as vegetable crop work, ActiveDrive 8 is also available with additional creep speeds. Range two, the main working range, covers nearly 90% of all field, grassland and loader application requirements, allowing the tractor to work under full load, without any torque disruption, from 1.6-18.1 km/h. For road travel, the transmission is designed to start in range three, and a skip-shift function allowing quick progress through the powershift speeds. An auto shift feature means the tractor can be set to progress automatically through any set of eight speeds in the field, and through all 16 gears in the top two ranges on the road. A pedal kick-down function can be used to over-ride the transmission automation and cause it to downshift.

In terms of transmission operation, the clutch pedal is not required, meaning this transmission is suited to power-hungry tasks where momentum is important, such as cultivations or mowing with twin or triple mowers. A true power shuttle ensures no loss of drive or traction during changes of direction on slopes, while a ‘brake to clutch’ feature improves ease of stopping and safety at road junctions or when stacking bales with a loader. Both shifting and shuttle can be modulated for a faster or slower response according to the task in hand. Full transmission operation is possible via the thumb-operated powershift and powershuttle controls on the Multicontroller joystick.

In line with the launch of ActiveDrive 8, the proven four-speed semi-powershift fitted to standard Maxxum models has been renamed ActiveDrive 4. With 16 forward and 16 reverse speeds, the transmission offers a top travel speed of 40 km/h. CVXDrive is the new name for the third transmission option for the Maxxum range, and can be specified on models from 116-145hp, offering stepless travel up to 50km/h, and the ability to be programmed to work at a set forward speed or engine speed for maximum efficiency.

The revision of the Maxxum range also sees a new 175hp (max) six-cylinder Maxxum 150 CVX model launched at the top of the line. With this tractor Case IH now offers the lightest, smallest tractor in the industry from a six-cylinder engine of this power output. The Maxxum 150 CVX versions joins the standard and Multicontroller versions, and both the MC and CVX models will be fully available from Q3 2018. Maxxum tractors are powered by FPT Industrial’s 4.5-litre four-cylinder and 6.7-litre six-cylinder turbocharged and intercooled engines, which meet Stage IV emissions regulations using the Hi-eSCR selective catalytic reduction system.

Puma range gains steering and ISOBUS upgrades

With driver comfort being linked directly to productivity, significant front axle suspension improvements, incorporating a double accumulator, now create an enhanced ride for operators of Puma 185 Multicontroller to Puma 240 CVX tractors, particularly as axle loads change. With tractors increasingly being asked to perform operations at higher speeds to make the most of tight time windows, these suspension revisions are designed to improve the speed of response of the suspension system and the level of cushioning it provides, to improve ride whether working or travelling. Meanwhile, gross vehicle weight allowances have been increased from 13,000kg to 13,650kg on Puma Multicontroller models and to 14,000kg on Puma CVX tractors, improving machine capacity on the road.

Puma 185 Multicontroller to Puma 240 CVX models can also now be equipped with Adaptive Steering Control (ASC). This variable-rate steering system allows the ratio between the number of

steering wheel turns made and the steering angle of the front wheels to be altered according to the operator's requirements. In this way, the number of turns required to take the tractor from lock to lock can be adjusted in relation to the work in hand. Via the tractor's AFS terminal, the operator can select a desired steering ratio through three pre-set options or a custom setting.

Also new, and for all Puma models, is Reactive Steering. This introduces sharper reaction and self-centering to the Puma steering system, resulting from improvements to the front axle, including new steering sensors.

Another new feature for Puma Multicontroller and Puma CVX tractors is ISOBUS Class III, which makes possible two-way data transfer between the tractor and any compatible implement. This not only enables implement features to be controlled via the AFS 700 terminal screen, but also allows the implement to feed back information that can then control tractor settings such as forward speed, resulting in optimum performance in operations such as baling. The Class III system also enables, for example, the baler to direct the tractor's steering along the swath, to ensure an even intake and a perfectly-formed bale.

It is now possible, via the AFS 700 terminal screen, to quickly and easily configure all buttons on the Multicontroller – apart from those that operate the transmission – plus the remote valve paddle switches and the remote valve joystick, to operate ISOBUS implements as desired. This has been done to allow operators to create a set of controls that suit their particular requirements and circumstances.

All models now feature new colour-coded remote valves. As a result, implement coupling is made faster, by easing the process of identifying which valve at the rear of the tractor corresponds to which switch (electrohydraulic remote valve models) or lever (mechanical remote valve models) in the cab.

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Press releases and photos: *http://mediacentre.caseiheurope.com*

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