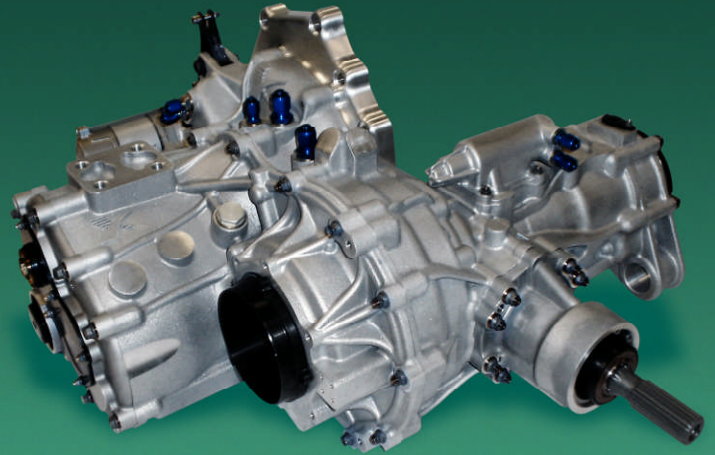


'532' SUPER 2000 RALLY GEARBOX AND DIFFERENTIAL



Xtrac develops new Super 2000 rally gearbox and differential

Vehicle transmission specialist Xtrac - which specialises in transmission technology for the aerospace, automotive, defence, marine and motorsport sectors - has introduced an all-new six-speed sequential transmission and rear differential for four wheel drive rally cars complying with the FIA Super 2000 regulations. The '532' transmission has been designed specifically to fulfil the FIA technical and commercial regulations.

"The gearbox specification is tailored to suit the recent changes to the Super 2000 regulations which have allowed homologated transmissions from more than one supplier," said Adrian Moore technical director at Xtrac. "To meet FIA requirements we have put a lot of effort into achieving the lowest possible costs, whilst ensuring that technically we have a reliable and lightweight transmission solution built to our normal industry-leading quality level. There has been a very high level of engineering effort into this project, which also has several other uses outside of Super 2000 rally."

The design for the new gearbox was undertaken at the company's technical centre at Thatcham in Berkshire, where the gearbox and differential will be manufactured and assembled.

"Xtrac's manufacturing resources comprise all that's necessary to build a complete transmission system," said Peter Digby managing director at Xtrac. "This latest gearbox from Xtrac is strongly underpinned by major investments in state-of-the-art manufacturing processes, which means we can compete globally with all our transmission systems to meet the exacting standards of the motorsport industry."

Super 2000 rally cars typically deliver power and torque figures of circa 280bhp and 250Nm. To handle this level of output Xtrac has ensured that all the steel for the rotating parts in its new transmission is produced to its own specification. Strict quality control procedures are carried out at every manufacturing stage and every unit is tested dynamically prior to dispatch.

"We have an efficient design process that combines expertise in the key areas of product design and production engineering," added Moore. "Our advanced research and development facilities have given us a real edge with this new transmission in its design, sub-system behaviour, gear technology, rotating dynamics and metallurgy."

The main benefits of Xtrac's latest transmission system to the rally engineer include easily removable gear clusters for ratio changes and differentials with external adjustment for the front, centre and rear. The main benefit for the rally driver is a light and positive sequential gearbox and high performance differentials, which fulfil the FIA mandated minimum weight of 90kg for the whole transmission.

Technical details of the transverse transmission system include the drive, which is taken from the clutch directly into the cluster with six forward gears; the output driving into the bevel gear 'Salisbury' type centre differential with a 50/50 torque split. A spool is offered as an option. The output from the centre differential is to the front differential and to the rear drive bevel gear set. There is a hydraulically operated rear drive disconnect unit integrated into the rear differential, which does not require any additional costly and complex auxiliary pumps to operate. The gearbox spur final drive gears are 'full form ground', the gearbox output and rear differential final drive bevel gears are manufactured using the Klingelnberg cyclo-paloid hard cutting process for accuracy, durability and enhanced life.

A range of up to 25 homologated gear ratios is available, with the critical gearbox components being able to fulfil the mandated FIA life of a minimum of 2,000km of extreme use. Full and comprehensive technical support documentation is provided with each transmission, as is access to Xtrac provided technician training and spare part sales from stock.

The centre differential is a bevel gear 'Salisbury' type with a Belleville spring to provide a positive pre-load that is externally adjustable through a simple drive. The friction discs are molybdenum coated steel; the friction plates are carburised steel lapped to size. A range of different differential ramp and cross pin angles is available to provide different locking characteristics.

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