

**SU GRAY**  
CASTROL

**ISSUE:**  
**E001-WKSHP**

## TECH TALK - EXPERT TO EXPERT

CASTROL TECHNICAL HELPLINE  
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### AUTOMATIC TRANSMISSION FLUIDS - OIL'S AIN'T OILS

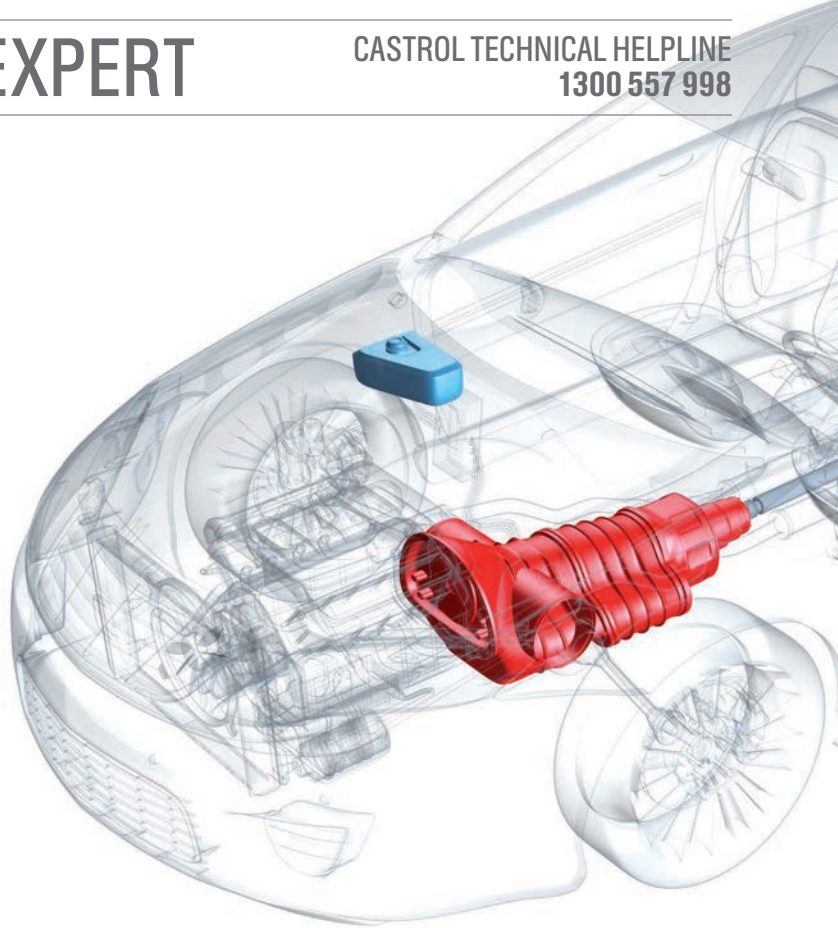
**STEP-TYPE AUTOMATIC TRANSMISSIONS ARE ONE OF THE MOST COMPLICATED COMPONENTS IN YOUR CAR AND THE AUTOMATIC TRANSMISSION FLUIDS (ATFS) USED IN THESE COMPONENTS HAVE TO BE DESIGNED TO WORK WITH THE VARIATIONS OF MATERIALS AND PROCESSES THAT MAKE THESE WORK. THESE FLUIDS TRANSMIT POWER, LUBRICATE AND PROTECT MOVING PARTS, DISSIPATE HEAT, RESIST OXIDATION AND FOAMING, AND PROTECT SEALS. THEIR MOST IMPORTANT FUNCTION, HOWEVER, IS TO PROVIDE AND MAINTAIN THE CORRECT AMOUNT OF FRICTION. FOR THIS REASON THERE ARE MANY TYPES OF FLUIDS REQUIRED.**

**MAKING A SINGLE FLUID WHICH WOULD BE SUITABLE FOR ALL FRICTIONAL REQUIREMENTS IS NOT POSSIBLE.**

Automatic Transmissions have undergone significant development in recent years to provide improved fuel efficiency. Changes include Continuously Slipping Torque Converter Clutches (CSTCC), lighter materials, lower oil volumes and increased number of ratios. Transmission manufacturers are using different frictional materials, as a result fluids with different frictional characteristics are required. The correct level of friction is essential in order for the transmission to function properly, to deliver the fuel efficiency, driveability and durability required. Frictional stability of the fluid is key for long fluid and component life. Fluids with poor frictional durability are likely to cause Noise, Harshness, Vibration (NVH) or reduced fuel economy.

**INCORRECT FRICTIONAL CHARACTERISTICS MAY RESULT IN DAMAGE TO TRANSMISSION COMPONENTS.**

In some instances use of an incorrect ATF may be immediately obvious due to a change in the way the transmission shifts. The shift may be rougher than usual or take longer.



The danger is that with modern vehicles the computer systems on board may compensate for poor shift leaving the driver unaware that there is an issue. Unfortunately for the vehicle owner there is likely to be damage occurring at the same time.

Incorrect friction can allow too much slip during operation. Increased slippage results in higher heat loads, reducing fluid life and damaging frictional materials in the transmission.

And now it's no longer just frictional differences between fluids. Manufacturers are producing vehicles which are in compliance with increasingly strict global emissions standards. One way towards achieving this goal is to reduce fuel use. As a result many modern automatic transmissions are designed to run on lower than traditional viscosity fluids.

A new category has been introduced by JASO to reflect this. JASO 1A LV is a low viscosity classification. These fluids are unlikely to be backwards compatible unless recommended by the manufacturer.

Top treating ATF's like Dexron III or Mercon with a bottle of additives will not produce a fluid with the performance of new generation fluids.

**GM DEXRON®-VI, TOYOTA WS, HYUNDAI SP-IV AND MERCON®LV ARE ALL LOW VISCOSITY SPECIFICATIONS. THESE SPECIFICATIONS ALSO HAVE DIFFERENT FRICTIONAL CHARACTERISTICS.**

**NOW, MORE THAN EVER, IT'S NOT POSSIBLE TO HAVE ONE FLUID WHICH IS SUITABLE FOR ALL AUTOMATIC TRANSMISSIONS.**

