

SERVICE REQUEST REPORT

REQUEST NUMBER: 01-2006

REQUEST DATE: 1-12-2006

TRACKING #: TS-20060220-00082

DATE: 2/15/06

NAME: Daniel Yu

ISSUES:

- Rob Stenberg requested competitive testing of Hydrotex 15W40 product with AMSOIL AME. The request was initiated from Direct Jobber David Trezell.

PROGRESS SUMMARY:

- Summary of physical properties is listed in the following table. Physical properties of AMSOIL AME and HDD were included for comparison.
- **AME Extends Oil Life**

The Thin Film Oxygen Uptake Test (TFOUT) uses the ASTM D4742 test protocol. This test is used to evaluate an engine oils ability to resist heat and the debilitating oil life shortening effect of oil oxidation. This ASTM test is designed to put an oil in an environment that simulates the severe operating environment of an engine. In this test an engine oil sample, a fuel catalyst, a metal catalyst package (using reactive metals such as copper) and water are added to a vessel that is then pressurized with oxygen to 90 psig. Pressure inside the vessel is recorded electronically or mechanically while the vessel is rotated at 100rpm at constant (high) temperature. The objective is to measure how many minutes it takes to get a measurable drop in pressure, which signifies the point at which the motor oil starts to absorb the oxygen from the environment. This pressure drop point indicates the onset of oil oxidation. The test is run out to 500 minutes. The longer an oil lasts in this test (meaning the more minutes an oil lasts in the test), the better its inherent oxidation stability is, signifying an ability to last longer in service within an engine due to superior oxidation resistance.

AMSOIL AME is much superior to Hydrotex in heat and oxidation resistance to control the rate of oil oxidation and safely extend the life of the motor oil. Engines stay clean for maximum protection and the need for unnecessary oil changes are reduced, saving the user time and money.

- **AME Helps Engines Start Easier**

The cold crank simulator test (CCS) determines the apparent viscosity of lubricants at low temperatures and high shear rates. The viscosity of lubricants under these conditions is directly related to engine cranking and startability. The lower the CCS number, the easier an engine will turn over in cold temperature.

AMSOIL AME outperforms HYDROTEX 15W-40. Using AMSOIL AME lubricant reduces drag on moving engine parts and allows engines to turn over quickly in the coldest winter temperature. The easier an engine starts, the less wear that will occur at start-up, and the less wear and tear there will be on the battery required to start the engine.

- **AME Reduces Oil Consumption and Emissions**

The NOACK Volatility Test determines the evaporation loss of lubricants in high temperature service. The more motor oil that vaporizes in operation, the thicker and heavier that oil becomes, contributing to poor or reduced oil circulation, reduced fuel economy, increased oil consumption, increased wear and needless evaporative oil loss (emissions) into the environment.

Thanks to a superior NOACK Volatility rating, AMSOIL AME resists evaporation much better than HYDROTEX. This means that the oil retains its viscosity better, oil circulation is not impaired, fuel economy is maximized, oil consumption is minimized, wear is reduced and the environment is protected

- **AME Improves Cold Temperature Startup**

The pour point test determines the lowest temperature at which a lubricant will flow. The lower a lubricant's pour point, the better lubricant protection that is provided in low temperature service.

AMSOIL AME has much lower pour point than HYDROTEX.

- AMSOIL AME and HYDROTEX were both formulated with high TBN number.
- AMSOIL AME and HYDROTEX perform similarly in four ball wear test