



Torque-Drive® Synthetic Automatic Transmission Fluid (ATD)

Recommended for use in applications specifying Allison® TES-295, TES-389 or C-4, Dexron® III, Mercon®, Voith G-1363, ZF® TE-ML 14C

Engineered to eliminate the deficiencies common to all conventional petroleum ATFs, AMSOIL Torque-Drive® provides superior performance and protection against thermal and oxidative degradation, sludge and varnish formation, viscosity shear down, cold-temperature oil thickening, poor friction stability, high component wear and shortened oil life. Automatic transmission operating expenses can be directly linked to transmission fluid quality. Poor-quality oils need frequent changes and they reduce the effective service life of transmissions. Delivering the ultimate in oxidation resistance, wear control and friction performance, AMSOIL Torque-Drive extends lubricant life up to six times* and provides protection beyond that possible from conventional ATFs. Vehicles stay on the road longer, unnecessary labor and maintenance costs are reduced, and the return on costly transmission investments is maximized. Immediate financial benefits are realized upon the installation of AMSOIL Torque-Drive.

* Depending on duty cycle, local conditions, oil analysis and/or OEM recommendations.

THERMAL AND OXIDATIVE STABILITY

Hot weather and operating conditions are no excuse for poor transmission reliability. By delivering a slower than normal oxidation rate, AMSOIL Torque-Drive prevents sludge that blocks small valves, prevents varnish that restricts component movement and reduces oil thickening that slows shift times. AMSOIL Torque-Drive lasts longer than conventional ATFs, protects better than conventional ATFs and extends transmission life beyond that possible with conventional ATFs.

SHEAR STABLE

Conventional automatic transmission fluids use petroleum oils with viscosity index (VI) improvers added to increase the oil's operational temperature range. Over time, VI improvers

shear down, promoting premature wear by leaving only a thin base oil to protect vital transmission components. AMSOIL Torque-Drive does not contain VI improvers, which means no VI improver shear down regardless of the operating environment. The unmatched film strength of AMSOIL Torque-Drive prevents wear, significantly increasing the transmission service life.

FRICTION DURABILITY

Oxidation by-products destroy the sensitive friction characteristics of transmission fluids, resulting in the rapid degradation of shift quality. The thermal and oxidative stability inherent in AMSOIL Torque-Drive assures consistent, smooth clutch engagement with no harsh shifting throughout the life of the fluid. AMSOIL Torque-Drive maintains proper coefficients of friction, prevents clutch glazing and prevents elongated shift times.

EXTREME-TEMPERATURE PERFORMANCE

Transmissions operate in temperature extremes. In hot temperatures, the synthetic construction of AMSOIL Torque-Drive virtually eliminates oil evaporation and delivers a better lubricating film than conventional oils for better overall protection of vital components. Oil consumption is reduced and transmissions require less maintenance.

In cold temperatures, AMSOIL Torque-Drive easily flows, as it does not contain the wax found in conventional ATFs. Cold-temperature fluidity allows for the proper operation of small, delicate, electronically-controlled solenoids that affect gear changes. Unlike conventional ATFs, transmissions using AMSOIL Torque-Drive have quick response times during cold operations and can be used immediately upon start-up.



TYPICAL TECHNICAL PROPERTIES

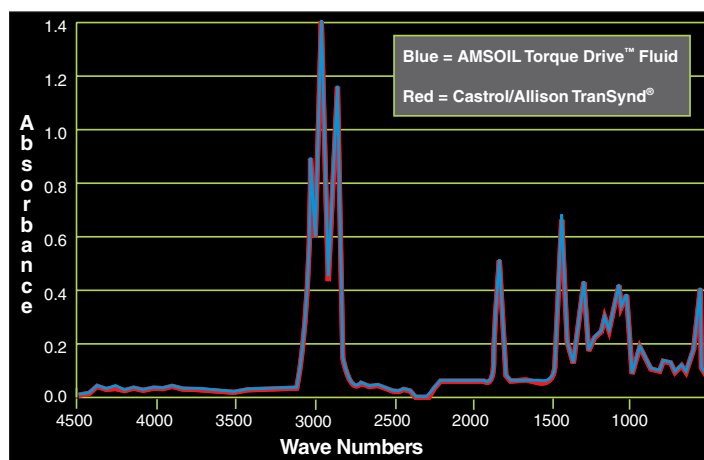
AMSOIL Torque-Drive® Synthetic Automatic Transmission Fluid (ATD) & Castrol/Allison TranSynd® Synthetic Automatic Transmission Fluid

	AMSOIL Torque-Drive	TranSynd
Kinematic Viscosity @ 100°C, cSt (ASTM D-445)	7.41	7.36
Kinematic Viscosity @ 40°C, cSt (ASTM D-445)	37.14	37.29
Brookfield Viscosity @ -40°C (cP)	8411	8400
Density @ 60°F (lb/gal)	7.038	7.047
Flash Point, °C (°F)	230 (446)	232 (450)
Pour Point, °C (°F)	-55 (-67)	-55 (-67)
Four Ball Wear Test (ASTM D-4172B: 40 kg, 75°C, 1200 rpm, 1 hr) mm	0.45	0.45
Copper Corrosion (150°C, 3 hr)	1B	1B
Spectrographical analysis		
Boron (ppm)	133	136
Calcium (ppm)	28	29
Phosphorus (ppm)	230	235

PRODUCT APPLICATIONS

AMSOIL Torque-Drive is recommended as a direct replacement for TranSynd Synthetic ATF in heavy-duty, on- and off-highway automatic transmissions manufactured by Allison®, General Motors®, Ford®, Voith® and ZF® or wherever the standards TES-295, TES-389, C-4, Dexron® III, Mercon®, Voith G-1363 or ZF® TE-ML 14C are specified. Examples of operations that benefit from using AMSOIL Torque-Drive include municipal or transit buses, motor coaches, garbage haulers, motor homes, delivery vans, emergency vehicles, school buses, dump trucks, utility vehicles, cement trucks, line haul trucks and tow trucks.

Where extended drain intervals are not specified by the original equipment manufacturer (OEM), it is recommended that AMSOIL Torque-Drive be evaluated with oil analysis at standard OEM drain intervals or more frequently to establish proper drain interval. Where extended drain intervals are recommended by the OEM, follow that recommendation. This includes the recommendations set by Allison in document #1099H for TES-295 fluids.



AMSOIL Torque-Drive Synthetic Automatic Transmission Fluid is based on the same type of chemistry as TranSynd. This fine Infra-red (IR) scan, revealing a chemical "picture" of both products, shows no measurable differences.

AMSOIL products and Dealership information are available from your local AMSOIL Dealer.

