



Torque-Drive™ Synthetic Automatic Transmission Fluid (ATD)

Recommended for use in applications specifying Allison® TES-295 or C-4, Dexron® III, Mercon®, 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.

HERMAL 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 down 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.

FRICION 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

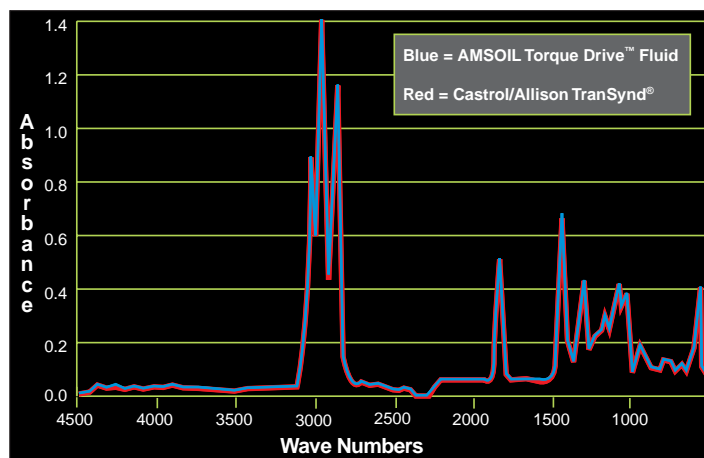
AMSOIL Torque-Drive™ Synthetic Automatic Transmission Fluid (ATD) & Castrol/Allison TranSynd® Synthetic Automatic Transmission Fluid

	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, C-4, Dexron® III, Mercon® or 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 #1099D 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.



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