DATA BULLETIN

# Signature Series Synthetic Automatic Transmission Fluid


Transmissions in commercial vehicles, SUVs, trucks and vans – particularly those used for hauling or towing – are subjected to severe-service operation and increased heat. Elevated temperatures cause fluids to break down, allowing damaging metal-to-metal contact and the formation of sludge and deposits. The problem is worse in modern transmissions with more gears, clutch packs and narrow oil passages that require clean, high-quality fluid to achieve maximum performance and life.

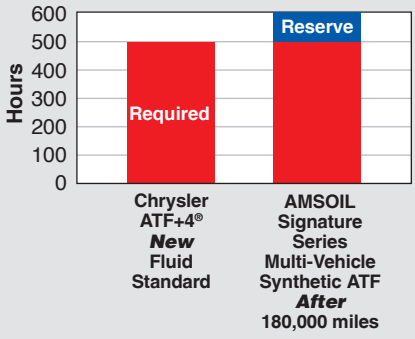
AMSOIL Signature Series Synthetic Automatic Transmission Fluid is specifically formulated to withstand the rigors of heavy towing, elevated temperatures and challenging terrain. It remains fluid in sub-zero temperatures and provides reserve protection during heavy use and abuse.

## Proven in 180,000-mile, Severe-Service Taxi Fleet Field Trial

To demonstrate its effectiveness in severe service, Signature Series Multi-Vehicle Synthetic ATF was installed in Las Vegas taxi cabs. The vehicles routinely encountered demanding stop-and-go driving loaded with passengers and cargo, while the desert environment presented extremely hot ambient temperatures, placing enormous strain on the fluid. Following 180,000 miles, a transmission was selected for analysis. The Aluminum Beaker Oxidation Test (ABOT) is an industry standardized test used to determine a transmission fluid's oxidation resistance, which is a good indicator of its service life. Testing by an independent, third-party lab revealed that after 180,000 miles in severe service, Signature Series Multi-Vehicle Synthetic ATF resisted oxidation longer than required for new fluid to meet the Chrysler ATF+4 specification (see graph). Internal components, including the valve body and clutch plates (pictured), were virtually free of damaging sludge, deposits and wear, confirming the lubricant's high level of protection for severe-service applications.

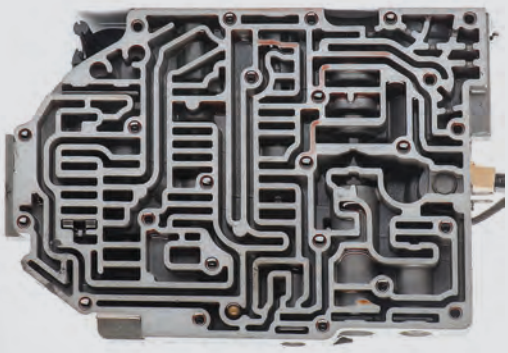
**Reserve Protection Against Heat After 180,000 Miles**

ABOT Test Performed by Independent Lab
Based on Total Acid Number (TAN)




## Protects Against Thermal Breakdown

Signature Series Synthetic ATF is formulated with high concentrations of antioxidants, making it naturally heat resistant. It provides outstanding protection against sludge and varnish deposits that clog narrow oil passages and contribute to clutch glazing. After 180,000 miles in severe service, fluid analysis revealed Signature Series Multi-Vehicle Synthetic ATF contained 83 percent of its original oxidation inhibitors, proving its long-lasting resistance to thermal breakdown.



**The transmission's valve body is clean and virtually sludge-free following 180,000 severe-service miles. The clutch plates demonstrated only trace discoloration and earned a rating of "good," the highest possible, for deterioration/wear.**

## TYPICAL TECHNICAL PROPERTIES

AMSOIL Signature Series Multi-Vehicle Synthetic Automatic Transmission Fluid (ATF)
AMSOIL Signature Series Fuel-Efficient Synthetic Automatic Transmission Fluid (ATL)

| | ATF | ATL |
|---|---|---|
| Kinematic Viscosity @ 100˚C, cSt (ASTM D445) | 7.5 | 6.3 |
| Kinematic Viscosity @ 40˚C, cSt (ASTM D445) | 38.5 | 30.8 |
| Viscosity Index (ASTM D2270) | 165 | 159 |
| Pour Point ˚C (˚F) (ASTM D97) | -53 (-63) | -65 (-85) |
| Flash Point ˚C (˚F) (ASTM D92) | 234 (453) | 224 (435) |
| Four-Ball Wear Test (ASTM D4172 @ 40 kg, 75˚C, 1200 rpm, 1hr), Scar, mm | 0.39 | 0.41 |
| Brookfield Viscosity @ -40˚C, cP (ASTM D2983) | 9755 | 7676 |

### Outstanding Wear Protection

Varying speeds and loads causes torque multiplication and extreme stress on gears and bearings. AMSOIL formulated Signature Series Synthetic ATF with high film strength and premium anti-wear/extreme-pressure additives to help prevent wear during severe service. In the industry-standard FZG Gear Wear Test, Signature Series Multi-Vehicle Synthetic ATF that had been used for 180,000 severe-service miles achieved a “Pass” at stage 12 – the highest stage. The results exceeded the Ford MERCON V and Chrysler ATF+4 specifications for new fluid, demonstrating the lubricant’s long-lasting wear protection.

### Cold-Temperature Fluidity

Cold, thick automatic transmission fluid lengthens shift times and reduces fuel economy. Signature Series Synthetic ATF is wax-free and delivers extraordinary cold-flow properties. It helps improve shift response, energy efficiency and warm-up times.

### Friction Durability

Today’s transmissions are smaller and must withstand higher horsepower and torque while delivering smoother shifts, all with longer fluid life recommendations. AMSOIL Signature Series Synthetic ATF is formulated with friction modifier additives that deliver outstanding clutch-holding capacity (static friction), torque-transfer ability (dynamic friction) and anti-shudder properties (slipping torque-converter clutches). Analysis reveals that after 180,000 miles in severe service, Signature Series Multi-Vehicle Synthetic ATF provides nearly identical friction properties as new fluid for smooth, reliable shifts.

## APPLICATIONS

**AMSOIL Signature Series Multi-Vehicle Synthetic ATF** is recommended for transmissions, hydraulics, power steering systems and other applications that require any of the following specifications:

**Ford** MERCON*, MERCON* V, ESP-M2C166-H, FNR5, M2C924-A; **GM** DEXRON* III, DEXRON* II, AutoTrack II; **Chrysler** ATF+4*, MOPAR* AS68RC, 68089195AA; **Allison** C-4, TES-389; **BMW** 7045E, 8072B, LA 2634, LT 71141; **Honda** ATF-Z1; **Hyundai/Kia** SP-II and SP-III, Red-1; **Idemitsu** K17; **JASO** 1A; **JWS** 3309, 3314, 3317; **MAN** 339F, 339 V1, 339 V2, 339 Z1, Z2 & Z3; **Mazda** ATF-M III, ATF-MV, F1; **Mercedes-Benz** 236.1, 236.2, 236.3, 236.5, 236.6, 236.7, 236.9, 236.10, 236.11, 236.81, 236.91; **Mitsubishi** SP-II and SP-III, Dia Queen ATF-J2; **Nissan** Matic-D, Matic-J, Matic-K, 402; **Saab** 3309; **Shell** 3403, LA 2634; **Subaru** ATF, ATF-HP; **Suzuki** 3314 & 3317; **Texaco** ETL-7045E, ETL-8072B, N402; **Toyota** Type T, T-II, T-III and T-IV; **Voith** 55.6335.XX (G607), 55.6336.XX (G1363); **Volvo** 97340, 97341; **Volkswagen/Audi** G 052 162, G 052 990, G 055 025; **ZF** TE-ML 03D, 04D, 05L, 09, 11A, 11B, 14A, 14B, 14C, 16L, 16M, 17C, 20B, 20C, 21L

**AMSOIL Signature Series Fuel-Efficient Synthetic ATF** is recommended for transmissions and other applications that require any of the following specifications:

**Ford** MERCON* LV, SP; **GM** DEXRON* VI, DEXRON* HP; **Aisin-Warner** AW-1; **BMW** 83 22 0 142 516, 83 22 2 152 426, **Dsih** 6p805; **Honda** DW-1*; **Hyundai/Kia** SP-IV, SPH-IV, SP-IV-RR, NSW-9638, SP4-M; **JASO** 1A-LV; **JWS** 3324; **Chrysler** Mopar* P/N 68157995A, SP-IV; **Mercedes-Benz** 236.12, 236.14, 236.15, 236.41; **Mitsubishi** SP-IV, ATF J3, ATF-PA; **Nissan** Matic-S, Matic-W; **Saab** 93 165 147; **Shell** M-1375.4, M-1375.5, M-1375.6, M-L 12108; **Toyota** WS; **Volkswagen/Audi** G 055 005, G 055 162, G 060 162 ,G 052 540; **Volvo** 31256774, **ZF** S671 090 255

**AMSOIL Signature Series Fuel-Efficient Synthetic ATF** is backward compatible and replaces DEXRON III fluids in older GM automatic transmissions. (DEXRON VI specification supersedes the obsolete DEXRON III in GM vehicles.)

## SERVICE LIFE

**Normal Service:** Follow the vehicle manufacturer’s normal-service drain interval.

**Severe Service:** Double the vehicle manufacturer’s severe-service drain interval.

*Change at the vehicle manufacturer’s recommended drain interval outside U.S. and Canada.*

## HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended application and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available via the Internet at www.amsoil.com or upon request at (715) 392-7101. **Keep Out of Reach of Children.**

## AMSOIL PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit www.amsoil.com/warranty.aspx.



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

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