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DATA SHEET

Freedom Series Break-In Oil (SAE 30)

For High-Performance and Racing Engines



Freedom Series Break-In Oil is the preferred break-in oil of Fleece Performance Engineering and Freedom Racing Engines. It is designed to deliver maximum compression, horsepower and torque by providing quick and efficient piston ring seating in new and rebuilt high-performance and racing engines. It is formulated with zinc and phosphorus anti-wear additives to protect cam lobes, lifters and rockers during the critical break-in period when wear rates are highest. Its increased film strength also protects rods and main bearings from damage.

Fleece Performance Engineering and Freedom Racing Engines have been using this AMSOIL formulation for years. High horsepower and torque from their builds have tested the formula over and over. Freedom Series Break-In Oil is for engine builders who want to push limits without sacrificing proper break-in.

- **Quickly** seats piston rings
- **Protects** against wear
- **Maximizes** compression and power
- **Contains** no friction modifiers

Quickly Seats Rings

The primary goal during engine break-in is to seat the rings against the cylinder wall. Properly seated rings increase compression, resulting in maximum horsepower; they reduce oil consumption and prevent hot combustion gases from entering the crankcase. To achieve this, the oil must allow the correct level of “controlled wear” to occur between the cylinder wall/ring interface while maintaining wear protection on other critical engine parts. Insufficient break-in leaves behind peaks on the cylinder wall that prevent the rings from seating. The deeper valleys, meanwhile, allow excess oil to collect and burn during combustion, increasing oil consumption. Too much wear results in cylinder glazing due to peaks “rolling over” into the valleys and preventing oil from collecting and adequately lubricating the cylinder wall.

Freedom Series Break-In Oil’s friction-modifier-free formula allows the sharp peaks on newly honed cylinder walls (fig. 1) to partially flatten. The result produces more surface area for rings to seat against, allowing the formation of a dynamic seal that increases compression, horsepower and torque (fig. 2).

Fig. 1: New Cylinder



Fig. 2: Broken-In Cylinder



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TYPICAL TECHNICAL PROPERTIES
Freedom Series Break-In Oil (FDBRK)

Kinematic Viscosity @ 100ºC, cSt (ASTM D445)	11.5
Kinematic Viscosity @ 40ºC, cSt (ASTM D445)	93
Viscosity Index (ASTM D2270)	111
Flash Point ºC (ºF) (ASTM D92)	230 (446)
Fire Point ºC (ºF) (ASTM D92)	250 (482)
Pour Point ºC (ºF) (ASTM D97)	-36 (-33)
Four-Ball Wear (ASTM D4172)	
Para 1 (40 kg, 75°C, 1200 rpm, 1 hr), Scar, mm	0.43
High-Temperature/High-Shear Viscosity (ASTM D-5481 @ 150ºC, 1.0 x 10^6 S^{-1}), cP	3.6

Protects Critical Parts from Wear
New flat-tappet camshafts and lifters are not seasoned or broken in and must be heat-cycled to achieve proper hardness. During the break-in period, these components are susceptible to accelerated wear because they are splash-lubricated, unlike other areas of the engine that are pressure lubricated. Freedom Series Break-In Oil contains high levels of zinc and phosphorus (ZDDP) additives designed to provide the anti-wear protection required during this critical period.

Increased Film Strength
High-performance and racing engines often use aftermarket parts designed to increase torque and horsepower. The added stress can rupture the oil film responsible for preventing harmful metal-to-metal contact on rod and main bearings. The base oils in Freedom Series Break-In Oil provide increased film strength to protect bearings from wear.

APPLICATIONS
Freedom Series Break-In Oil is designed to effectively break in Freedom Racing Engines and other high-performance and racing engines, helping maximize compression, horsepower and torque.

RECOMMENDATIONS
Scan the QR code to the right to learn about Freedom Racing Engines' recommended break-in procedure. For other engines, follow the engine-builder or manufacturer break-in recommendations if available. For all other applications, the break-in period should not exceed 1,000 miles (1,600 km). After completing break in, drain and fill the engine with a high-performance AMSOIL synthetic oil that meets builder or manufacturer specifications, such as Freedom Series Synthetic Diesel Oil.

TECHNICAL SERVICES
For immediate answers to your technical questions call (715) 399-8324 (TECH) between 8 a.m. and 5 p.m. Central time or email tech@AMSOIL.com.

PRODUCT WARRANTY
Using AMSOIL synthetic lubricants or practicing extended drain intervals does not void your new vehicle or equipment manufacturer's warranty. All AMSOIL lubricants and filters are covered by the AMSOIL Limited Warranty. For complete information visit AMSOIL.com/warranty.aspx.

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 online at AMSOIL.com or upon request at (715) 392-7101. **Keep Out of Reach of Children**. Recycle used oil and bottle.

Learn about Freedom Racing Engines break-in procedure.

Learn more about Fleece Performance fluid products.

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