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DATA SHEET

Break-In Oil (SAE 30)

For High-Performance and Racing Engines

AMSOIL Break-In Oil 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.



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

Quickly Seats Rings

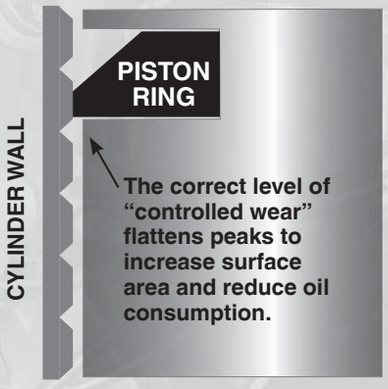
The primary goal during engine break-in is to seat the rings against the cylinder wall. Properly seated rings increase compression, resulting in maximum horsepower; they reduce oil consumption and prevent hot combustion gases from entering the crankcase. To achieve this, the oil must allow the correct 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.

AMSOIL 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 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

Break-In Oil (BRK)

Kinematic Viscosity @ 100°C, cSt (ASTM D445)	11.5
Kinematic Viscosity @ 40°C, cSt (ASTM D445)	93
Viscosity Index (ASTM D2270)	111
Flash Point °C (°F) (ASTM D92)	230 (446)
Fire Point °C (°F) (ASTM D92)	250 (482)
Pour Point °C (°F) (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 @ 150°C, 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. AMSOIL 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 AMSOIL Break-In Oil provide increased film strength to protect bearings from wear.

APPLICATIONS

AMSOIL Break-In Oil is designed to effectively break in new high-performance and racing engines requiring SAE 30 oil, helping maximize compression, horsepower and torque.

RECOMMENDATIONS

Break-in duration will vary between engines, but should not exceed 1,000 miles (1,600 km). If available, the engine builder's or manufacturer's break-in recommendations should be followed. After completing break in, drain and fill the engine with a high-performance AMSOIL synthetic oil that meets builder or manufacturer specifications.

When the engine is new, the exhaust ports will have a large area of oil residue (Fig. 3). As the rings begin to seat, less oil is passed and the oil residue area begins to shrink (Fig. 4). When the rings are fully seated and have formed a tight seal against the cylinder walls, no oil residue will be evident. Other common methods to determine if rings have seated include performing a leak-down test or horsepower measurements over time.

Fig. 3



Fig. 4



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

For warranty information, visit AMSOIL.com/warranty.aspx.

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