Mobil 1
Training Suite
Rub your hands together quickly. Feel the heat build up? That heat is caused by friction. If you were to pour some oil on your hands and rub them together, there would be almost no heat build-up. The two surfaces of your hands would have been lubricated by the oil, reducing the friction and making it easier for your hands to slide against one another.

Motor oil does the same thing inside an engine. By lubricating the moving surfaces inside the engine, wear-causing friction is reduced and everything runs cooler and more smoothly.

Why Do an Oil Change?
In addition to lubricating moving parts, oil is designed to carry combustion by-products away from the pistons and cylinders. It is designed to deal with small amounts of water formed as the engine heats and cools, and with dirt and dust that may enter the engine through the air-intake system. Modern motor oils are designed with detergent additives to handle acids formed by the reaction between water and the other contaminants. The additives may also help deal with unburned fuel (fuel dilution) getting into the crankcase.

As a car is driven, the level of contamination in the oil constantly increases. The oil filter helps by removing any particles as the oil passes through the filter. But over time, the additives are used up (depleted), and the oil itself can start to degrade (oxidize or thicken). When additive depletion reaches a certain point, the oil can no longer do its job properly and must be changed.

The rate at which contamination and additive depletion occur depends on many variables. One of these is driving habits, which vary greatly and have a direct effect on the useful life of the oil. Other factors include the precision of ignition, fuel injection or carburetion adjustments, air-cleaner service and the general mechanical condition of the engine.

Higher under-bonnet temperatures brought about by the use of power accessories, mandated exhaust-emissions equipment and turbocharging also contribute to oil deterioration. This deterioration will increase if the oil and oil filter are not replaced regularly. Both the oil and the filter should be changed – even a clean, high-quality filter, which is effective in removing abrasives from the oil, cannot filter out fuel dilution and other sources of liquid or chemical contamination in degraded oil.
Oil should be changed before its contamination level reaches the point where engine damage can result. But it is difficult (if not impossible) for the individual motorist to determine when the contamination level is too high. Because of this, automobile manufacturers recommend oil changes at a certain time or mileage interval, whichever comes first. These oil change recommendations vary by model, year and manufacturer. Recommended intervals and mileage limits also vary with the type of service under which a vehicle operates. More frequent oil changes are recommended for “severe” service.

“Severe” Service

Ideal service operations consist of relatively high-speed driving (60 to 90 kph) on sealed roads in dust-free areas, with trips of over 15 kilometres. The maximum oil change recommendations listed in vehicle owner’s manuals apply to this type of driving.

“Severe” service operations include the following:

• Trips of less than 15 kilometres. The engine never gets a chance to warm up and drive off moisture, leading to the development of acids in the motor oil.

• Driving in dust or sand. These abrasives can get past the air filter and into the engine lubricating system.

• Driving in dust-free areas, with trips of over 15 kilometres. These abrasives can get into the vehicle owner’s manual and apply to this type of driving.

• Idling for extended periods. Engines are partially cooled by airflow. When idling, there is less air flowing through the radiator, and engine temperatures tend to increase. Higher temperatures can lead to oxidation and viscosity changes in the oil.

• Pulling trailers, towing a boat, or using roof racks or a luggage carrier. This makes the engine work harder and increases temperatures. High temperatures can lead to oxidation and viscosity changes in the oil.

• Operating in any other heavy-duty or “severe” service condition, such as taxi, delivery service, or racing service.

Note that a vehicle’s oil warning light indicates more than low oil pressure. The light can come on for a number of reasons, including low oil level, a failing oil pump, a faulty oil-pressure sensor, blockage in the lubricating system, excessive foaming of the oil, etc. In all cases, the engine should be shut down as quickly as it is safe to do so. Continuing to operate an engine with the oil warning light on can result in serious engine damage. (Some cars have a “check engine” light instead of, or in addition to, the oil light.)

What is Synthetic Motor Oil?

All motor oils are made up of base oils and additives.

In general, fully synthetic motor oils contain high-performance synthetic fluids. Semi-synthetic oils (also called “blends”) usually use a small percentage of high performance synthetic fluids in combination with conventional oil.

Mobil 1® is the world’s leading fully-synthetic motor oil. To meet the demanding requirements of today’s vehicle builder specifications (and customers expectations), Mobil 1 uses high-performance synthetic fluids, including polyalphaolefins (PAOs), along with a proprietary system of additives. In fact, each Mobil 1 viscosity grade uses a unique combination of synthetic fluids and selected additives in order to tailor the viscosity to its specific application.

Synthetic motor oils in general, and Mobil 1 in particular, are superior to conventional motor oils in many ways. First of all, the performance of Mobil 1 is more robust, especially in terms of low-temperature pumping and flow. High-temperature stability and protection against deposits are also superior. These attributes can translate directly into less engine wear and longer engine life.

Historically, conventional oils lack the performance of synthetic oils in the areas of low-temperature performance and high-temperature oxidation stability. Conventional oils also contain much greater amounts of inherent impurities, such as sulphur, reactive and unstable hydrocarbons and other undesirable contaminants that cannot be completely removed by conventional refining of crude oil.

Because of the high-performance fluids in Mobil 1 synthetic motor oil, it generally flows at much lower temperatures than a conventional oil. Mobil 1 0W-40 is capable of pumping at -47°C and flowing at even lower temperatures and Mobil 1 10W-30 will pump at -41°C. At these low temperatures, conventional oils are essentially frozen solid.

At normal engine operating temperatures, Mobil 1 synthetic motor oils offer better wear protection and better resistance to thermal degradation than conventional or semi-synthetic oils. Mobil 1 will continue to perform at temperatures that make conventional and semi-synthetic motor oils start to oxidize and turn to sludge.

In some ways, of course, synthetic oil is the same as conventional oil. The two can be mixed, for example. While this is not truly desirable in an engine, it is totally acceptable in an emergency or for recycling. It is important to remember that Mobil 1 should be disposed of properly in the same way as conventional motor oils.

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The History of Mobil 1

ExxonMobil’s research into synthetic lubricants began more than 40 years ago, in the early 1960s, to resolve a problem plaguing military planes based on aircraft carriers. While the planes were aloft, the grease on their wheel bearings would sometimes solidify in the cold, resulting in bearing failure when the planes slammed down onto the short landing deck of the carrier. Mobilgrease 28® was developed to meet this need and continues to be used worldwide in aircraft applications.

By the late ’60s, ExxonMobil had used the same base fluid technology to make a specialized synthetic motor oil. This enabled the big diesel engines powering oil rigs on the North Slope of Alaska to be started at temperatures as low as -19°C. The ultra-low temperature capabilities of Mobil synthetic lubricants led to their use by NASA for the Space Shuttle. In 1971, a New Concept Oil Team was created to further investigate uses for the synthetic fluids. Their work resulted in the first Mobil 1® fully-synthetic motor oil. By engineering its component fluids, Mobil 1® achieved far superior lubrication properties than those of conventional oils.

Mobil 1® synthetic oil was launched in Europe and Japan in 1973, and in North America a year later. Initially available only in SAE 5W-20 viscosity grade, the Mobil 1® line expanded during the next decade, and Mobil 1® quickly became the world’s leading synthetic motor oil.

In 1992, a new formula was introduced that improved high-temperature engine protection. Advanced Formula Mobil 1® was launched in 1996, with improved anti-wear performance and lower phosphorous levels to increase the life of catalytic converters. The evolution of Mobil 1® continued with the introduction of Mobil 1® Tri-Synthetic™ Formula in 1999. Engineered to outperform even the previous formulation, Mobil 1® Tri-Synthetic Formula combined three advanced high-performance synthetic components with an innovative package of additives. It offered improved wear protection and promoted cleaner-running engines and better high and low-temperature durability.

Mobil 1® with SuperSyn™

In 2002, Mobil 1® with SuperSyn™ was introduced. The most significant improvement was the SuperSyn™ anti-wear system. This proprietary additive system has astounding protective properties. Instead of breaking down during extremely high-stress, high-temperature conditions, the SuperSyn™ anti-wear system actually excels under these conditions.

Mobil 1® with SuperSyn™ exceeds the toughest industry standards. It offers:

• Outstanding wear protection.
• Excellent high- and low-temperature performance.
• Improved protection against sludge and harmful deposits.
• For specific grades, excellent fuel economy benefits.

Dirty Oil, Viscosity and Oil Pressure

A fluid with low viscosity flows easily and is often called “thin.” Water is an example of a fluid with a relatively low viscosity. A fluid with high viscosity is often described as “thick.” Honey is an example of a fluid with a relatively high viscosity.

Vehicle manufacturers establish an optimal recommended viscosity for the motor oil that should be used in their vehicles based on a variety of factors, including the load and speed conditions under which they will be used. The oil must strike a balance between a lighter, or low-viscosity, oil which provides little resistance to motion (saving fuel and efficiently transferring horsepower) and a heavier, or high-viscosity, oil that resists being squeezed out of the contact area between metal surfaces.

Multigrade motor oils are formulated to meet the requirements of more than one SAE viscosity-grade classification, and, therefore, may be used over a wider temperature range than monograde oils. A multigrade oil is identified by two SAE grade designations. For example, an SAE 10W-30 designation indicates that the oil acts like a 10-weight oil at low temperatures and a 30-weight oil at normal or higher operating temperatures. These numbers are an indication of the range of the motor oil’s viscosity.

Viscosity is a measure of a fluid’s resistance to flow. A fluid with low viscosity flows easily and is often called “thin.” Water is an example of a fluid with a relatively low viscosity. A fluid with high viscosity is often described as “thick.” Honey is an example of a fluid with a relatively high viscosity.

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The complicating factor is that the viscosity of oil varies with changes in temperature – thinner when hot, thicker when cold. But it gets tricky. At low temperatures, we need the motor oil to flow readily (not thick enough or gel). At high temperatures, we need the motor oil to keep from becoming too thin, which would allow metal-to-metal contact.

Mobil 1 0W-40
The outstanding benefits of Mobil 1 0W-40.
• Meets the performance specifications of European manufacturers including Mercedes-Benz, Porsche, BMW, and SAAB
• Unsurpassed protection for high-tech multi-valve engines
• Helps keep your engine running like new
• Improves engine protection during the critical start-up period
• Excellent high and low temperature performance
• Proven low fuel consumption formula

Approved against MB 229.3/229.5, BMW Longlife-01, VW 502.00/503.01/505.00, GM LL A 025 and GM LL B 025.
Porsche Approved.

Mobil 1 10W-30
The outstanding benefits of Mobil 1 10W-30.
• Specified for Holden Special Vehicles (HSV) using the all-alloy General Motors Gen III LS1, and all new Gen IV LS2 motors
• Helps keep your engine running like new
• Offers outstanding protection for high performance engines
• Excellent high and low temperature performance
• Exceptional cleanliness of engine parts

Mobil 1 10W-30 meets API SM/SL/SJ/CF, ILSAC GF-4, GF-3, ACEA A1/B1, A5/B5. Approved against GM 4718 M.

Mobil 1 5W-50
The outstanding benefits of Mobil 1 5W-50.
• Outstanding engine cleanliness and wear protection
• Helps keep your engine running like new
• Exceptional high temperature protection
• Improved protection against sludge and harmful deposits
• Suitable for older and new vehicles

Approved against MB 229.3, and VW 505.00.
Porsche approved.
Myth: Using Mobil 1 will void your new-car warranty.

Reality:
With the exception of the Mazda rotary engine (Mazda does not recommend any synthetic oil in its rotary engines), Mobil 1 will not void new-car warranties. Mobil 1 exceeds the API and ILSAC engine oil service requirements of all new car manufacturers, both imported and domestic. If in doubt about warranty issues, always check the vehicle owner’s manual or contact the vehicle manufacturer.

Myth: You should run in your new car with conventional oil, then switch to Mobil 1.

Reality:
This is a myth. In the past, engine run-in was necessary to remove any metal flashing or abrasive material left inside the engine after machining, as well as to allow the valves and rings to “seat” properly. Today’s engines are built with much tighter tolerances, much improved machining and under much cleaner conditions compared to the engines of 10 or 20 years ago. Current engine manufacturing technology does not require a run-in period using petroleum-based motor oils.

In fact, Mobil 1 is factory fill in:
- Mercedes Benz AMG
- All Porsche Vehicles
- HSV
- Chevrolet Corvette
- Dodge Viper
- Cadillac CTS, SRX, XLR, and STS
- Aston Martin DB9
- Mitsubishi Lancer EVO VIII
- Pontiac GTO
- Bentley GT, Flying Spur, and Arnage
- Chrysler Crossfire SRT-6, 300C SRT-8 and RAM SRT-10

Likewise, in an older engine in good condition – one that does not have oil leaks or one that has been rebuilt properly using new oil seals – Mobil 1 provides the same advantages as when used in a new engine. If an older engine has an oil leak, ExxonMobil recommends repairing the leak, then using Mobil 1.

Myth: You can’t use Mobil 1 as run-in oil for a rebuilt engine.

Reality:
This is also a myth. However, the timing of your first oil change will depend largely on the quality of the rebuild. Due to the tighter tolerances and improved machining of today’s engines, the traditional concept of engine “run-in” is not as critical. If the engine rebuild is using older machining equipment or low-quality components, however, abrasive material can be left inside the engine. In this case, you should use a short drain interval on your initial oil fill.

Myth: Mobil 1 will leak out of the seals of older cars.

Reality:
Mobil 1 does not cause leaks. In fact, Mobil 1 was tested in dozens of industry-standard and OEM tests to prove its performance. It is fully compatible with the elastomeric seals and gaskets used in virtually all modern engines.

When the first Mobil 1 was introduced 30 years ago during the energy crisis, it was a very low viscosity grade (5W-20) that was optimized for fuel economy. At that time, engines were designed for much heavier grades of oil (e.g., 10W-40) and tolerances were much “looser” than in today’s engines. Sometimes, the original Mobil 1 formula used in an older engine would actually clean out the sludge build-up that was keeping the oil from leaking. Engine designs produced since the mid-1970s are made with tighter tolerances and better seals, and the phenomenon has disappeared.

Likewise, in an older engine in good condition – one that does not have oil leaks or one that has been rebuilt properly using new oil seals – Mobil 1 provides the same advantages as when used in a new engine. If an older engine has an oil leak, ExxonMobil recommends repairing the leak, then using Mobil 1.

Myth: You can’t mix Mobil 1 with other motor oils.

Reality:
Mobil 1 is fully compatible with conventional motor oils, semi-synthetic motor oils and other synthetic motor oils, should it be necessary to mix them. Of course, the superior performance characteristics of Mobil 1 will be reduced by diluting it. When mixing Mobil 1 with conventional motor oil, for example, the conventional motor oil in the mix will adversely affect the low-temperature flowability and high-temperature oxidation stability of Mobil 1. While Mobil 1 is compatible with conventional motor oils, it has an additive package that has been specifically developed to work with its own high-performance components. As with conventional motor oil, used Mobil 1 should be disposed of in an environmentally safe manner, and can be mixed with other used motor oils for recycling.

Myth: Mobil 1 requires a special oil filter.

Reality:
Mobil 1 does not require a special oil filter. The same type of filter used with conventional oil will give acceptable results.
Myth: You need to flush out your engine before switching to Mobil 1.

Reality:
No special preparation is necessary when converting from conventional oil to Mobil 1. As you would do at any oil change, change both the oil and the filter when switching to Mobil 1.

Myth: Mobil 1 can’t be used in diesel engines.

Reality:
Mobil 1 provides excellent service for passenger car and light duty truck diesel engines that call for API CD or CF quality oils as well as European diesel cars that require ACEA-quality oils. (This is the oil specification used in Europe and developed by European car companies.) Diesel engines that call for CI-4, CH-4 or CG-4 should use Mobil Delvac 1® synthetic engine oil or Mobil Delvac® MX Extra 10W-40.

Myth: Oil doesn’t really need to be changed regularly in modern engines.

Reality:
In addition to lubricating moving parts, oil is designed to carry combustion by-products away from the pistons and cylinders. It must deal with small amounts of water formed as the engine heats and cools, and with dirt and dust that enter the engine through the air-intake system. It may also have to deal with unburned fuel (fuel dilution) getting into the oil system.

The oil filter helps by removing any particles and abrasives, but even a high-quality filter can’t remove fuel and other liquid or chemical contamination from the oil. Eventually, the oil additives that disperse sludge-forming materials and prevent rust and corrosion are used up. When additive depletion reaches a certain point, the oil can no longer do its job and must be changed.

The rate at which contamination and additive depletion occur depends on many variables. High under-bonnet temperatures brought about by stop-and-go driving, the use of power accessories, mandated exhaust emissions equipment and turbocharging all contribute to oil deterioration. It is difficult, if not impossible, for the individual motorist to determine when the contamination level has become too high.

Automobile manufacturers therefore recommend oil changes at a certain time or mileage interval, whichever comes first. These oil change recommendations vary depending upon model year and manufacturer and with the type of service under which the vehicle operates. More frequent oil changes are always recommended for “severe service.”

Myth: You need to flush out your engine before switching to Mobil 1.

Reality:
No special preparation is necessary when converting from conventional oil to Mobil 1. As you would do at any oil change, change both the oil and the filter when switching to Mobil 1.
What Conventional Oil Does Well, Mobil 1 Does Better

It's important to review the many tasks that motor oil must fulfill inside an engine. Motor oil must:

- Lubricate and help cool moving parts.
- Carry combustion by-products away from the pistons and cylinders.
- Disperse small amounts of water formed as the engine heats and cools.
- Hold, in suspension, dirt and dust which can enter the engine through the air-intake system.
- Handle fuel leaks (fuel dilution) or coolant leaks into the oil system. Excess fuel dilution or a coolant leak indicates a mechanical problem which should be fixed as soon as possible.
- Prevent the formation of sludge, varnish and corrosion.

The oil filter helps by removing any particles and abrasives, but even a high-quality filter can't remove fuel and other liquid or chemical contamination from the oil. Eventually, the oil additives that disperse sludge-forming materials and prevent rust and corrosion get used up. When a motor oil's additive depletion reaches a certain point, the oil can no longer do its job.

Mobil 1 uses carefully selected individual components and a specially engineered formulation of additives, all of which are designed to perform better than conventional oil. Mobil 1 is optimally balanced with additives to handle sludge that could contribute to harmful deposits, and acid that could corrode metal surfaces. The chemically engineered high-performance fluids in Mobil 1 retain their viscosity at high temperatures to protect an engine longer than conventional motor oils will.

Oil Flow and Cold Weather

In “The Basics of Lubrication” section, you learned what is considered “severe” service by most manufacturers (and have probably come to the realisation that most people’s driving situations more than likely fit that description!). While “severe” service is tough on an engine, engine wear occurs in all engines, and the most critical moment when the most wear occurs is during start-up.

Prior to start-up, most of an engine’s oil is in its oil sump at the bottom of the engine. When an engine is started, it takes time to pump the oil from the sump through all of the passages throughout the engine. During this time, engine parts aren’t adequately lubricated. The quicker the oil can be circulated throughout the engine, the sooner critical engine parts will receive proper lubrication. Now imagine how much longer it takes to push oil through an engine when it’s cold.
Superior low-temperature performance is a major advantage of Mobil 1 as compared with conventional motor oils. Here’s proof. In a low-temperature pumpability test that ensures that oil will pump to critical engine parts in the “real world,” oil samples are cooled to a predetermined temperature over a 48-hour period. The “thickness” of the oil is then measured by determining the force needed to rotate a cylinder immersed in the oil. Due to the nature of its high-performance fluids, Mobil 1 0W-40 is capable of pumping at -47°C. Mobil 1 10W-30 will still pump at -41°C. At these low temperatures, conventional oils are essentially frozen solid. The pour point and pumpability temperatures for Mobil 1 are impressive:
• -54°C pour point and -47°C pumpability for Mobil 1 0W-40
• -48°C pour point and -41°C pumpability for Mobil 1 10W-30

Other blends of Mobil 1, such as Mobil 1 5W-50 & 15W-50, also have similar low-temperature capabilities.

An additional benefit of excellent low-temperature pumpability getting the oil to all parts of the engine quickly is that Mobil 1 reduces strain on the vehicle’s battery and starter while delivering oil sooner to critical parts of the engine such as camshafts and valve train. And with most engine wear occurring at start-up the sooner oil reaches these critical parts of the engine the less wear there will be. Because of this, many vehicle manufacturers owner’s manuals recommend using Mobil 1.

High-Temperature Protection
Of course Mobil 1 isn’t just for cold climates. In fact, Mobil 1 offers the same kind of superior protection for high-temperature environments or for situations where engine heat can take a toll. Situations such as towing, high performance applications or driving in outback conditions. At normal engine operating temperatures, Mobil 1 offers excellent wear protection and resistance to thermal breakdown, and once temperatures start to rise, Mobil 1 shines even more. In fact at Bathurst in 2002 when the radiator air intake of Mark Skaife’s winning HRT Commodore became blocked the engine oil temperature literally went off the dial, yet Mobil 1 protected the engine to the extent that after normal maintenance it went back into service for the next race.

The high-performance fluids in Mobil 1 will continue to perform at extreme temperatures, providing resistance to thermal and viscosity breakdown. Oil breakdown can be harmful to an engine because it leads to sludge and engine deposits.

Mobil 1 is capable of protecting engines at up to 204°C. For this reason and many others, many top racing teams in Formula 1, V8 Supercars, Nascar, Indy and SportsCar racing amongst others choose Mobil 1 technology to protect high performance race engines. Importantly, today’s high-tech engines, especially those with turbochargers, can benefit tremendously from this high temperature protection. Mobil 1 flows so easily, even in cold climates, that it can help provide added protection to turbocharger bearings when starting a cold engine. Remember, a turbocharger spins at up to 100,000 rpm, so lubricating its bearings is essential.

Perhaps even more important is keeping the turbocharger’s bearings cool after the engine is shut down. Once the engine is shut down in oil-cooled turbos, the oil flow stops but the turbo stays hot, heating up the small amount of oil surrounding the turbo bearings. In those critical moments, Mobil 1’s superior high-temperature performance offers added protection to the turbo bearings to help prevent the oil from “coking” – literally turning to carbon.

Mobil 1 also provides excellent service for passenger-car and light-duty-truck turbo-diesel engines that call for an API CD or CF oil, as well as European diesel engines that require ACEA-quality motor oil.

A History of Mobil 1 Credentials
Over the years and through several generations, Mobil 1 has been tested under the most grueling circumstances imaginable. Each test has yielded confirmation of the incredible performance of Mobil 1. And each evolution has made Mobil 1 even better.

One Million Miles on Mobil 1
As one example of the level of testing undertaken, a 1990 model BMW car was tested for 1,000,000 miles (1,600.00 km) with Advanced Formula Mobil 1 and showed extremely low wear. Oil drain intervals were 7,500 miles (12,000 km), as specified by the manufacturer, and Mobil 1 was used from the very first day of testing.

After the end of the test, with 1,001,120 miles (1,601,792 km) on the vehicle, the engine was removed and internal components were inspected and measured. Overall engine wear was extremely light. In fact, with the exception of light to moderate wear on the camshaft and followers, no other significant engine wear was noted. Oil consumption over the entire test was equivalent to just one litre every 40,000 kilometres.

A 200,000-Mile Comparison
Another high-mileage test compared identical 2.3-litre four-cylinder engines run for 200,000 miles (320,000 km) – one using Mobil 1 5W-30 and the other using a premium brand 5W-30 conventional oil. There were some interesting results:
• Engine-wear rates were higher for the conventional oil than for Mobil 1.
• The conventional oil produced heavy varnish deposits, while Mobil 1 kept the engine clean.
• Consumption of the conventional oil was eight times higher than that of Mobil 1.
• While Mobil 1 remained at the SAE 30 viscosity level throughout most of the test, the conventional oil showed rapid degradation, with its viscosity increasing into the 15W-40 range. This obviously would adversely affect any cold start fuel economy performance benefits.
High-Stress Engine Test
An earlier formulation of Mobil 1 was also subjected to an engine test that demonstrates the oxidative stability and wear protection of an oil under high-temperature conditions. This test of Mobil 1 was derived from a Sequence III E engine test and was run using a GM 3.8-litre V6 engine with the oil kept at a constant 149° C in the oil sump. While the Sequence III E test is normally run for 84 hours, this Mobil 1 test was run four times longer. And even after 256 hours, Mobil 1 still provided oil protection.

Keeping in mind that these tests were conducted with earlier formulations of Mobil 1, ExxonMobil engineers are confident that Mobil 1 will provide even greater protection than its predecessors.

The SuperSyn™ Story
The story of SuperSyn™ is an interesting one. It was developed by ExxonMobil researchers several years ago, but its use in Mobil 1 initially came about as a result of requests from the drag racing community. NHRA “funny cars” have super charged engines fuelled with nitro-methane, which produce upwards of 5,000 horsepower for very brief periods of time – just enough to get the car down the quarter-mile dragstrip. The internal pressures and strains on the engines moving parts are tremendous, and engine failure is common.

Using an experimental Mobil 1 formulation with the addition of the SuperSyn™ system, the drag racers found that engine bearings and other lubricated parts were lasting longer. In fact, in one case where an “over-fuelled” engine literally blew apart, the connecting rod bearings were deformed by the incredible pressure but the Mobil 1 still held up! Mobil 1 with SuperSyn™ was also tested in NASCAR race cars under super-heated conditions, and it provided incredible performance.

Realising that SuperSyn™ Technology could add an extra element of protection to road-going passenger cars, ExxonMobil engineers began the development of a new formulation of Mobil 1. Combined with a proprietary additive system, SuperSyn™ Technology offers another line of defence against engine wear, coming into play in extreme situations where it is needed most – such as towing a trailer up a hill, labouring an engine over a mountain or dealing with a sudden overheating situation.

Motorsports vs. Short Trips
More proof of Mobil 1’s superiority is its use in racing, both by sponsored teams and by enthusiasts racers who bring out their pride and joy for weekend competition. Mobil 1 is used by the top teams in Formula One, V8 SuperCars, NASCAR, IndyCar and Sports Car racing to provide the protection and reliability that is needed to win championships. But it isn’t just the resistance to extremely high temperatures that has captured the interest of racing teams. Race teams have found that Mobil 1 can actually reduce an engine’s internal friction and thereby help it produce more horsepower.

As visible and exciting as racing is, it still does not represent the toughest test of a motor oil. Racing teams warm their engines carefully to operating temperature and change their oil often. Compared to driving in stop-and-go traffic, a racing lap at Bathurst is easy for a motor oil!

Short trips (less than 15 kilometres) don’t allow the engine to warm up enough to drive off corrosion-producing acids and moisture in the oil. When the engine finally does warm up, excess heat can build up while idling at a traffic light. The slow speeds of city driving don’t provide enough airflow to cool things down. Labouring the engine at low speed and the heavy use of accessories like air conditioning put a tremendous strain on the engine.

All of these scenarios present an ideal case for the advantages of Mobil 1 over conventional oils. With the excellent film strength of its high performance fluids, plus its finely tuned additive package, Mobil 1 can offer the advantages of:
- Better low-temperature performance.
- Better lubrication at high engine-operating temperatures.
- Better wear protection, especially during start-up.
- Long-term wear protection.

• Outstanding protection against deposits and sludge. Mobil 1 has been proven. In laboratory tests, in long-term wear tests, in the severe service of real-world usage and in the extremes of motorsport.