

WORDS BY BEN NIGHTINGALE

OILS AIN'T OILS

STREET COMMODORES PULLS OUT ALL THE STOPS
AND TESTS 18 SEMI AND FULLY SYNTHETIC MOTOR
OILS AND BRINGS YOU THE SURPRISING RESULTS

TESTING PROCEDURE AND EQUIPMENT

First up, we went into the local auto parts shop near the office and grabbed one of everything on the synthetic-oil shelf. The sales assistant looked at us as though we were crazy, and we are still wondering why it's no big deal to spend \$1000 on oil, is it? With the oil purchased, it was off to the testing area to try them all.

The test we carried out on each of the oils is a measurement of the film strength properties of lubricating fluids, with the test equipment used being manufactured by Fates, a world leader in tribology test equipment. It is known in the industry as the Fates Lubricity Tester and gives a result very similar to the 'Timken OK Load Rating Test'.

In the early 1900s, as a result of significant increases in horsepower and speeds in all types of industrial and automotive applications, extreme-pressure lubricants became popular. However, there was no standard to obtain comparative data on these lubricants.

In response, Timken engineers developed a lubricant test machine, which provided an economical and reliable means to determine the film strength characteristics of lubricants. In 1905, the company began producing and selling lubricant test machines. The lubricant test quickly became an industry standard.

The maximum load – in pounds – a lubricant could withstand without failure due to breakdown of the lubricant film became known as the 'Timken OK Load' rating and is still an industry standard today.

As you can see in our images, the machine is pretty simple. A race spins on a shaft spun by an electric motor, with an arm holding a small Timken test bearing, which is placed on the race.

The oil bath is filled with the oil sample, and the motor is switched on to lubricate the race (pic left). Then the bearing is placed on the race (pic three), and the lever arm is loaded up (pic four) with individual 2lb (910g) weights to test the film strength of the oil sample. The lever accelerates the weight, effectively putting a 75lb stress on the bearing.

In between each run, the Timken test bearing is replaced with a new one and the oil bath is cleaned thoroughly with Propanol. The race is smoothed of any damage with emery paper and cleaned thoroughly with Propanol.

To work out the load bearing capability of the oil in PSI, we used this formula:

$$\text{Loading weight in lb} \div 1 \times 32.858 \\ (\text{Scar length in mm})$$

Think of the weight we are adding as big rivets or blood-pumping pressure on the big ends and you will get an idea of how important film strength is in your choice of lubricant. It could be the difference between a healthy, happy engine and a mess of metal shreds, tears and broken dreams.

We have to make clear that this experiment only tests one specific attribute of each oil, so while the oils we tested may have performed poorly under these test conditions, they may perform better in other tests. Your engine bearings have a much larger surface area than in our test (obviously), so the wear characteristics will not be anywhere near as severe.

The idea of this test is to demonstrate long-term wear in a short period of time, giving an idea of how a lubricant can protect your engine over long distances and periods of time.

With this being said, when combined with the various claims of the manufacturers, these results can be used to make a more informed decision next time you are purchasing oil for your car.



WHICH OIL IS RIGHT FOR YOU?

The current and previous API Service Categories are listed below. When looking to buy yourself oil, all API-certified oils should carry a service category identification somewhere on the bottle to show what category it meets.

For automotive petrol engines, the latest engine oil service category includes the performance properties of each earlier category. If an automotive owner's manual calls for an API SJ or SL oil, an API SM oil will provide full protection. Whilst the SM rating is the latest, API SM is not an improvement in the eyes of many oil companies. SM is an emissions dictated change, and as a result the oils in this category are strictly limited in the amounts of certain additive components in their make-up, as there is a 'bar' held by the American OEM's that they would not be able to meet the new mandated emissions requirements. These requirements state that emissions system components must have an EPA Warranty* of 8-10 years and 100,000 miles (160,000km) for the catalytic converters. So, whilst SM is the latest, it may not be the greatest for your engine.

Category	Status	Service
SM	Current	For all automotive engines currently in use. Introduced 30 November 2004. Some SM oils may also meet the latest ILSAC specification and/or qualify as energy conserving.
SL	Current	For 2004-and-older automotive engines.
SJ	Current	For 2001-and-older automotive engines.
SH	Obsolete	For 1996-and-older engines. Valid when preceded by current C categories.
SD	Obsolete	For 1993-and-older engines.
SH	Obsolete	CAUTION — Not suitable for use in petrol-powered automotive engines built after 1979.

ADDITIVES

When buying motor oil, you aren't just buying the oil but a slew of other chemical additives as well. Oil manufacturers have long been adding extra contents to your engine oil to improve various aspects of the oil for longer service life or engine protection.

Generally, your oil will contain additives such as anti-foaming agents, anti-oxidants, corrosion inhibitors, detergents and dispersants, and demulsifiers.

A few other more complex and intriguing additives can also appear, such as EP (Extreme Pressure) additives that prevent sliding metal surfaces from seizing under conditions of extreme pressure.

To reduce the tendency of an oil to change viscosity with temperature, Viscosity Index Improvers (VI) are chemical additives that are added to finished lubricants to improve the viscosity index.

While a good idea in principal, VIs can break down under shear or over time, degrading performance. It just goes to show that oil isn't oil.



API CERTIFICATES

API's Service Symbol and Certification Mark identify quality engine oils for gasoline and diesel-powered vehicles. Oils displaying these marks meet performance requirements set by US and international vehicle and engine manufacturers, and the lubricant industry.

More than 500 companies worldwide participate in this voluntary program, which is backed by a marketplace sampling and testing program.

An oil displaying the starburst mark meets the current engine-protection standard and fuel-economy requirements of the International Lubricant Standardization and Approval Committee (ILSAC) – a joint effort of US and Japanese automobile manufacturers. Most automobile manufacturers recommend oils that carry the API Certification Mark.

SHELL HELIX ULTRA 5W-40

Cost: \$47.99
 API Rating: SL/CF
 Amperage: 4.3
 Load Rating: 4lb
 Scar Length: 8mm
 Pressure Resistance: 2067.03psi

What it says:

Shell Helix Ultra delivers maximum engine clean-up properties, with special cleaning agents that actively and continuously lock away harmful dirt and deposits.

Shell Helix Ultra provides remarkable long-term oxidation stability, giving your car's engine extended protection from wear. It also minimizes engine noise and conditions, and protects engines from the stresses of driving in modern traffic. With Shell Helix Ultra, you know you are doing the right thing for your car. It's suitable for petrol, LPG and diesel vehicles.

What we say:

Here was another surprise from a high-profile fully synthetic oil, with the test results falling far short of all the marketing hype.

We only needed to place two weights on the lever before we heard the metallic screeching that told us the oil film had been broken. The motor was pretty well loaded up as well, with the ammeter showing 4.3. The resultant scar on the test bearing was 8mm long, with the initial gauges being smoothed by the metal-on-metal contact. It left plenty to be desired.

**GULF WESTERN ULTRA 15W-50**

Cost: \$25.99
 API Rating:
 Amperage: 4.1
 Load Rating: 2lb
 Scar Length: 7mm
 Pressure Resistance: 2011.71psi

What it says:

A semi-synthetic version of Protecta Multi-Visc, Protecta Ultra provides superior protection against engine wear, reduces friction and maintains engine cleanliness. It's also an ideal mixed fleet lubricant for the person seeking advanced lubrication protection. It meets 15W-50 API SL/CF4.

What we say:

This was the cheapest oil on the test and yet not the worst performer. At \$25.99 for 5L, it definitely comes in first on the pricing scale, and in the wear test it did not finish last by any means.

Only 2lb on the lever were necessary for the oil film to succumb to the pressure and allow metal-on-metal contact, with the resultant scar measuring in at 7mm. The motor loaded up to 4.1A on this run, showing some significant friction, but the pressure resistance of the oil proved to be higher than some of the other oils tested at much higher prices.

**PENNZOIL GT PERFORMANCE SEMI-SYNTHETIC 10W-40**

Cost: \$37.99
 API Rating: SL
 Amperage: 3.7
 Load Rating: 6lb
 Scar Length: 5mm
 Pressure Resistance: 9000.24psi

What it says:

Pennzoil's GT Performance blend 10W-40 engine lubricant is specifically designed for the high-performance, competition sports car. The synthetic-based formula gives optimum engine efficiency under extreme load, providing the added protection required for the high-output street car (turbo and non-turbo).

The additional high-temperature anti-oxidants help lubricate the critical areas, such as cylinder walls, pistons, rings and valve stems, effectively reducing drag and engine wear under extreme driving conditions.

What we say:

This mid-priced synthetic-blended oil did reasonably well in its price range, with three weights needed to break the film and a 5mm scar being left behind when it was broken.

This scar was significantly smaller than many of the more expensive oils, with the amperage of the electric motor hitting a top of 3.7, which shows that the oil did a reasonably good job of lubricating the bearing's surfaces. Pressure resistance is a bit over 9000psi, which is much better than some, but far lower than others. It was pretty good for the price.



FUCHS TITAN SUPERSYN MB 5W-30

Cost: \$49.99
 API Rating: S/SP
 Amperage: 4.4
 Load Rating: 4lb
 Scar Length: 7mm
 Pressure Resistance: 3352.86psi

What it says:
 A fully synthetic high-performance fuel economy engine oil for specific passenger cars with extended oil drain. It's extremely fuel efficient.

What we say:
 This stood up to the pressure test better than some of the more expensive oils, but the test still left significant damage on the test bearing. The oil film was broken with a 4lb weight on the lever arm, and interestingly the ammeter jumped to 4.4A.

What this tells us is that there was significant friction between the bearing and race, meaning the motor was working harder to turn the race. The scar on the bearing was 7mm long but was less rough than some of the other tests.



MOTUL TURBOLIGHT 10W-40

Cost: \$49.99
 API Rating: S/CF
 Amperage: 4.0
 Load Rating: 2lb
 Scar Length: 8mm
 Pressure Resistance: 1943.22psi

What it says:
 A synthetic-based lubricant - "Technosynthese" - designed for high-performance engines (petrol, diesel, LPG and turbocharged). It offers reinforced protection against wear, easy cranking at cold temperature, good heat stability and is suitable for extended drain intervals.

What we say:
 This is one of the synthetic blends that we used in the test, and it definitely underperformed considering some of the manufacturer's claims.

The most interesting part was the significant wear that we experienced on the bearing, with a deep, long and rough scar evident upon examination. With the claims of reinforced protection against wear, this was concerning to say the least.



MOTUL 0W-40

Cost: \$92.99
 API Rating: S/CF
 Amperage: 4.1
 Load Rating: 2lb
 Scar Length: 7.5mm
 Pressure Resistance: 1752.43psi

What it says:
 A 100-percent synthetic lubricant, based on ester technology, specially designed for the latest generation of powerful engines (petrol, diesel, LPG, turbocharged and direct injectors). It offers boosted performance, optimum protection against wear under the most intensive and sportive driving conditions, and easy cranking at very cold temperatures.

What we say:
 Being one of the most expensive oils in the test, one would assume that it would perform well under our test conditions given the claims from the manufacturer. This was not the case, as the result shows.

The oil film only took 2lb to break, with the bearing showing a 7.5mm scar at the end of the test. Pressure resistance was one of the lowest exhibited in our test and certainly raised a few eyebrows. It performed only marginally better than its Turbolight stablemate, at nearly double the price. It definitely shows that you don't always get what you need for.



ELF EXCELLIUM GP 5W-40

Cost: \$54.99
 API Rating: SL/CF
 Amperage: 4.2
 Load Rating: 20
 Scar Length: 8mm
 Pressure Resistance: 1040.20psi

What it says:

Elf Excellium GP is a fully synthetic lubricant meeting the most stringent technical standards and is specifically formulated for use in very high-performance petrol engines. It's formulated with the latest in additive technology to produce this premium engine oil.

It exceeds the new API SL requirements. It is designed for better fuel economy, improved piston and engine cleanliness, reduced volatility for lesser top-ups, oxidation stability at very high engine temperatures, the best protection against engine wear, overall better engine performance and environmental protection with reduced pollutants emission.

What we say:

Having heard plenty about Elf and seeing a lot of its advertising in regard to motor racing, the Elf product was expected to do pretty well in the test.

It was not to be in the end, with the film strength of the oil proving to be only slightly resistant to pressure, with only 20psi needed to break through the film. The scar was 8mm long, which is large, but also quite deep and rough. It was not a particularly good result at all.



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MOBIL 1 0W-40

Cost: \$69.99
 API Rating: SM
 Amperage: 4.1
 Load Rating: 2b
 Scar Length: 8mm
 Pressure Resistance: 1540.22psi



What it says:

The new Mobil 1 0W-40 is a 100 percent fully synthetic motor oil formulated with the patented SuperSyn anti-wear technology. It provides outstanding protection, even during extended-use driving, coupled with excellent fuel-economy performance.

Mobil 1 offers unsurpassed protection for high-tech multi-valve engines, helps keep your engine running like new, improves engine protection during the critical start-up period, has excellent high- and low-temperature performance and a proven low fuel-consumption formula.

What we say:

The results truly speak for themselves in the case of Mobil 1. I have to say that we were truly astounded by them as well. It was outperformed by oil half the price and even by its semi-synthetic stablemate, Synth S.

It took only 2b to break through the oil film on the race, with the test leaving an 8mm scar on the test bearing and slight scorch marks from the heat caused by metal-on-metal friction.

After seeing so much advertising over the years for this lubricant, we were extremely surprised by the results and am sure you will be, too.



MOBIL SYNTH S

Cost: \$34.99
 API Rating:
 Amperage: 3.9
 Load Rating: 6b
 Scar Length: 6mm
 Pressure Resistance: 6269.56psi



What it says:

Synthetic technology from the makers of Mobil 1, Mobil Synth S 10W-40 provides outstanding protection for petrol- and diesel-powered vehicles. It gives excellent engine cleanliness and wear protection, enhanced high- and low-temperature performance, improved fuel economy and easier starting at low temperatures.

What we say:

Mobil Synth S is a synthetic blend from the Mobil range - sort of a little brother to Mobil 1. The amazing thing about it was that while not providing amazing extreme-pressure capabilities, for its price it did not perform too badly at all.

Even more amazing is the fact that it outperformed Mobil's flagship oil, Mobil 1, which is heavily publicised as being one of the most advanced motor oils on the market. The scar left on the test bearing for the Synth S was a not inconsiderable 6mm, with 6b being enough to break the film. As a cheaper oil, it did reasonably well.



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 VT-VX Sedan



VY RB-Style Kit To Suit VT-VX Sedan



PENRITE HPR 5 SEMI-SYNTHETIC 5W-40

Cost: \$43.99
 API Rating: SM/CF
 Amperage: 4.2
 Load Rating: 6b
 Scar Length: 7mm
 Pressure Resistance: 4664psi

What it says:

Penrite is an all-Australian company obsessed with producing the best possible engine lubricants to meet the needs of today's motorists. We are continually testing and developing new technologies to ensure that our oils maintain and deliver a performance second to none.

HPR 5 has been specifically formulated to save you money by maximising oil life, reducing oil consumption, extending engine life, minimising wear and corrosion, improving oil pressure and providing superior high-temperature protection.

HPR 5 is designed to outperform and exceed manufacturer requirements in the latest-generation conventional, turbocharged and supercharged petrol engines where SAE 5W-20 is required.

What we say:

One of the mid-range-priced oils in this test, HPR 5 is a semi-synthetic lubricant from the large Penrite HPR range. It took 6b to break through the oil film of the HPR 5 test sample, which isn't too bad, but when it did it left quite a large scar on the test bearing.

The scar measured in at 7mm long, with some slight scoring on the edges from the heat encountered. So while the fully synthetic 5 oil from Penrite did extremely well, the HPR 5 semi-synthetic was not quite as good, and considering the price differential, this should be the case.

**RED LINE SYNTHETIC 5W-40**

Cost: \$119.99
 API Rating: SL/SJ/SN
 Amperage: 3.8
 Load Rating: 6b
 Scar Length: 6mm
 Pressure Resistance: 6389.06psi

What it says:

Red Line's synthetic engine oils are designed to provide the highest protection, cleanliness and superior drain intervals with the lowest friction for your petrol, diesel, motorcycle or marine engine.

Red Line uses the most stable components available and formulates its products for wear protection and friction reduction across a wide range of engine-operating conditions.

Red Line's products are unique because they contain polyol ester base stocks - the only lubricants that can withstand the tremendous heat of modern jet engines. These synthetics have a natural multi-grade property that allows Red Line's chemists to avoid bulking up an oil with unnecessary additive packages.

Red Line's 5W-40 engine oil provides for quicker lubrication and easier start-up. It reduces turbo lag and provides more power and economy in a properly functioning engine, while providing 25-percent thicker oil films than a petroleum 5W-40 or 10W-40.

It's recommended for many late-model European vehicles and as a factory fill replacement in many newer VW, Porsche and Mercedes-Benz applications.

What we say:

This was the second most expensive oil on the test, so we expected it to perform - especially with the testimonials from the manufacturer. Put simply, it didn't, with the film breaking with 6b on the lever and a scar length on the test bearing of 6mm.

Its extreme-pressure properties were not as good as some of the far less expensive oils, and having heard much about the racing pedigree of this oil, we were expecting far better.

One thing that also disappointed with this oil was the packaging - it only comes in a 3.7L bottle and has absolutely no information about the oil anywhere on the packaging. We're not sure if perhaps our bottle was simply missing the rear label.

SHELL HELIX PLUS SEMI-SYNTHETIC 15W-50

Cost: \$26.99
 API Rating: SM/CF
 Amperage: 4.0
 Load Rating: 4lb
 Scar Length: 7.5mm
 Pressure Resistance: 2920.71psi

What it says:

Shell Helix Plus delivers exceptional cleaning properties, with special cleansing agents that actively and continuously lock away harmful dirt and deposits, rejuvenating and refreshing your engine in addition to providing superior engine protection. With Shell Helix Plus, you know you are doing the right thing for your car. It's suitable for petrol, LPG and diesel vehicles.

What we say:

This was the second cheapest oil on the test and - as in the case of the Mobil products - actually outperformed its much more expensive Hella Ultra stickers. It wasn't by much, however, with the oil film broken at 4lb of weight, and at an amperage of 4.0 on the electric motor, the scar left a 7.5mm scar on the test bearing.

This definitely wasn't the worst on the test, again demonstrating the fact that money isn't always the mitigating factor when it comes to quality.



ELF COMPETITION GT 10W-40

Cost: \$39.99
 API Rating:
 Amperage: 4.2
 Load Rating: 2lb
 Scar Length: 8mm
 Pressure Resistance: 1540.22psi

What it says:

Elf Competition GT is a premium-quality synthetic-based lubricant designed to meet the demands of today's highest performance petrol-engined cars. The latest in additive technology has been used to blend this engine oil to meet the new API SL requirements.

Elf Competition GT is designed for better fuel economy, improved piston and engine cleanliness, reduced volatility for lesser top-ups, oxidation stability at very high engine temperatures, the best protection against engine wear, overall better engine performance and environmental protection with reduced pollutant emission.

What we say:

We got pretty much the same result from Elf's Competition GT as we did with the Exxon oil, with the same wear characteristics on the bearing and the same pressure-handling capability.

Again the scar was 8mm long, with only 2lb needed to break through the film. This is particularly interesting considering the fact that the Exxon cost \$15 more than the Competition GT.



CASTROL FORMULA R 0W-40

Cost: \$67.99
 API Rating: SM/CF
 Amperage: 4.0
 Load Rating: 2lb
 Scar Length: 7mm
 Pressure Resistance: 2011.72psi

What it says:

Castrol's Formula R range of high-performance engine oils has been developed using technology tested under the most extreme conditions - race conditions! Repeatedly proven in Formula One, World Rally, V8 Supercars, Porsche Cup, GTP and drag racing, Castrol's Formula R range has the right product for your car.

Castrol Formula R Synthetic 0W-40 is recommended for the latest technology and prestige engines, including sports cars and luxury sedans. The free-flowing 0W-40 viscosity significantly reduces friction, delivering more power with greater protection.

What we say:

With Castrol having been a major player in the oil industry for so long and with its mass exposure and advertising through many and various forms of motorsport, we certainly expected this oil to perform.

Unfortunately, when push came to shove, it left a bit to be desired, only able to withstand 2lb of weight before the film broke, leaving a 7mm scar on the test bearing sample. It was a rough scar with ragged edges. The pressure resistance was on the lower end of the spectrum of our test, which definitely surprised us.



VALVOLINE DURABLEND 10W-40

Cost: \$41.99
 API Rating: SL/CF
 Amperage: 3.7
 Load Rating: 80
 Scar Length: 3mm
 Pressure Resistance: 23,850psi

What it says:

DuraBlend is a premium synthetic blend-based formula for higher performance than conventional oils and a better value than full synthetics. Developed with advanced technology, this formula ensures longer engine life.

DuraBlend synthetic blend offers improved wear protection at start-up, greater high-temperature protection, improved deposit control for cleaner engines, increased oil flow at low temperatures, superior protection for petrol, diesel, turbo and high-performance engines, and improves fuel economy.

What we say:

There is a surprise packet in every test, and in this test it was most definitely the Valvoline DuraBlend 10W-40.

Despite its blanket advertising with the famous 'you know what I mean' catchphrase, Valvoline has always been considered as being in the lower end of the spectrum in regards to engine oils. This is because of its low price point, which helps it be both popular with the average motorist and competitive against other brands.

This synthetic blend retails at just over \$40, and in this test it performed far better than all of the other oils in a similar price point. The test left a 3mm scar on the bearing, still noticeable but far smaller than many of the others.

In fact, it beat the majority of the oils that were more expensive, some of which are nearly triple the price. It definitely spells good value for money.



ROYAL PURPLE 10W-40 MULTIGRADE

Cost: \$79.99
 API Rating: CF, CF-2/SJ
 Amperage: 3.7A
 Load Rating: 80
 Scar Length: 1.5mm
 Pressure Resistance: 131,400psi

What it says:

Royal Purple motor oil is the only motor oil formulated with Royal Purple's proprietary Syntec™ additive technology. The Syntec additive technology forms a tough, synthetic, lubricating film on all metal surfaces, providing superior wear protection and improved engine performance.

It also fortifies the oil against heat-induced oil oxidation, thereby increasing the service life of the oil. It increases horsepower, has better wear protection, increases fuel economy, reduces exhaust emissions and keeps engines clean. It meets or exceeds API service CF, CF-2/SJ.

What we say:

This Syntec stuff really seems to work, as the wear on the bearing was negligible and actually demonstrated one of Royal Purple's claims - micro polishing. The point of contact on the bearing does not have a low spot but has been polished. Unlike many of the other oils, the spot has no scratches or grazes - it is perfectly smooth - very impressive.



ROYAL PURPLE R51

Cost: \$30 per liter
 Amperage: 3.7
 Load Rating: 88
 Scar Length: 1mm
 Pressure resistance: 296,722psi

What it says:

Royal Purple Racing 51 is a multi-viscosity, synthetic racing oil specifically designed to increase both the horsepower and torque of racing engines. Superior synthetic oils and non-corrosive EP additives provide maximum protection against the extreme loads and high speeds, and temperatures of modern high-performance racing engines.

Racing 51 is formulated for medium-to-large displacement engines using either racing fuel or methanol. It is also ideal for turbocharged and supercharged engines. Viscosity is similar to a 20W-50 multigrade oil.

What we say:

Being the most expensive oil on the test, we expected big things from this lubricant, and it did everything that the manufacturer claimed, leaving next to no scar on the test bearing. The motor running at low amperage demonstrated the fact that this oil is extremely resistant to high-pressure.

We actually did a separate test on this oil to test out the manufacturer's claims about cold starting. While we had the Timken machine running, we actually removed the oil bath, and the wear on the bearing you see in the photo is the result. Even without the oil bath, the wear was equal to the best amount of any of the oils tested. It impressed us immensely.

PENRITE SYNTHETIC
5 5W-60

Cost: \$74.00
 API Rating: SUCF
 Amperage: 3.9A
 Load rating: 88
 Scar Length: 1mm
 Pressure Resistance: 296,722psi

What it says:

Pennrite Synthetic 5 SAE 5W-60 utilizes 100 percent full-synthetic Group IV and V base oil stocks. It meets the requirements of ACEA A3/B3/B4 and API SUCF, and is non-friction modified. It is primarily intended for all modern high-performance naturally aspirated, supercharged or turbocharged petrol engines.

It is highly recommended for competition and long-distance circuit racing. It's recommended for other

circuit racing where petrol, kerosene or methanol is being used. It may also be used in other light (up to 3.5L GVM) petrol, LP gas and diesel vehicles, and offers reduced oil consumption due to the low volatility of synthetic base oils.

It delivers exceptional protection across extremes of temperature, optimum protection at start-up and fuel economy during warm-up due to excellent low-temperature properties. Extended oil-change intervals compared with mineral-based and even part-synthetic lubricants is another feature.

What we say:

We were expecting good things from this oil, with Pennrite having a well-respected name in the industry. It did not disappoint, with the wear point showing only the slightest wear, if any, and stood up to both the heat and pressure very well.

The claims from Pennrite in regard to excellent high- and low-temperature properties ring true, and the indications from this test show this to be a very high-quality oil.



CONCLUSION

We purchased all of these oils from local retail spare parts outlets such as AutoBarn and Super Cheap Auto. They are readily available off the shelf, and the prices marked are what we paid.

The testing procedure was run under the

same operating conditions for each sample, with the testing equipment thoroughly cleaned after each run to ensure that no contamination could occur.

As mentioned in the Testing Procedure breakout, we are not claiming this to be a con-

clusive test and are planning further tests on the better-performing oils in coming months. In these tests, we'll go into some in-engine testing to check for things such as metal deposits and breakdown to obtain more comprehensive and detailed results. **SC**