



Shell Aviation

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the

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THE LOVE OF FLYING

FINNISH AEROBATICS PILOT SAMI KONTIO IS REACHING NEW HEIGHTS WITH THE HELP OF SPONSORSHIP FROM SHELL AVIATION

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IAIN JACK, GA MARKET DEVELOPMENT MANAGER LUBRICANTS – AVIATION, LOOKS INTO PROPER OIL USE IN WINTER CONDITIONS.



Engine wear that can result from incorrect wintering procedure.

OIL STRATEGY FOR WINTER

THE ONSET OF WINTER BRINGS SHORTER DAYS AND WEATHER CONDITIONS THAT SHOULD PROMPT EVERY PILOT TO THINK ABOUT HIS ENGINE AND THE OIL IN IT.

Colder weather causes an increase in condensation. The resulting water combines with the engine oil and by-products from the combustion process to form an acidic environment for the internal engine components.

Why? Aviation engines still use a fuel that contains a large amount of lead. Avgas 100LL contains about eight times the lead content of even the old leaded road fuels. This poses a problem for the oil.

Lead by-products, found in the exhaust blow-by gas and in raw fuel, find their way over time into the oil. These quickly form sludge deposits. To counter this, a bromine-based lead scavenger is added. Unfortunately, if water is present, a reaction occurs which leaves an acidic characteristic within the oil. The resulting rust formation on parts such as cams, lifters and cylinders will cause obvious concern.

Equally worrying is the resulting iron oxide contained within the oil. Once the engine has been started, it will travel through the entire oil system. While some of the larger pieces will filter out, many of the smaller pieces will remain in the oil and can act as a grinding paste on critical surfaces, causing increased wear, reduced engine life and potentially higher maintenance bills.

If you are able to fly at least every two weeks, the problem will evaporate – literally – as the engine temperature rises. You are actually boiling the water off during flight. If

Engineers commonly see failed cam lobes and followers caused by the wrong oil for the season.



Photo copyright: Loren Rodgers/Shutterstock

you are not certain that you will be able to fly this regularly, it is extremely important that you drain the old engine oil and replace with fresh clean oil.

A good rule of thumb for changing aviation piston engine oil is to change it every four months. There are of course at least two exceptions:

- **More frequent flying** – If you are able to fly frequently with correct oil temperature, you should adjust the four-month rule accordingly. Change your oil after 50 hours if you have flown the hours in less than four months. If your engine doesn't have an oil filter, change it after 25 hours. Always remember that the four-month rule is the most critical.
- **Less frequent flying** – It is a fact that over recent years, the annual flight hours of many leisure/private aircraft have decreased. And inactive engines will form rust. Even though some aviation oils contain corrosion inhibitors, they are unable – contrary to some companies' marketing claims – to provide an adequate defence to a corrosion attack of this type. These

products are designed for low-use aircraft, not extended periods of inactivity. Specific products such as AeroShell Fluid 2F or 2XN were developed for this issue and should be considered if you plan to lay up your aircraft for four months or longer.

The second issue is using the grade of oil suitable for the weather. Engineers commonly see failed cam lobes and followers resulting from the operator failing to change the oil with the seasons. Do you leave W100 in your engine when winter comes around and the temperature drops?

Engine maker Lycoming gives the following temperature ranges for single grade oils:

- 100 Grade oil (SAE 50) – above 60°F (16°C).
- 80 Grade oil (SAE 40) – 30°F to 90°F (-1°C to 32°C).

All oils become thicker as the temperature is reduced, but the relationship is an exponential one, meaning that differences between grades are modest at high temperature, but become very large at low temperature. This is significant as the use of the incorrect grade of engine oil can cause engine damage on

Shell LubeAnalyst and your piston engine

Operators of piston-engine light aircraft all over Europe can now take advantage of Shell LubeAnalyst service. The programme, which has been running in some countries for about two years, is now available throughout the continent.

Olivier Proce, major account manager – West Europe and a Shell technical advisor on lubricants, describes Shell LubeAnalyst as a “health check” for your oil and engine, a condition-monitoring service designed to help keep your aircraft engine running smoothly.

Using a kit provided for a competitive price via the Shell LubeAnalyst website, operators send pre-paid samples of their engine oil to the Shell lab where they undergo tests for viscosity, fuel contamination and presence of water, and spectrometric analysis for 19 elements. Shell Aviation provides a report which includes results of the tests and any recommendations for engine care and maintenance arising from them.

“It’s a contribution to the maintenance programme,” says Olivier, “and through the test results you get a cost-effective overview of your lube system.”

The process takes just a few days. Your results are made available for you to access on the secure website as soon as testing is completed, within a day of receiving the oil sample.

An added benefit of the service is that regular oil sample analysis will help operators identify abnormal engine wear early, enabling them to take appropriate action.

- To get a free analysis, register on www.lubeanalyst-shell.com and order a sample kit (Kit 2). The website contains instructions for use of the kit and taking an oil sample. Alternatively, you can contact your local Shell Aviation representative.

start-up as the oil is too heavy, becomes syrup-like, difficult to pump and takes a long time to reach all areas of the engine. The aim of using a ‘thinner’ oil during colder months is to ensure that the oil achieves the correct viscosity and to provide the optimum lubrication when the engine is at operating temperature.

Single-grade oils have been successfully used for many years in aviation engines, but the key to making them work properly is to be careful to use the right oil for the weather. This should cause little inconvenience to the operator who follows the four-month rule.

AeroShell Oil W80 and AeroShell Oil W80 Plus for lower-use aircraft are perfectly suitable for the winter months.

One of the other main advantages of single-grade oils is that they are cheaper, but we are seeing a growing trend of operators using single-grade oils in the summer months and then changing to a multigrade for optimum oil circulation during the winter.

The main reason for this is ‘cold start’. Poor oil circulation during start-up is recognised as a main cause of engine wear. Controlling the time of optimum oil circulation is of primary importance when designing an oil to be used in any climate.

The best way of explaining this is to refer to the ‘15W’ part of the product name AeroShell Oil W15w/50. This refers to the low temperature performance of the oil. In recent testing, an engine and its oil were cold soaked to 0°C. Upon start-up, oil pressure readings were taken at the front and rear (prop-side) oil galleries as a function of time. The results showed that AeroShell Oil W15w/50 achieved full oil pressure at the front gallery in less than half the time of a competing semi-synthetic 20W/50 and

achieved full oil pressure at the rear gallery a full minute sooner than the same 20W/50 oil. It is reasonable to conclude that oil performance of full lubrication a minute sooner at modest winter temperatures will significantly limit the amount of wear on engine start-up.

This real-world performance, combined with a load-carrying additive and a corrosion inhibitor, makes AeroShell Oil W15w/50 the best-performing multigrade currently available in the market, even after 14 years of use and over 200 million flight hours. It’s a compelling reason for many operators choosing a semi-synthetic oil such as AeroShell Oil W15w/50 for winter and all-year use.

AeroShell straight mineral oils are approved to the SAE J-1966 former MIL-L-6802 specification. AeroShell Oil W single grade and antiwear, anticorrosion AeroShell Oil 15W/50 are approved to the SAE J-1899 former MIL-L-22851 specification. As engine manufacturers state that only oil approved to this specification should be used (e.g. Lycoming Service Instruction No. 1014M) it surprises us – and may surprise readers too – to know that certain aviation engine oils available in the market place are not approved to this specification.

- *This article is based on generally opposed series aircraft engines such as Textron Lycoming and Teledyne Continental Motors. For rarer types and ‘vintage’ aircraft engines, there may be differing issues to consider when choosing the correct oil.*
- *Iain Jack is a member of the AeroShell team within Shell Aviation with 20 years experience in the lubricants business.*

GA... from small beginnings

In March 1919, two Australian Flying Corps war veterans identified a need for aerial services in remote Australia. The following year, the Western Queensland Auto Aero Service commenced operations, providing joy flights, passenger and mail services in the region.

This to me is the epitome of general aviation – people who are passionate about aviation, who identify a need and have the commitment to see their dreams realised.

I have been fortunate in my time with Shell Aviation to meet a diverse range of men and women in GA, from private pilots who fly for the joy of it to flying school operators, charter service providers and emergency and rescue service aviators and crews.

The diversity in this business is truly amazing. One day you can be negotiating a deal standing under the wing of your customer’s newly-arrived Cessna and the next you can be sitting in the boardroom of a major corporation negotiating pretty well exactly the same deal.

To me, that is the beauty of GA and Shell Aviation’s involvement. We deal on a daily basis with people who are passionate about aviation. They are, quite simply, the foundation of our global aviation community – the inspiration and mentors of just about every commercial pilot and aircraft engineer around the world.

While the vast majority of GA operations will never become large corporations, you never know. History shows that those two intrepid young pilots in the Outback did okay. They renamed their company Queensland and Northern Territory Aerial Services Ltd which, as Qantas, has taken delivery of the first of 20 Airbus A380s it has on order.

Not bad, considering they started out as one of Australia’s first GA operators providing joy flights in a war surplus Avro 504K.

David Volz
General
Aviation Sales
Manager
Eastern Region –
Australia



AMBITIONS IN AEROBATICS

AEROBATICS PILOT SAMI KONTIO IS REACHING NEW HEIGHTS WITH SPONSORSHIP FROM SHELL AVIATION.



Sami Kontio is a young man with soaring ambitions. The current Finnish champion aerobatic pilot, he has his sights set on nothing less than a world title.

For the last three seasons, Shell's piston engine oil and financial support has helped to keep Sami in the air at competitions and airshows all over the world.

Jyri Koponen, Aviation Sales Manager, said: "Everybody involved in aviation is following aerobatic sport and Sami is very promising – I think he is one of the sport's future stars. It's great for Shell to be involved with him."

Aerobatic flying makes demands on pilots' fitness, precision and experience as they push their aircraft through ever more complex manoeuvres. It's an unusual career choice, but clearly not for Sami.

"I've loved flying since I was a young boy," he said.

"I even had shared ownership of an aerobatic plane – a Christen Eagle II – before I received my pilot's licence.

I love the freedom of aerobatics. There are no rules and that mesmerizes me."

"I GET A LOT OF SATISFACTION FROM BEING CLOSE TO THE PODIUM – IT GIVES ME FULFILMENT."

Shell Aviation was an enthusiastic partner and supporter from the moment Sami made contact and shared his dream.

"I told Shell how I wanted to improve my flying and what I wanted to win and the partnership grew from there," Sami said.

Since receiving his pilot's licence in 2002, Sami has enjoyed a meteoric rise through the ranks. He now flies a CAP 232 and has become a national champion in Finland and one of the top Unlimited pilots in the world.

"I am competitive," Sami said. "I get a lot of satisfaction from being close to the podium – it gives me fulfilment. At the same time, aerobatic flying is a learning experience – there is always something to improve."

He formed Sami Kontio Airshows to entertain the audiences who attend aerobatics shows in their tens of thousands. During the 2008 season, he performed in Finland, the Czech Republic and Germany, winning fans and gaining exposure on television and in magazines.

Sami acknowledges the value of Shell's support. "It keeps my engine running and gives me the opportunity to pursue my goals. It allows me to remain focused and makes the road to success smoother."

So far this year, Sami has reached fifth place in the World Aerobatic Cup and received the Harmon trophy, awarded by the Finnish Aviation Authority for the most remarkable flying achievement during the previous year.

Last year saw him win his first podium places in the European Advanced Aerobatic Championships, receiving two silver medals. The season was crowned by winning the Finnish National Championships.

The popularity of aerobatics has increased dramatically in the last few years, thanks in large part to the Red Bull Air Race World Series. If, as some suggest, aerobatics is going to be the motor sport of the future, Sami is keep to play a big part.

"My ultimate ambition is to be a world champion. Why settle for anything less?"

Capturing aircraft 'in their element'

Aerial photographer Mikko Maliniemi, whose shots of Sami Kontio appear in *The Blue*, says successful air-to-air photography starts in the briefing room with the pilots of both the target and platform aircraft.

"It's vital that everyone involved knows what we are going to do," says Mikko. That means planning angles, speeds, distances and manoeuvres.

He tries to match the speed of the

aircraft from which he'll be working to that of the type he's photographing. Good situational awareness is important, he says, as is being "on the same wavelength" as his pilot whose flying skill can make or break the mission.

Mikko's regular pilot is instructor Ismo Aaltonen, who flew Saab Drakens with the Finnish air force. Their platform is most frequently a Cessna C172.

Mikko finds the optimal working

distance between aircraft on a photographic mission is 10-20 metres, although it can be 50 metres or more, especially with inexperienced pilots. Close-in shots are undoubtedly dramatic but safety is paramount, says Mikko. "With experienced pilots, it's perhaps possible to get closer or on angles that you wouldn't do with a first-timer, but no photograph is worth taking unnecessary risks."



"MY ULTIMATE AMBITION IS TO BE A WORLD CHAMPION. WHY SETTLE FOR ANYTHING LESS?"

Schönefeld surge

Shell's dedicated GA fuelling service at Schönefeld Airport in Berlin was expecting an influx of customers following the closure of neighbouring Tempelhof Airport in October.

Shell has been offering the fuelling service at Schönefeld in partnership with Execujet FBO since September last year.

GA pilots can buy fuel using their Shell cards. Execujet FBO staff carry out the refueling on Shell's behalf, while also offering catering, flight planning and ground handling services.

Neil Robertson, General Aviation Sales Manager, said: "We knew there had been discussion within the German government to close Tempelhof which made a partnership with Execujet at Schönefeld even more attractive."

Work is under way to transform Schönefeld by 2011 into Berlin-Brandenburg International Airport (BBI). It will become the second-largest airport in Germany and the only one serving the German capital after the closure of Tegel Airport, the third in Berlin.

Neil added: "Even as Tempelhof closed, our service had been running for a year with a reputation among our customers which we hope will only grow with Schönefeld."

GA traffic is getting used to calling Berlin's Schönefeld airport home.

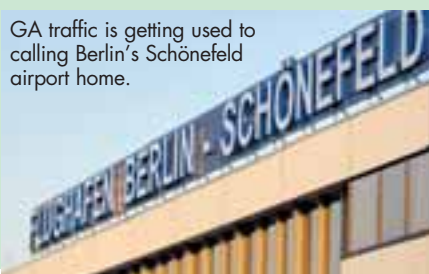


Photo: Günter Wicker/Berlin Airports

COMPETITION COMPETITION COMPETITION

YOUR CHANCE TO WIN PRIZES

ENTER OUR THIRD COMPETITION OF 2008, WITH PRIZES OF AN ASA AIR CLASSICS PILOT BAG AND A CX2 FLIGHT COMPUTER TO BE WON.

Simply answer the question (right) and enter your contact details at www.shell.com/aviation by 31 January. The first correct entry drawn at random after the closing date wins the prizes. Terms and conditions can be found at Shell Aviation's website. Alternatively, send you answer and contact details to Hilary Brown at theblue@shell.com

Readers from England and Finland have won pilot bags and flight computers, courtesy of *The Blue*. Clive Hawkins of Buckinghamshire had his name pulled from the hat for the competition in issue 1 of *The Blue*, while Esa Harju of Valurinkuja got lucky from among the entries for the competition in issue 2. Congratulations to both!



PLUS – INSTANT ENTRY INTO OUR ANNUAL FREE FLIGHT DRAW. You could be strapping into the cockpit of a former military jet in Thunder City, South Africa, for the flight of a lifetime. All correct entries in our 2008 competitions automatically go into a draw for the Thunder City experience. The draw will be held at the end of January 2009. The prize includes return flights to Cape Town and accommodation for two nights at a luxury hotel.



HOW CAN YOU MINIMISE ENGINE WEAR CAUSED BY 'COLD START' IN WINTER?





Shell CSO winners and their hosts.



Aboard Air Hamburg's Britten-Norman Islander.



View of Hamburg harbour.

BACK TO SCHOOL

AIR HAMBURG'S CUSTOMERS ARE REAPING THE BENEFITS FROM ITS PARTNERSHIP WITH SHELL AVIATION.



The Flying School Hamburg has become a Shell Aviation partner for the third year running. Arne van der Elst, office based Account Manager – Aviation Lubricants, said: "Air Hamburg/Flying School Hamburg is a fast growing company with nearly 100 flight students per year so supporting it through this partnership makes sense."

The school opened in 1992 and is currently training 100 pilots. All of them train on AeroShell products and in addition receive a free 'AeroShell Answer Book'.

Arne said: "The book gives pilots a lot of information about AeroShell practice but also has some very practical articles on aircraft and flying. Our hope is that when the school's trainees get their pilot's licences, they will become our customers too."

Air Hamburg's plan to provide maintenance services from next year at the large, private GA airfield used by the school in Uetersen is good news for pilots and owners. Shell expects to be involved with a range of products.

Scheduled and charter flights operate from Uetersen to seaside resorts in the German

Isles in the flying school's 23 aircraft. Two business jets also based at the international 'Airport Hamburg' Fuhlsbüttel are used mainly to carry corporate managers and celebrities to destinations all over Europe. The business jet division has been so successful that Air Hamburg plans to lease another two business jets in 2009.

Recently, a group of Shell Aviation employees had a taste of the VIP treatment usually reserved for the rich and famous when the airfield laid on a sight-seeing flight and barbecue for winners of a competition at Shell's Customer Service Centre (CSO) in Hamburg.

The CSO, which has recently tripled its size to 120 employees, rewarded the top eight participants in a Shell products quiz – part of a Shell Aviation training programme – with an hour-long flight over Hamburg. Product knowledge is key to the success of the CSO, which takes orders for Shell products from customers all over Germany.

The eight arrived at the airfield on 11 September to be met by Floris Helmers, director of Air Hamburg, who introduced

them to pilot Sven Ziemann who would be at the controls of the nine-seat Britten-Norman Islander for their flight.

Visibility was clear, giving the passengers good views of the many landmarks of their city. Sven dropped to 600m and cut back the speed of the plane to 150km/h for several passes over Hamburg harbour before heading back to the airfield.

Arne said: "There has been a very heavy workload at the CSO lately but the winners of the free flight went back to work with a big smile. They had a chance to have a fantastic view and the possibility of seeing their city from a new perspective."



Barbecue at base.

New uniforms for Latin American Ops teams



GA customers at airports in Latin America can now easily spot the Shell Aviation operations staff, thanks to their new brightly coloured uniforms.

As well as ease of identification, the uniforms have been

designed with safety in mind.

The Shell Aviation operations and marketing teams joined forces to come up with a new design that would help guarantee the safety and health of operations staff by facilitating a wide range of movements, all needed for a safe refueling operation.

The high visibility colours and reflective bands make the operators easy to see at a distance and at night. Other new features include protection for knees and shoulders.



The new uniforms help identify Shell Aviation operators.

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EXCELAIRE EXPANSION TAKES OFF

A FLEDGLING FIXED BASED OPERATOR (FBO) IS SPREADING ITS WINGS WITH THE HELP OF SHELL AVIATION.

ExcelAire, one of the USA's leading private jet charter firms, has become the latest addition to the Shell Aviation FBO network in the US with the opening last November of its facility at Long Island MacArthur Airport in Islip, New York.

Through Eastern Aviation Fuels, Shell Aviation has helped ExcelAire set up a fuel farm – one of the few in the country that's above ground and enclosed in a building.

ExcelAire is no stranger to the airport, having launched in 1985 as a small aeroplane maintenance company with a staff of three and 1,000 square feet of hangar space. It now has more than 200,000 square feet at the airport and 140 employees. The company has expanded the scope of its maintenance, has a fleet of private aircraft and is also involved in air charter, management and sales.

The FBO, the latest addition to the company, offers a full range of services for passengers, crew and owners. These cover on-site US customs clearance, maintenance including parts, aircraft parking and hangarage, concierge services including catering, lodging and ground transportation, rental and crew cars, computer flight planning and weather service, passenger and pilots lounges, wireless internet access, a conference room, after-hours fuel and emergency services and a helicopter service to New York City.

"One of the nicest facilities I've seen and the staff could not be friendlier. All FBOs should be this welcoming."

Jan Greenberg

"I highly recommend Gene and the other fine folks at ExcelAire. They hangared our aircraft for a week and exceeded our expectations on arrival and departure."

Dean Howard

FBO Manager Gene Portela had words of praise for the fuel suppliers: "We've enjoyed our relationship with them and hope that relationship continues to thrive. We believe we have the most competitive fuel price in the tri-state area and there's an advantage to being a Shell dealer because we can offer further incentives to customers with Shell fuel cards.

"It's a difficult business to break into but we are definitely seeing the results of our hard work," said Gene. "People who have used the facility are impressed with our customer service and the facility itself. People come to us because they've heard such good things about us and that is gratifying."

Gene says the private jet terminal at Islip is a smart and cost-effective alternative to the other airports in this area. "Fuel is cheaper, taxi time is short, there are no takeoff delays and it's not far to the city," he said. "We don't charge ramp fees, parking fees or overnight fees either."

However, he believes the company's biggest asset is its employees. "From aircraft cleaners to customer service representatives and technicians, we have a fantastic group of people who are terrific at what they do – they truly exceed customer expectations," he said.

A doorway to D.C.

ExcelAire FBO has been given a boost after the US Transportation Security Administration (TSA) recently approved its new private jet terminal as a departure point for travel into Washington DC's Reagan National Airport.

"We can now offer easy and quick access to DC and surrounding areas for clients who are meeting with government officials and conducting business in our nation's capital," said FBO Manager Gene Portela.

After 11 September 2001, the government banned all private flights into Reagan National Airport. Limited flights to the airport resumed in 2005 through a select group of approved gateway airports and approved private jet operators.

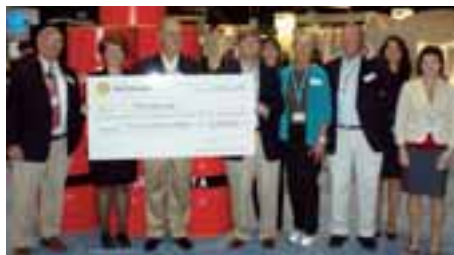
ExcelAire has been flying its charter jets into Reagan National Airport for more than two years, after it passed the TSA's approval process for charter flights. But its flights, like all others by private jet operators, had to enter DC from one of the 21 gateway airports approved for direct travel to the airport.

ExcelAire recently passed the rigorous TSA security checks and put in place special security procedures that were needed to add its Long Island MacArthur private jet terminal departure site to the gateway list, enabling private jet operators to use its facility for travel into Reagan National.

PAUL'S A WINNER AT NBAA



A visit to the Shell Aviation stand at the NBAA exhibition in Orlando, Florida, proved a profitable experience for Paul Cutrer (above) of Hammond, Louisiana-based Gray Aviation. Paul was the winner of \$10,000 worth of aviation fuel from Shell Aviation, offered as the prize for a 'treasure hunt' at the show. Entrants had to answer five questions relating to products and services of Shell Aviation and some of the 14 US FBOs present on the Shell stand. To add interest and ensure all FBOs were included, there were five different sets of questions. They all went into the sealed barrel from which Paul's name was drawn on 8 October. Pictured (below) is the combined Shell Aviation and Eastern Aviation team at the show with a cheque for the value of fuel won by Paul.



FLIGHT OF FANCY

Derek Hitchcock has taken off from Cape Town International Airport in South Africa more than 100 times on local and international flights, but this time the anticipation was different... he was strapped into the seat of a Thunder City Blackburn Buccaneer.

The Buccaneer is one of the ex-military fighter jets in the Thunder City fleet. Shell Aviation supplies fuels and lubricants to help keep the aircraft flying.

Derek won the flight through a lucky draw held by SOS Children's Villages, a charity for orphans in developing countries. Shell Aviation supports SOS Children's Villages as its global charity.

Pilot Ian Pringle gave Derek an unforgettable experience with a combination of mountain, sea and aerobatic flying over South Africa.

Derek said: "Ian knew a spectacular route towards Worcester and the Brandvlei Dam – flying below the mountain tops until we eventually popped up above the mountain range. He then pulled off a



Derek (left), Paul Senosi of SOS Children's Village, and pilot Ian Pringle beside the Buccaneer

spectacular barrel roll – the world below visible through the top of our canopy."

The once-in-a-lifetime experience included a half loop just off Cape Point. "From about 100 feet, Ian sent the jet skywards to an altitude of 11,000 feet in just a few seconds," said Derek. "We reached a velocity of 0.92 mach and pulled g-force of 4.6 during the manoeuvre. As we reached the top of the loop and were flying upside down, the most incredible view of the Cape Peninsula awaited as I looked backwards through the canopy. This was certainly the highlight of a flight already full of highlights!"

the
blue

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Protective, dependable and with the fastest circulation - It works for me



Pilots and engineers alike insist on an oil that will deliver – a dependable lubricant that will protect and perform in the most challenging of conditions.

Part of AeroShell's family of premium oil products, AeroShell Oil W 15W-50 has become the oil of choice for countless aviation professionals. Out-performing all other piston engine oils in cold climates, it is trusted to respond to all situations. Its advanced semi-synthetic formulation can prolong component life, which means less maintenance – and more peace of mind.

When the engine is first started, AeroShell Oil W 15W-50 gets to work faster than any other aviation multigrade. It responds to the most demanding of environments, and will perform in any climate, year-round – every time.

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It delivers proven stability and load-carrying performance, and can actually reduce fuel consumption by up to 5%. AeroShell Oil W 15W-50 also contains advanced anti-wear and anti-rust constituents along with the additive required by certain Lycoming engines, and it can significantly reduce oil temperatures.

As a semi-synthetic multigrade with an unequalled record of over 20 million in-service hours, AeroShell Oil W 15W-50 is trusted by more pilots and engineers than any other oil in its class for both 'top-ups' and complete engine overhauls.

