



# AEROSHELL TURBINE OIL 500 (ASTO 500)

- Reduced operational costs



Shell Aviation

Shell has been supporting aviation's pioneers for over a century and has been involved in jet-powered flight since helping Sir Frank Whittle to develop the first jet engine. We continue to provide high-quality fuels, lubricants and associated services to the aviation community. We remain committed to working with turbine engine manufacturers and airlines to create innovative high-performance oils for increasingly demanding engines.

## PERFORMANCE AT A GLANCE

	Load-carrying capacity	Thermal stability	Low coking propensity	Elastomer seal compatibility
<b>AeroShell Ascender</b> Fourth-generation TEO High performance capability (HPC)	✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓	✓✓✓✓✓
<b>ASTO 560</b> Third-generation TEO High thermal stability (HTS)	✓✓✓✓	✓✓✓✓✓	✓✓✓✓	✓✓✓✓✓
<b>ASTO 555</b> High load-carrying capacity TEO	✓✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓✓
<b>ASTO 500</b> Second-generation TEO Standard class (STD)	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓✓✓

## A TURBINE ENGINE OIL (TEO) THAT MAY HELP CUT COSTS

ASTO 500 may help to keep engine components clean, thereby extending bearing life and reducing maintenance costs. It is a 5-cSt, hindered-ester synthetic oil with carefully selected and balanced additives, and has been developed to meet the MIL-PRF-23699 (STD) specification. ASTO 500 has good corrosion and oxidation stability, which can help to protect engines and cut costs.



## REDUCED COKE FORMATION, LOWER MAINTENANCE COSTS

Oil that cannot cope with high engine operating temperatures may form coke. If not removed during engine overhauls, that coke can block oil ducts and cause engine bearing failures because of oil starvation.

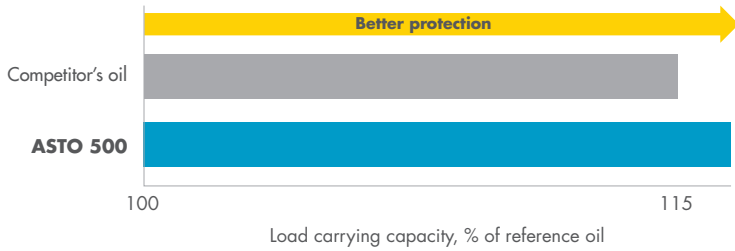
ASTO 500 may help to reduce maintenance time and costs by resisting coke formation, thereby keeping engine components clean. It produces

- **6 to 27% less deposition** in high-temperature bearing tests<sup>1</sup>, when compared with a leading standard grade MIL-PRF-23699 oil.

<sup>1</sup>In a high-temperature bearing test type 1.5 at 177°C oil/in, ASTO 500 recorded a 47 demerit rating compared with a published 50–65 demerit rating range for its main competitor's oil.

**BETTER WEAR PROTECTION FOR LONGER ENGINE LIFE**

Wear under conditions of marginal lubrication can lead to increased maintenance costs. ASTO 500 helps to reduce maintenance costs by offering good load-carrying capacity, as demonstrated by Ryder gear test results.<sup>2</sup>



**SPECIFICATIONS AND APPROVALS**

ASTO 500 is fully approved to

- MIL-PRF-23699G standard grade
- SAE AS 5780B SPC
- DEF STAN 91-101 Grade OX-27.

ASTO 500 is approved by almost all engine and accessory manufacturers, including the following:

MANUFACTURER	ENGINES
BMW-Rolls-Royce	BR710
GE	CF6, CT58, CF700, CJ610, CJ805, CF34, CT7 and CT64
Honeywell	TFE 731, TPE 331, GTCP 30, 36, 85, 331, 660 and 700 series auxiliary power units ALF 502, ALF 507, LTS 101, LTP 101, T53, T55 and AL5512
Motorlet	M601D, E and Z
Pratt & Whitney	JT3, JT4, JT8, JT9, JT12, PW4000 and PW 6000
Pratt & Whitney Canada	JT15, PT6A, PT6T, ST6, PW100, PW200, PW 300 and PW500
Rolls-Royce USA	250 series, 501, D13, T56, GMA 2100 and GMA 3007
Rolls-Royce	Tay, Gnome, Spey, RB183, Adour, M45H and Viper
Turbomeca	Artouste, Larzac, Makila, Arriel, RTM322, TM391 and TM333

**WHAT OUR CUSTOMERS SAY**

**"IN 2012, WE CONVERTED OUR ENTIRE FLEET TO ASTO 500. IT HAS BEEN A GOOD DECISION FROM TECHNICAL, LOGISTICS AND COST-SAVING PERSPECTIVES."**

Fermin Tirado Gallego, Director, Technical Area (Maintenance and Engineering), Air Nostrum, Spain



**"ASTO 500 CAME IN THE ENGINE FROM THE FACTORY AND WE HAVE BEEN USING IT EVER SINCE. WE DRAIN THE ENGINE AND THE OIL IS CLEAN. WE HAVE NEVER HAD ANY OIL-RELATED PROBLEMS."**

Estácio Palhares de Oliveira Junior, Aircraft Mechanic, Precisão Aero Agrícola, Brazil



**CHANGING OIL WITH CONFIDENCE**

You can switch oils to take advantage of ASTO 500's benefits with the confidence that it is compatible with other MIL-PRF-23699 standard grade oils. As there is little difference in elastomer seal swelling rates, ASTO 500 can replace other MIL-PRF-23699 oils without any issues.

If you operate modern gas-turbine engines, you may be able to reduce your operating costs further by upgrading to ASTO 560.

**A COMPREHENSIVE RANGE**

Whatever you fly, we can provide a full range of AeroShell oils, greases and fluids for your aircraft, including

- **AeroShell Grease 33**, the universal airframe grease used as a first-fill product by both Boeing and Airbus
- **AeroShell Fluid 41** "super-clean", mineral hydraulic oil.



**CONTACT US**

If you want any further information, please contact your AeroShell representative or visit:

[www.shell.com/aviation](http://www.shell.com/aviation)

<sup>2</sup>Ryder gear tests measure the load required to produce a wear scar of a certain diameter compared with the load required to create the same wear scar diameter when using a reference oil.