

# AEROSHELL TURBINE OIL 500

AeroShell Turbine Oil 500 is a 5 mm<sup>2</sup>/s synthetic hindered ester oil incorporating a carefully selected and balanced combination of additives to improve thermal and oxidation stability and metal passivation.

## APPLICATIONS

AeroShell Turbine Oil 500 was developed essentially to meet the requirements of Pratt & Whitney 521 Type II and MIL-L-23699 specifications and is entirely suitable for most civil and military engines requiring this class of lubricant. AeroShell Turbine Oil 500 is approved for use in a wide range of turbine engines as well as the majority of accessories.

AeroShell Turbine Oil 500 contains a synthetic ester oil and should not be used in contact with incompatible seal materials and it also affects some paints and plastics. Refer to the General Notes at the front of this section for further information.

## SPECIFICATIONS

<b>U.S.</b>	Approved MIL-PRF-23699F Grade STD
<b>British</b>	Approved DEF STAN 91-101 Grade OX-27
<b>French</b>	Equivalent DCSEA 299/A
<b>Russian</b>	-
<b>NATO Code</b>	O-156
<b>Joint Service Designation</b>	OX-27
<b>Pratt &amp; Whitney</b>	Approved 521C Type II
<b>General Electric</b>	Approved D-50 TF 1
<b>Allison</b>	Approved EMS-53 (Obsolete)

## EQUIPMENT MANUFACTURER'S APPROVALS

AeroShell Turbine Oil 500 is approved for use in all models of the following engines:

<b>Honeywell</b>	TFE 731, TPE 331, GTCP 30, 36, 85, 331, 660 and 700 series APUs. ALF 502, LF507, LTS101, LTP101, T53, T55, AL5512
<b>Allison (Rolls-Royce)</b>	250 Series, 501 D13, T56, GMA 2100, GMA 3007
<b>BMW-Rolls Royce</b>	BR710, BR715
<b>CFM International</b>	CFM 56 cleared for flight evaluation
<b>GE</b>	GE 90, CF6, CT58, CF700, CJ610, CJ805, CF34, CT7, CT64
<b>IAE</b>	V2500 Series, all marques
<b>Motorlet</b>	M601D, E and Z
<b>Pratt &amp; Whitney</b>	JT3, JT4, JT8, JT9, JT12, PW4000, PW6000
<b>Pratt &amp; Whitney Canada</b>	JT15, PT6A, PT6T, ST6, PW100, PW200, PW300, PW500
<b>Rolls-Royce</b>	RB211-22B, -524, -535, Trent, Tay, Gnome, Spey, RB183, Adour, M45H, Viper (Series MK 301, 521, 522, 526, 535, 540, 601, 623 and 632)

Full details of the approval status of AeroShell Turbine Oil 500 in APUs and other engines/accessories is available.

PROPERTIES	MIL-PRF-23699F Grade STD	TYPICAL
Oil Type	Synthetic ester	Synthetic ester
Kinematic Viscosity @ 100°C @ 40°C @ -40°C	mm <sup>2</sup> /s 4.90 to 5.40 23.0 min 13000 max	5.17 25.26 8996
Flashpoint, Cleveland Open Cup	°C 246 min	256
Pourpoint	°C -54 max	<-54
Total Acidity	mgKOH/g 1 max	0.01
Evaporation Loss 6.5 hrs @ 204°C	% m 10.0 max	2.52
Foaming	Must pass	Passes
Swelling of Standard Synthetic Rubber		
SAE-AMS 3217/1, 72 hrs @ 70°C	swell % 5 to 25	Within Limits
SAE-AMS 3217/4, 72 hrs @ 204°C	swell % 5 to 25	Within Limits
standard silicone rubber 96 hrs @ 121°C	5 to 25	Within Limits
Thermal Stability/Corrosivity 96 hrs @ 274°C		
- metal weight change	mg/cm <sup>2</sup> 4 max	0.5
- viscosity change	% 5 max	2.69
- Total Acid Number Change	mgKOH/g 6 max	2.03

PROPERTIES	MIL-PRF-23699F Grade STD	TYPICAL
Corrosion & Oxidation Stability 72 hrs @ 175°C 72 hrs @ 204°C 72 hrs @ 218°C	Must pass Must pass Must pass	Passes Passes Passes
Ryder Gear Test, Relative Rating Hercolube A	% 102	117
Bearing Test Rig Type 1½ conditions - Overall deposit demerit rating - viscosity change @ 40°C - Total Acid Number change	80.0 max -5 to +30 mgKOH/g	47 19 1.1
- filter deposits	g 3 max	0.4
Sonic shear stability - viscosity change @ 40°C	% 4 max	NIL
Trace metal content	Must pass	Passes
Sediment	mg/l 10 max	2.6
Ash	mg/l 1 max	0.05

AeroShell Turbine Oil 500 is also approved for use in the industrial and marine versions of the Rolls Royce Trent, Avon, Allison 501K and 570K, Honeywell TF35, Pratt & Whitney GG3/FT3, GG4/FT4, GG12/FT12, all General Electric LM Series of units, Turbomeca industrial engines and certain Solar gas turbine engines.

A viscosity/temperature chart is shown at the end of this section.