

Chapter 3. Lubricants, Sealants, and Adhesives

3-1. Engine Oil Specifications

WARNING

While it is unlikely any Mobil AV1 brand oil remains available, in use, or in inventory, use of Mobil AV1 is prohibited from use in Continental aircraft engines.

Lubricating oils qualified for use in Continental aviation gasoline (AvGas) engines are required to meet Society of Automotive Engineers (SAE) specifications. SAE J1899 is the specification for aircraft piston engine ashless-dispersant oil. SAE J1966 is the specification for aircraft piston engine non-dispersant mineral oil.

Lubricating oil meeting these specifications is acceptable; proof of conformity is the responsibility of the lubricant manufacturer.

Lubricating oil classified by North Atlantic Treaty Organization (NATO) or Standardization Agreement (STANAG) as interchangeable with oils qualified under SAE J1899 or SAE J1966 and assigned NATO codes O-123 or O-128 shall be considered qualified.

The marketers listed in Table 3-1 have supplied data to Continental indicating the products conform to one or more of the requirements above.

Continental recommended oil grades:

- Above 40°F ambient air, sea level SAE 50 or multi-viscosity
- Below 40°F ambient air, sea level SAE 30 or multi-viscosity

3-1.1. Oil Brand Selection

Reference: SIL19-04

CAUTION: Use the appropriate oil grade applicable to their specific engine or product line and maintain a consistent oil brand to sustain standard engine operations until after overhaul. Use only oil specification approved by the engine Type Certificate Data Sheet.

Lubricant manufacturers produce multiple oil products which comply with specification MHS-24; each containing proprietary formulations for straight weight and multiviscosity oil grades. Operators choose the appropriate oil to service their engine based on Instructions for Continued Airworthiness (ICAs), operating environment, viscosity, brand, and personal preference. Switching oil brands before engine overhaul may result in higher wear rates for lifters and cylinder components, even under normal operating conditions.

Analysis indicates consistent servicing with one brand of oil will result in fewer maintenance events and more consistent oil analysis results. Continue using the same oil brand throughout the service life of the engine. Do not change from an established “oil type” (mineral oil, semi-synthetic oil), even within the selected brand, before engine overhaul.

Table 3-1. Qualified SAE J1899 Ashless Dispersant Engine Oil

Supplier	Brand
Air BP Lubricants	Castrol Aviator AD Oil
	Castrol Aviator A Oil
ExxonMobil Aviation	Exxon Elite
NYCO S.A.	Turbonycoil 3570
Pennzoil Company	Pennzoil® Aircraft Engine Oil
Phillips 66 Aviation ConocoPhillips	Phillips 66 Type A 100 AD, 120 AD
	Phillips 66 Victory Aviation Oil 100AW
	Phillips 66 X/C Aviation Oil SAE 20W-50, SAE 25W-60
Shell Aviation	Aeroshell Oil, (Mineral) 65, 80, 100, 2F Anti-Corrosion Formula
	Aeroshell Multi-grade Oil AD, 15W - 50
	Aeroshell Oil W65, W80, W100
	Aeroshell Oil W80 Plus, W100 Plus Anti Corrosion Formula
Total Lubricants	Total Aero DM 15W - 50
	Total Aero XPD 80 (SAE 40), XPD 100 (SAE 50), XPD 120 (SAE 60)

Table 3-2. Qualified SAE J1966 Non-Dispersant Mineral Oil

Supplier	Brand
Phillips 66 Aviation ConocoPhillips	Phillips 66 Type M Aviation Oil 20W-50 (Multi-viscosity)
	Phillips 66 Type M Aviation Oil 100W (Grade 50)
Shell Aviation	Aeroshell Oil 65 (Grade 30)
	Aeroshell Oil 80 (Grade 40)
	Aeroshell Oil 100 (Grade 50)
	Aeroshell Oil 120 (Grade 60)
Total Lubricants	Total Aero DM 15W - 50
	Total Aero 80 (SAE 40)
	Total Aero 100 (SAE 50)

Table 3-3. Break-in Oil

Type	Equivalent	Application
SAE J1966 Aviation	Non-dispersant mineral oil for piston aircraft engines	First 25 hours of engine operation or until oil consumption stabilizes
MIL-C-6529 Type II Corrosion preventive mineral oil	Fly-away oil	

NOTE: Mineral oil conforming to MIL-C-6529 Type II contains a corrosion preventive additive and must not be used for more than 25 hours or six months, whichever occurs first. If oil consumption has not stabilized in this time, drain the mineral oil, replace the oil filter and replace the discarded mineral oil with SAE J1966 aviation oil.

Table 3-4. Preservative Oil

Type	Equivalent	Application
MIL-PRF-46002	Grade 1 Oil, Non-Rust VCI-105	Temporary or Indefinite Storage. Sprayed in cylinders (Section 9)
	Motorstor Engine Protectant	

3-2. Oil Change Intervals

Refer to the engine maintenance manual and/or the aircraft manufacturer's or Supplemental Type Certificate (STC) holder's AFM/POH for oil specifications, specified oil change intervals and inspection procedures.

Oil change intervals published in this manual are minimum requirements. Continental believes more frequent oil and filter changes enhance engine service life. Drain and replenish engine oil every 25 hours of operation or 4 months for engines that incorporate a reusable oil screen. On engines with the full flow oil filters, large or small replaceable oil filter cartridge, change the oil and filter every 50 hours and/or 4 months. Inspect oil screens and oil filter elements for contaminants at each oil change. Oil analysis may be used in addition to the oil screen or filter element inspection, but not as a replacement for it.

3-3. Additives

We often receive inquiries regarding the potential use of alternative fuel and oil additives and/or concentrates (formulated primarily for automotive and industrial engine applications) for use in our aircraft engines. Most of these additives and concentrates are not compatible with air-cooled, light aircraft engines in their operating environments. With the exception of the use of isopropyl alcohol or diethylene glycol monomethyl ether (DiEGME) compound (described in the following paragraph), we do not recommend the use of additives or concentrates in any of our aircraft engines. The use of unapproved additives may void the engine warranty. Use only recommended fuels and lubricants.

WARNING

Mixing of the DiEGME compound with fuel concentration in excess of the recommended (0.15 percent volume maximum) could have a harmful effect on engine components. Use only the manufacturer's recommended blending equipment and procedures to achieve proper proportioning.

Under certain ambient conditions of temperature and humidity, sufficient quantities of water may exist in the fuel to create restrictive ice formation in the fuel supply. To alleviate this occurrence, it is permitted to add no more than three percent Isopropyl Alcohol to the fuel supply. Also, DiEGME conforming to military specification MIL-DTL-85470B, if approved by the aircraft manufacturer, may be added for this purpose. DiEGME compound must be carefully mixed with the fuel in concentrations not to exceed 0.15% (by volume).