

AEROSHELL GREASE 22

AeroShell Grease 22

Approved to : Mil-PRF-81322

First Approved : June 1971

Type: A versatile advanced general purpose grease composed of a synthetic hydrocarbon oil thickened with Microgel®, with outstanding performance characteristics. Appropriate additives are included to achieve the necessary oxidation and corrosion resistance, anti-wear properties and load carrying properties.

Application: AeroShell Grease 22 is especially recommended for use wherever severe operating conditions are encountered as in high bearing loads, high speeds, wide operating temperature range, and particularly where long grease retention and high resistance to water washout are required. The wide range of applications include aircraft wheel bearings, engine accessories, control systems, actuators, screw-jacks, servo mechanisms and electric motors, helicopter rotor bearings, instruments, airframe lubrication, hinge pins, static joints, landing gears.

Manufacturing Plant : Shell Canada , Calgary

Competitors:

Arpolube 81322	Chemical Specialist & Development (rebrand of Royco 22CF)
Brayco 622	Castrol (rebrand of ASG 22)
GN 22	Nyco
Mobil Grease 28	Exxon Mobil
Royco 22 CF	Chemtura
Mobil SHC 100	Exxon Mobil (OEM approvals only, not approved to Mil-PRF-81322)

Comments: One of three widely used wheel bearing greases in civil aviation including Mobil Grease 28 and Mobil SHC 100. ASG 22 business lost to Mobil SHC 100 as it is also a synthetic hydrocarbon fluid but with a lithium complex soap thickener. This thickener system provides a higher dropping point, excellent resistance to water wash, and a tenacious structural stability. Both ASG 22 and Mobil Grease 28 are clay thickened hence the need to develop ASG 58.

AEROSHELL GREASE 33

AeroShell Grease 33

Approved to : BMS 3-33B
Mil-PRF-23827 Type I

First Approved : June 1995
Dec 2005

Type: A synthetic universal airframe grease composed of a lithium complex thickened synthetic base oil with corrosion and oxidation inhibitors and load carrying additives.

Application: AeroShell Grease 33 can be used for routine lubrication on Boeing aircraft where MIL-PRF-23827C or BMS 3-24 is specified. AeroShell Grease 33 can also be used in some applications on Boeing aircraft which require use of MIL-G-21164. It is also approved as a general purpose grease for Airbus aircraft.

Manufacturing Plant : Shell Bern, Switzerland

Other approved products:

BMS 3-33

Mobil Grease 33	Exxon Mobil
GN 148	Nyco
Royco 33	Chemtura
Aerospec 3052	Rocol

Mil- PRF-23827 Type I

Mobil Grease 33	Exxon Mobil
GN 148	Nyco
Royco 27	Chemtura
Arpolube 23827	C.S.D (Man. by Chemtura)
Mobil Grease 27	Exxon Mobil

Comments: For over a decade ASG 33 was the only approved grease to BMS 3-33 and as such has accumulated millions of flying hours in service with no reported quality or performance issues. It is still the factory fill grease of choice by Boeing for all new aircraft.

BMS 3-33 has two types Type 1 bulk grease, and Type 2 aerosol grease

Type 2 is produced only by Zip-Chem who use exclusively ASG 33 and is called Zip-Chem D-5933NS

So if your customer is using Mobil Grease 33 and also Zip-Chem D-5933NS then shouldn't he convert to ASG 33 for consistency?

AEROSHELL GREASE 5

AeroShell Grease 5

Meets : MIL-G-3545C (Obsolete)

First Approved : March 1964

Type: A high temperature grease composed of a mineral oil thickened with Microgel®, possessing good load-carrying ability. It is inhibited against oxidation and corrosion and has excellent resistance to water.

Application: It is particularly effective for use as a wheel bearing grease, especially when landing speeds are high, and is suitable for the lubrication of aircraft and engine accessories operating at high speeds and at relatively high temperatures, e.g. magnetos, generators and starters.

Manufacturing Plant : Shell Canada , Calgary

Other approved products:

Officially there are no approved alternatives as the specification is obsolete. However, Nyco manufacture Nyco GN 05 and also claim to meet Mil-G-3545C. Specifying that “meet the requirements of” or “is equivalent to” a specification, does not necessarily mean it is formally approved under the relevant standard.

Comments: Specification Mil-G-3545C was cancelled in July 1976 and replaced by Mil-PRF-81322 so there is no military applications.

The product was also used in the wheel bearings of the aircraft of some major carriers including Emirates who did not change to ASG 22 until 2001.

However, ASG 5 is still used in the General Aviation market despite ASG 22 being a direct replacement with no issues surrounding compatibility and changeover as they are both clay thickened greases..

AEROSHELL GREASE 7

AeroShell Grease 7

Approved to : Mil-PRF-23827 Type II **First Approved :** July 1979

Type: It is an advanced multi-purpose grease, composed of a synthetic oil thickened with Microgel®, possessing good load carrying ability over a wide temperature range. It is inhibited against corrosion and has excellent resistance to water.

Application: It satisfies nearly all the airframe grease requirements of turbine engine aircraft and also those of piston engine aircraft provided that seal incompatibility does not occur. Most civil aircraft manufacturers approve AeroShell Grease 7 as a general purpose grease either by brand name or by specification. It is recommended for lubricating highly loaded gears, actuator screw mechanisms, etc., also for instrument and general airframe lubrication within the temperature range of -73°C to +149°C.

Manufacturing Plant : Shell Canada , Calgary

Other approved products:

Castrol Aeroplex AI
Nycosyn GN 10

Castrol Rebrand of ASG 7
Nycosyn They claim Mil-PRF-23827 in their brochure but do not appear in the official QPD

Comments: Although is widely used as a general purpose air frame grease it can be replaced by AeroShell Grease 33. Boeing mandates the use of BMS 3-33 grease in their aircraft , but not by Airbus where it is an approved alternative. Consequently some mixed fleet operators use ASG 33 in their Boeing aircraft and ASG 7 in their Airbus aircraft possibly due to cost difference. Some 100% Airbus operators may also continue to use ASG 7 due to the cost variation, even though ASG 33 is a superior grease .

Note: Mil-PRF-23827 Type I is metallic soap based grease , whereas Type II is a clay based grease.

AEROSHELL GREASE 6

AeroShell Grease 6

Approved to : MIL-PRF-24139A **First Approved :** April 1965

Type: It is a general purpose grease composed of a mineral oil thickened with Microgel®, possessing good all-round properties within a limited range. It is inhibited against oxidation and corrosion and has good water resistance and low noise capability.

Application: AeroShell Grease 6 is a general purpose airframe grease for use in antifriction bearings, gearboxes and plain bearings within the temperature range of -40°C to $+121^{\circ}\text{C}$.

Manufacturing Plant : Shell Canada , Calgary

Other approved products:

No other products approved to Mil-PRF-24139A

ASG 6 was developed in 1963 and was approved to the US specification MIL-G-7711A . The MIL-G-7711A specification was cancelled by the US military on 4 March 1971 ; it was replaced by MIL-G-81322 . Shell then decided to gain approval for ASG 6 against MIL-PRF-24139A as it already had developed ASG 22.

Nyco market a product called GN 15 which they claim in their brochures is approved to MIL-G-7711A. Specifying that "meet the requirements of" or "is equivalent to" a specification, does not necessarily mean it is formally approved under the relevant standard.

Comments:

Although we have no details of the actual aircraft types in which ASG 6 has been used over these years, we do know that the product has been used in Russian-made aircraft, where the customer specifically ordered grease which was an analogue to CIATIM-201, CIATIM-202, CIATIM-203 or OKB-122-7 but they now may be using ASG 22 which also an analogue of the same Russian specifications.

AEROSHELL GREASE 14

AeroShell Grease 14

Approved to : MIL-G-25537C

First Approved : Oct 1972

Type: It is a helicopter multi-purpose grease composed of a mineral oil thickened with a calcium soap, possessing outstanding anti-fret and anti-moisture corrosion properties. It is oxidation and corrosion inhibited.

Application: AeroShell Grease 14 is the leading helicopter multi-purpose grease and is approved by all helicopter manufacturers. Owing to its anti-fret properties, AeroShell Grease 14 is particularly suitable for the lubrication of helicopter main and tail rotor bearings, splines, etc.

Manufacturing Plant : Shell Bern, Switzerland

Other approved products:

Nyco Grease GN 46

Comments:

Still appears to be the leading helicopter grease although some helicopter OEM's do seem to also approve alternative products such as ASG 7.

AEROSHELL GREASE 64 (FORMER 33MS)

AeroShell Grease 64

Approved to : MIL-G-21164D

First Approved : July 2006

Type: AeroShell Grease 64 comprises AeroShell Grease 33 fortified with 5% molybdenum disulphide. It possesses the enhanced anti-wear and anti-corrosion properties of AeroShell Grease 33 with the added EP (Extreme Pressure) properties provided by the addition of a solid lubricant.

Application:

AeroShell Grease 33 has established itself as the answer to most of the airframe's General Purpose, airframe greasing requirements, but there remains a small number of highly loaded, sliding applications on the airframe where the additional boost of molybdenum disulphide will always be required. To address this need, Shell Aviation developed AeroShell Grease 33MS which is now renamed AeroShell Grease 64. Sharing the same advanced grease technology as its parent, AeroShell Grease 64 also possesses the extreme pressure (EP) characteristics provided by molybdenum disulphide.

Manufacturing Plant : Shell Bern, Switzerland

Other approved products:

Royco 64 Chemtura
GN 17 Nyco
Arpolube 21164 C.S.D (rebrand of Royco 64)

Comments:

It replaced AeroShell Grease 17 in 2005 which was 95% AeroShell Grease 7 (ASG 7) with 5% molybdenum disulphide (MoS₂).

Following complaints from both customers and internal sales centres concerning confusion around the ASG 33 and 33MS product names, **the name of AeroShell Grease 33MS has been changed to AeroShell Grease 64** during the Grease PRI. The number 64 is taken from the last two digits of the specification Mil-PRF-21164.