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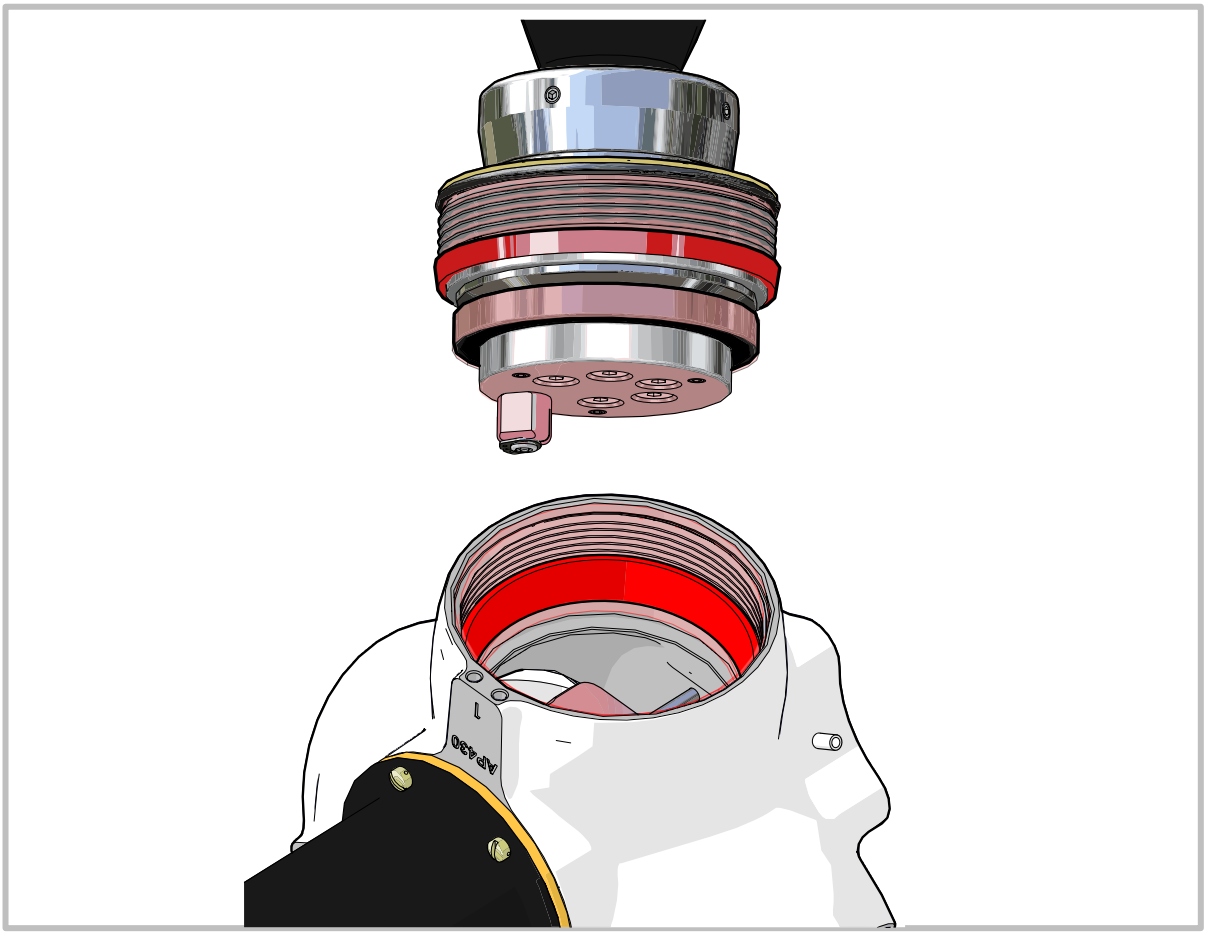
ASI-4-5

PROPELLER LUBRICATION

PROCEDURE



SUBJECT:	
Propeller Lubrication	
ASSEMBLY NO:	**APPLICABILITY:**
AH-xxx | AB-xxx	All propeller models

1. TOPIC

1.1 Introduction

This document covers the procedure for lubricating the hub and blade assemblies for an Airmaster propeller.

This task must be performed during initial installation of the propeller. Grease should be replaced at periodic service intervals (every 100 hrs or annually).

> ⚠ ***Caution***
> *Adhering to proper lubrication procedures is important for maximising bearing life, corrosion protection and ensuring smooth operation of the propeller.*

> ⓘ ***Note***
> *Generally, Airmaster propellers are supplied with the hub and blade retention assemblies pre-lubricated and ready for installation. It is recommended that installers photograph the lubricated areas prior to installation, to serve as visual reference for when the propeller must be regreased.*

1.2 Prerequisites

Complete the following tasks before proceeding:

- Mount hub to engine flange in accordance with the applicable installation procedure.
- Inspect each hub bore for damage (e.g. nicks and burrs), corrosion or defect otherwise.
- Inspect each blade retention assembly for damage (e.g. nicks and burrs), corrosion or defect otherwise. Pay close attention to the retention nut threads, the thrust bearing elements, and the shot-peened fillet region of the ferrule.

1.3 Approved Grease Products

During manufacture, the propeller is lubricated with Mobilgrease28. This product complies with specification MIL-G-81322E 'Grease, Aircraft, General Purpose, Wide Temperature Range' (UK equivalent; DEF STAN 91-52/1). Other lubricants compliant with this specification are listed below.

GREASE PRODUCT	MANUFACTURER
AEROSHELL GREASE 22	Shell Aviation
BRAYCOTE®622	Castrol
MOBILGREASE 28	ExxonMobil
ROYCO®22CF	Royal Lubricant
UNITEMP 500	Texaco

> ⚠ ***Caution***
> *If an alternative grease is used, ensure the product is suitable for the temperature range experienced in flight. This is particularly important for flying in winter or at altitude.*

2. MATERIAL REQUIREMENTS

2.1 Parts

ITEM	QTY	PART NO.	DESCRIPTION	IMAGE
1.	1	AH-xxx	Airmaster Hub Assembly	
2.	As required	AB-xxx	Airmaster Blade Assembly	

2.2 Consumables

ITEM	QTY	DESCRIPTION	IMAGE
1.	As required	Popsicle Stick (or similar)	
2.	As required	Small Paintbrush (Glue Brush)	
3.	As required	Aviation Grease	

2.3 Paperwork

ITEM	QTY	CODE	DESCRIPTION
1.	1	AH-xxx	Airmaster Hub Assembly Drawing & BoM
2.	1	AB-xxx	Airmaster Blade Assembly Drawing & BoM

2.4 PPE

ITEM	QTY	DESCRIPTION	IMAGE
1.	As required	Protective Gloves	

3. PROCEDURE

3.1 Lubricate Hub Assembly

WARNING
Ensure that aircraft power is turned off throughout this procedure.

Caution
Do not use a metal wire brush or any other abrasive tools to clean any propeller components.

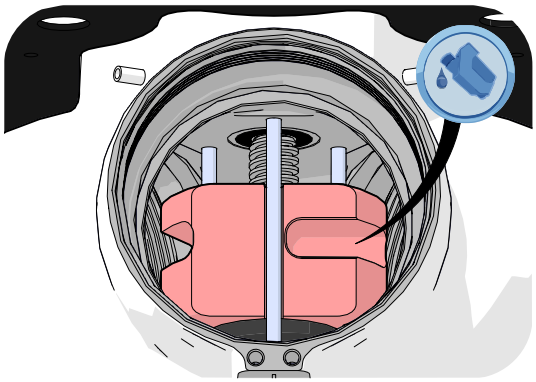
Caution
If replacing grease, simply wipe excess with a clean lint-free cloth. Do not use a solvent.

Note
Use a small paintbrush to lubricate the hub ports with grease. A popsicle stick (or similar) is useful for shaping the grease packed inside the thrust bearing bore at step 4.

PROCEDURE

Step 1 Lubricate PC Slide

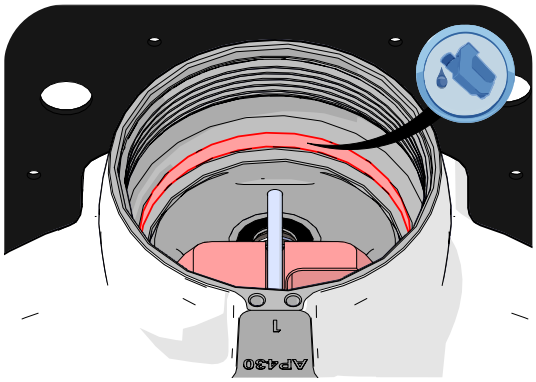
- Lightly grease the flat surfaces and each slot of the pitch change slide.



Step 2 Lubricate Alignment Bearing Bore

- Lightly grease the innermost bore of each hub port that will support the alignment bearing at the base of each blade.

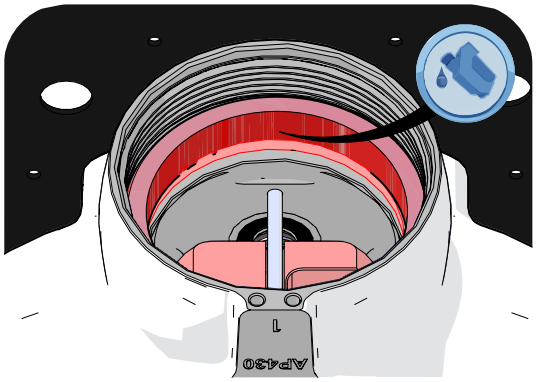
Note
This is the innermost cylindrical surface with a lip on the inboard side.



Step 3 Pack Thrust Bearing Bore with Grease

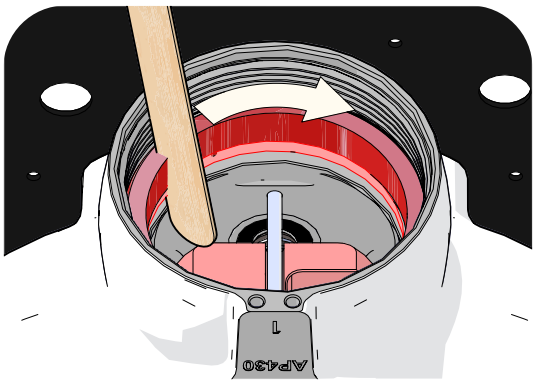
- Pack 5-10mm of grease inside the largest bore of each hub port that will support the thrust bearing pack of each blade.

Note
This is the widest bore with a concave profile located inboard from the threads.



Step 4 Shape Packed Grease

- Use a popsicle stick slanted at a 45° angle to smear the grease packed inside this cavity around the circumference of the bore to form a uniform shape that fills the bore.
- Remove excess grease.

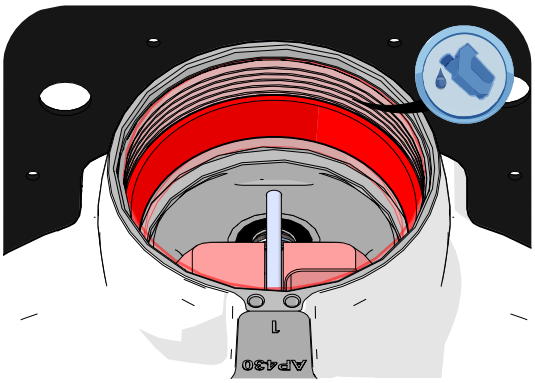


> *Note*
> *The height of the shaped grease should not be taller than the innermost lip inside the hub port.*

> ***Caution***
> *Do not over grease at this location. Excess grease in this cavity can hydraulic, thus preventing the blade assembly from seating properly (excess vibration) or forcing grease to expel past the seals when the propeller rotates.*

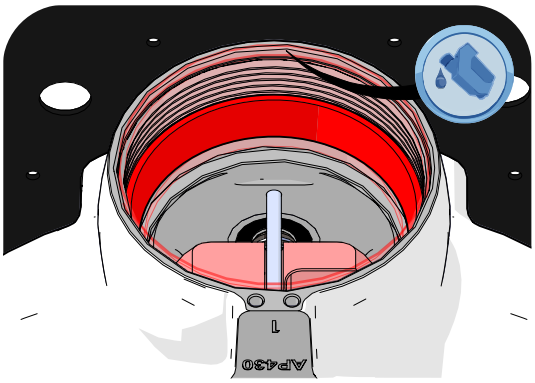
Step 5 Lubricate Threads

- Lightly grease the threads in each hub port.



Step 6 Lubricate O-ring Bore

- Lightly grease the outermost bore that will seal against the o-ring fitted to the retention nut of each blade.



3.2 Lubricate Blade Retention Assembly

> *Note*
> *Refer to blade retention assembly drawing to identify the blade parts acknowledged in this section.*

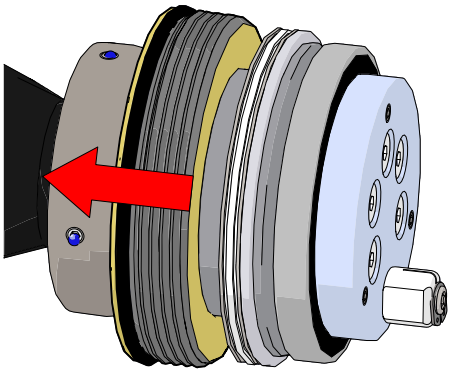
> *Note*
> *A small paintbrush (or similar) is recommended for applying a thin film of grease.*

PROCEDURE

Step 1 Slide Retention Nut Outboard

- Slide retention nut outboard to access the elements of thrust bearing pack.

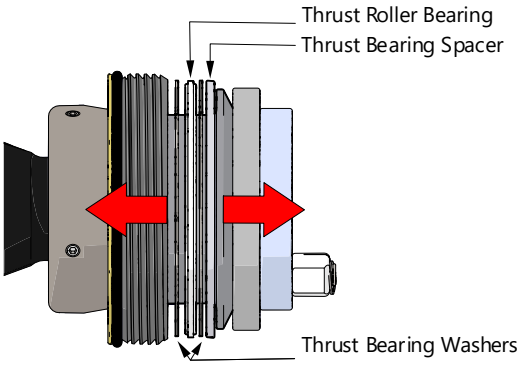
> *Note*
> *Place thumbs on top of ferrule nut and pull in the retention nut with fingertips.*



Step 2 Separate Thrust Bearing Pack

- Separate thrust roller bearing from the washer located either side.

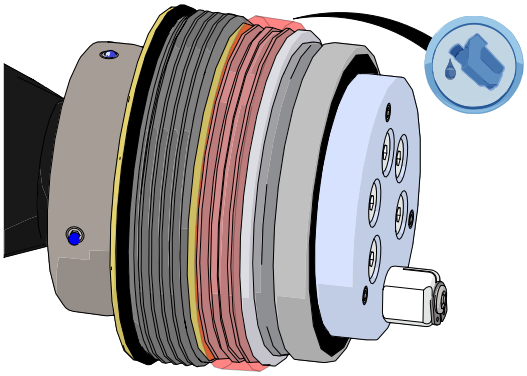
> *Note*
> *A thin tipped tool or pencil may be useful for separating these parts.*



Step 3 Pack Thrust Bearing with Grease

- Pack grease inside thrust bearing rollers.
- Apply a thick smear of grease to the inner and outer surfaces of both thrust bearing washers.

> *Note*
> *These thrust bearing rollers must remain immersed in grease.*

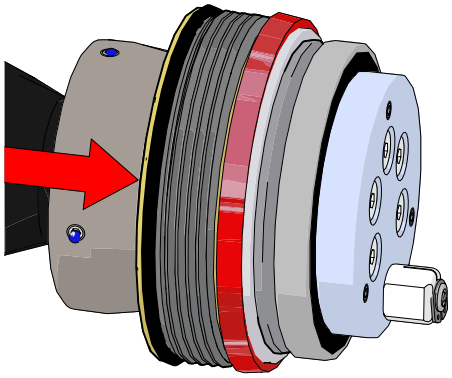


Step 4 Slide Retention Nut Inboard

- Slide retention nut inboard to close the thrust bearing pack.

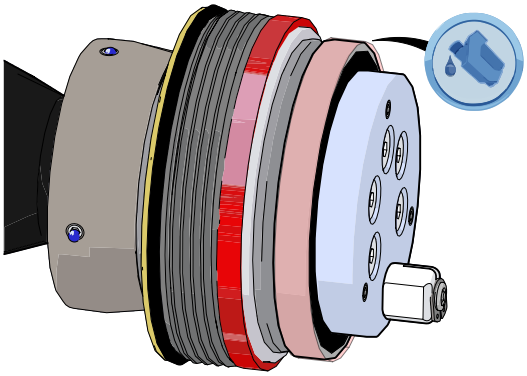
> *Note*
> *Place thumbs on cam plate surface and use fingers to pull in retention nut.*

- Note excess grease squeezes out from thrust bearing pack, this indicates it is adequately lubricated.
- Use a brush to wipe excess grease around the thrust bearing pack.



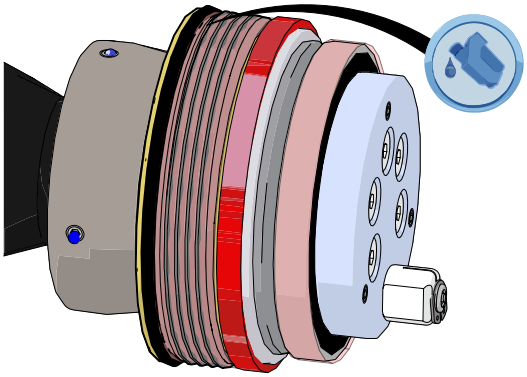
Step 5 Lubricate Alignment Bearing

- Lightly grease outer surface of alignment bearing.



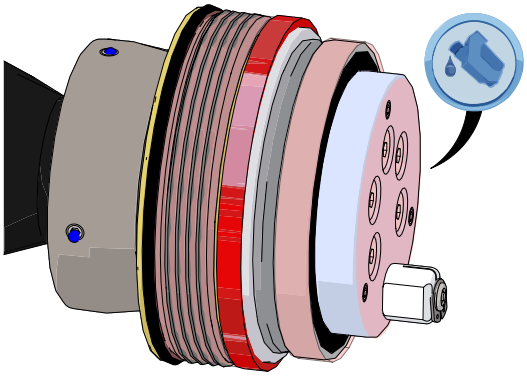
Step 6 Lubricate Retention Nut

- Lightly grease threads of retention nut.
- Lightly grease o-ring fitted to retention nut as well as the surface beneath it.



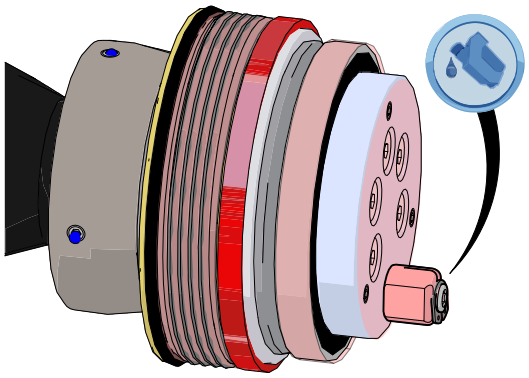
Step 7 Lubricate Cam Plate

- Lightly grease cam plate and its retaining screws.



Step 8 Lubricate Cam Follower

- Lightly grease the cam follower, the exposed steel stud and the retaining circlip at the base of the blade.



3.3 Reference Images

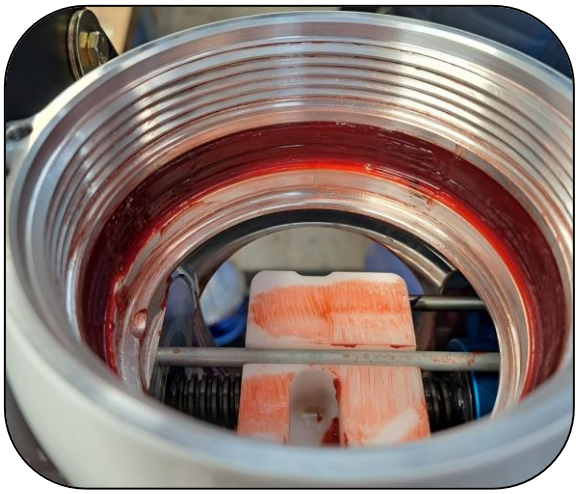


Figure 1. *Correctly lubricated hub port.*

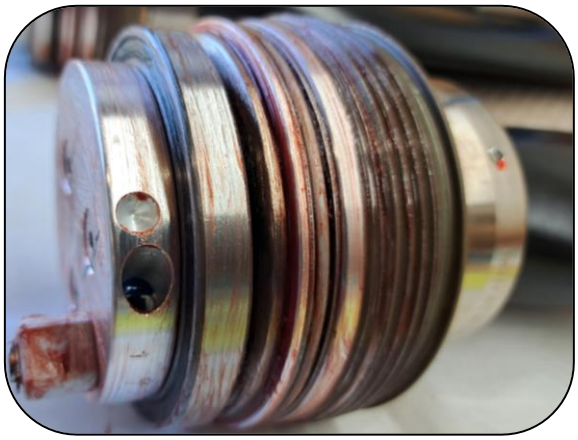


Figure 2. *Correctly lubricated blade retention assembly.*

3.4 Subsequent Action

Perform the following tasks once this procedure is complete:

- Install blades assemblies in accordance with procedure ***ASI-4-6.***

> ⓘ *Note* *Rest lubricated blade assemblies on a clean surface to prevent grease contamination.*