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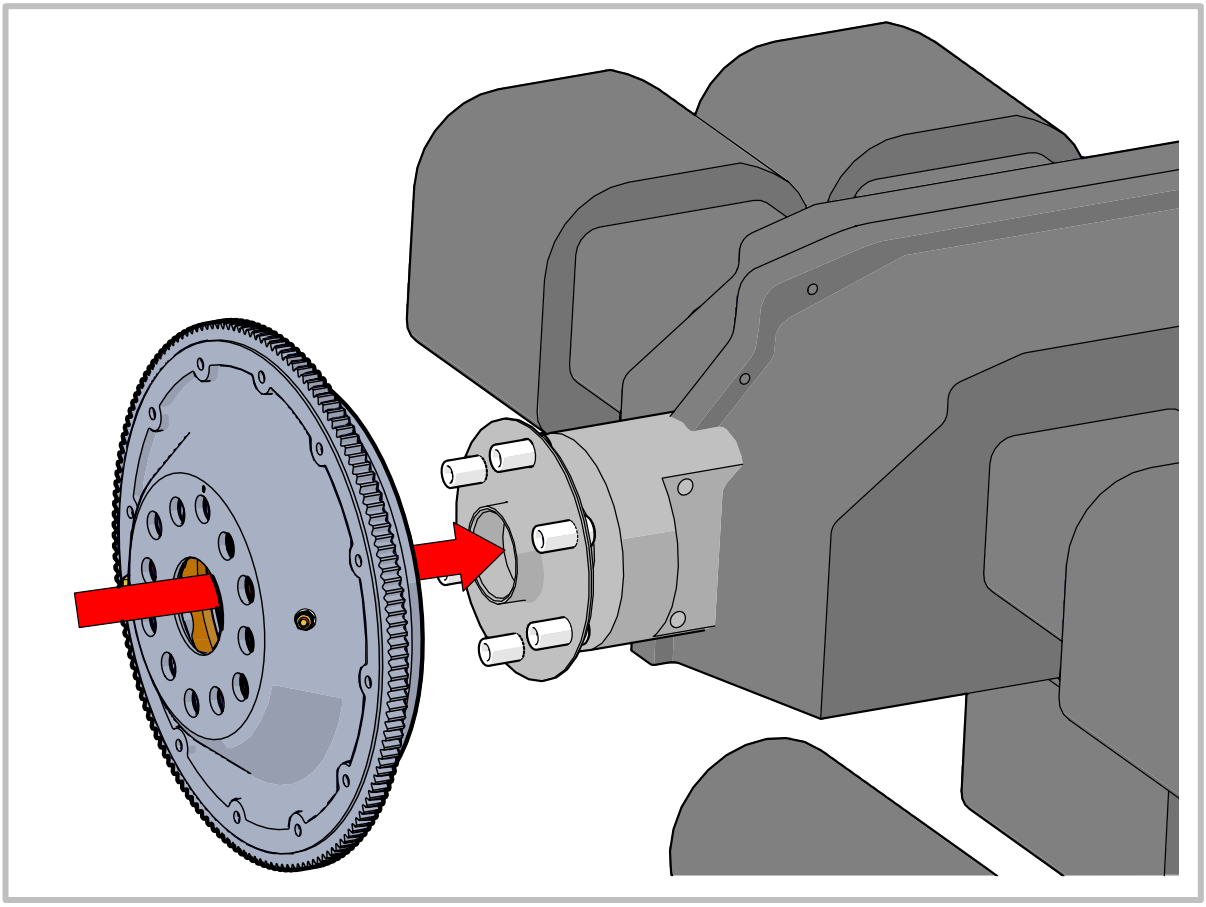
ASI-4-4-5

HUB INSTALLATION (WITH LYCOMING RING GEAR)

PROCEDURE



SUBJECT:	
Hub Installation	
ASSEMBLY NO:	**APPLICABILITY:**
AH-xxx | AR-LS(+RG)	All propeller models used with a Lycoming engine (+ ring gear)

1. TOPIC

1.1 Introduction

This document covers the procedure for mounting an Airmaster propeller hub to a Lycoming engine flange in cases where the Lycoming ring gear is used.

1.2 Lycoming Ring Gear

The existence of the starter ring gear in Lycoming engines interferes with the normal mounting position of the slipring which is typically behind the spinner backplate. As a result, the slipring is mounted inside the starter ring gear, and a multi-component sensor-brush bracket assembly is required.

Figure 1. *Airmaster Slipring Assembly inside Lycoming Ring Gear.*

1.2.1 Compatible Ring Gear Types

There are many variants of the Lycoming engine and only some of the ring gear types are compatible with the Airmaster slipring assembly. Essentially this must be the type with the largest diameter alternator pulley. This diameter inside the pulley should be 214mm (8.4in).

Some ring gears are already machined to accept sliprings for de-ice systems. These can still be used, but the mounting holes for the slipring must be rotated a few degrees. If you are not sure please contact Airmaster.

1.2.2 Ring Gear Preparation

To install the slipring assembly inside the ring gear, the ring gear must be pre-machined according to Airmaster specifications.

Airmaster can machine your ring gear for you and install the slipring assembly inside the ring gear. If you wish to machine the ring gear yourself, please contact Airmaster for the required drawing shown below.

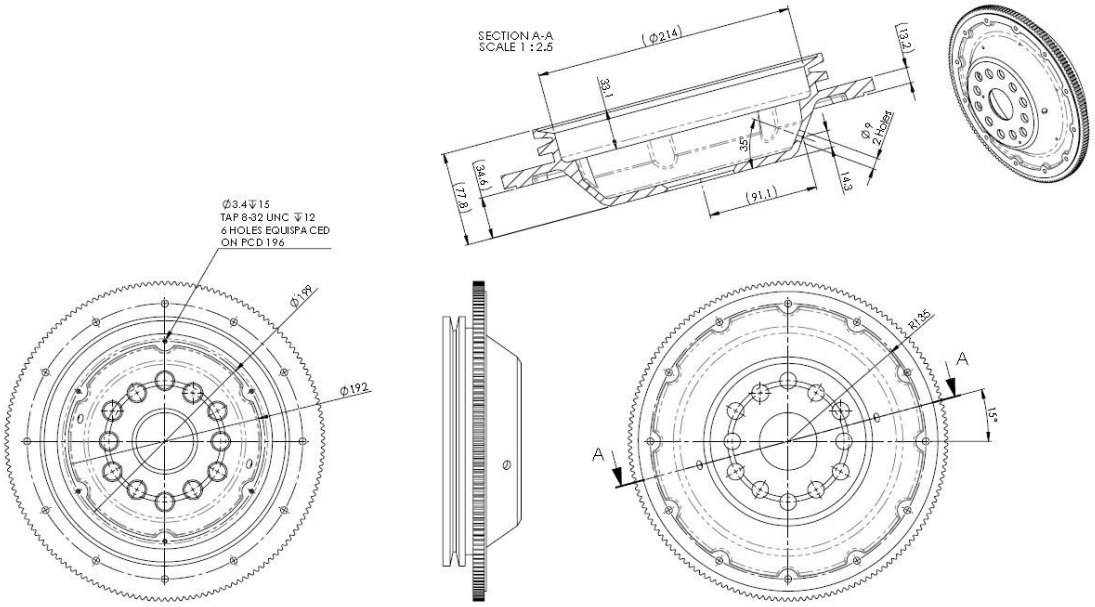


Figure 2. *Lycoming Ring Gear Machining Dimensions.*

1.3 Prerequisites

Complete the following tasks before proceeding:

- Prepare engine flange for propeller installation in accordance with procedure ***ASI-4-1-4***.
- Install Lycoming slipring assembly in accordance with procedure ***ASI-4-3-3***.

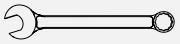
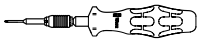
> ⓘ *Note*
> *Generally, ring gears are pre-machined by Airmaster to suit the propeller, and the slipring is installed at the factory. Alternatively, a drawing for the required machining (fig 2) may be requested from Airmaster so that customers may arrange for their ring gear to be machined locally.*

2. MATERIAL REQUIREMENTS

2.1 Parts

ITEM	QTY	PART NO.	DESCRIPTION	IMAGE
1.	1	AE-xx0	Airmaster Mount Kit Assembly	
2.	1	AH-xxx	Airmaster Hub Assembly	
3.	As required	AR-LS(+RG)	Airmaster Lycoming Slipring Assembly (incl. Ring Gear)	

2.2 Tooling

ITEM	QTY	DESCRIPTION	IMAGE
1.	1	11/32” Spanner	
2.	1	Torque Screwdriver (11/32” Socket) [0.7Nm]	

2.3 Consumables

ITEM	QTY	DESCRIPTION	IMAGE
1.	As required	Anti-Seize Compound (Paste) *(e.g. Duralac, Tef-Gel, Loctite® Moly-50)*	
2.	As required	Cleaning Agent (Non-Corrosive) *(e.g. Loctite® SF 7063, Methylated Spirits)*	
3.	As required	Paper Towels, Clean Cloth (or similar)	
4.	As required	Small Paintbrush (Glue Brush)	
5.	As required	Torque-Seal	

2.4 Paperwork

ITEM	QTY	CODE	DESCRIPTION
1.	1	AH-*xxx*	Airmaster Hub Assembly Drawing & BoM
2.	1	AR-LS(+RG)	Airmaster Lycoming Slipring Assembly (incl. Ring Gear) Drawing & BoM
3.	1	As applicable	Control System Circuit Diagram

2.5 PPE

ITEM	QTY	DESCRIPTION	IMAGE
1.	As required	Protective Gloves	

3. PROCEDURE

WARNING

Ensure that aircraft power is turned off throughout this procedure, especially before rotating the engine flange.

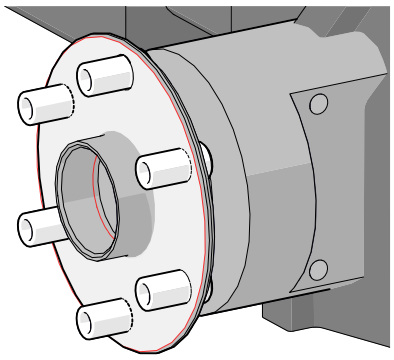
WARNING

Take care when working with the engine flange. Any damage observed at this region should be considered highly significant and advice from the engine manufacturer should be sought.

3.1 Preparation

PROCEDURE

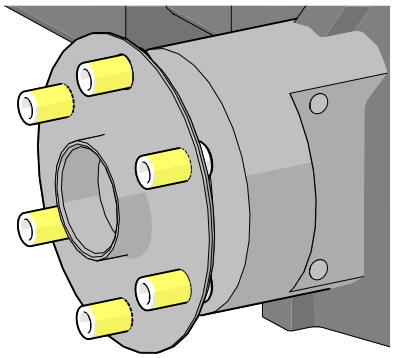
Step 1 Prepare Engine Flange



- Clean mounting face of engine flange.
- Inspect this area for damage or defect.

Attention *Cleaning agent, Paper towels*

Step 2 Protect Engine Flange Drive Lugs



- Apply a light film of anti-seize compound to (6) engine flange drive lugs for corrosion protection.

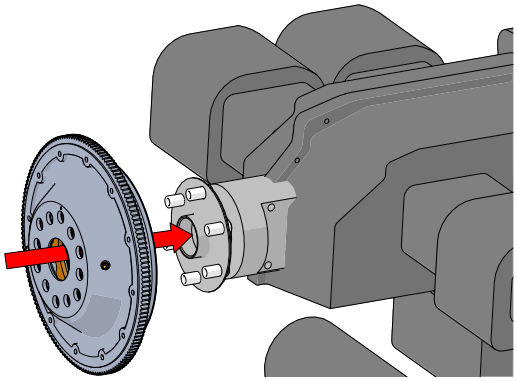
Caution *See approved anti-seize compounds.*

Attention *Anti-seize compound, Brush*

3.2 Mount Ring Gear to Engine Flange

PROCEDURE

Step 1 Mount Ring Gear



- Introduce ring gear (with slipring installed) to engine flange, noting the position of the indexing drive lug to ensure correct orientation.
- Locate ring gear over engine flange drive lugs.
- Check the assembly is fully seated and square with mounting face of engine flange.

3.3 Install Mount Kit

Generally, either an adapter or extension assembly is used for Airmaster propellers on Lycoming engines. Install the relevant mount kit in accordance with the applicable installation procedure:

- If an adapter is used, attach the adapter assembly to the hub in accordance with procedure ***ASI-4-2-2***.
- If an extension is used, mount the extension assembly to the engine flange in accordance with procedure ***ASI-4-2-3***.

3.4 Mount Hub to Engine Flange

Mount hub to engine flange in accordance with the applicable installation procedure:

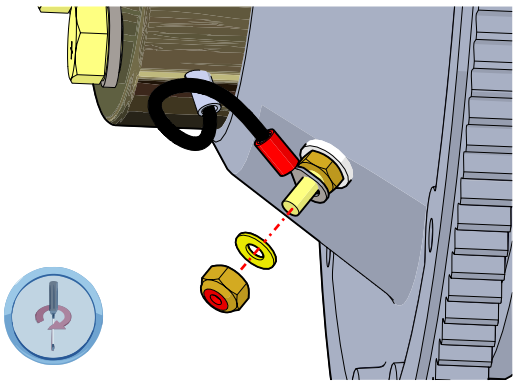
- If an adapter is used, mount the hub to the engine flange in accordance with procedure ***ASI-4-4-3***, connecting the hub power wires to the extension assembly wires.
- If an extension is used, mount the hub to the extension assembly in accordance with procedure ***ASI-4-4-4***, connecting the hub power wires to the adapter assembly wires.

3.5 Connect Wiring

PROCEDURE

Step 1 Connect Wiring

- Check correct adapter/extension assembly wires correspond to the correct slipring studs:
  - **Black** wire = outer slipring stud.
  - **Red** wire = inner slipring stud.
- Fit ring terminals over slipring studs protruding through ring gear casing.
- Fit brass washer (*P0232*) over ring terminal.
- Secure with locknut (*P0235*) and torque to **1.5Nm (1.1-lbs)**.
- Indicate with torque-seal.



Attention
11/32" Spanner, Torque screwdriver (11/32" Socket), Torque-seal

3.6 Sample Photo

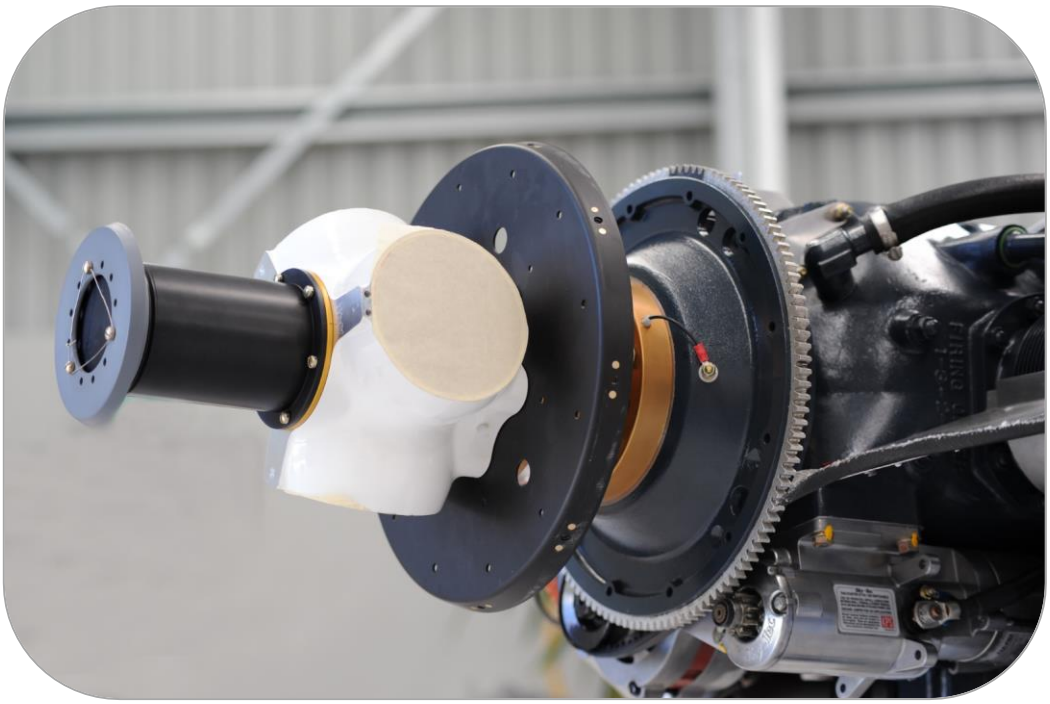


Figure 3. *Hub and extension assembly mounted to Lycoming engine (with ring gear).*

3.7 Subsequent Action

Perform the following tasks once this procedure is complete:

- Lubricate hub and blade assemblies in accordance with procedure ***ASI-4-5***.
- Install blade assemblies in accordance with procedure ***ASI-4-6***.