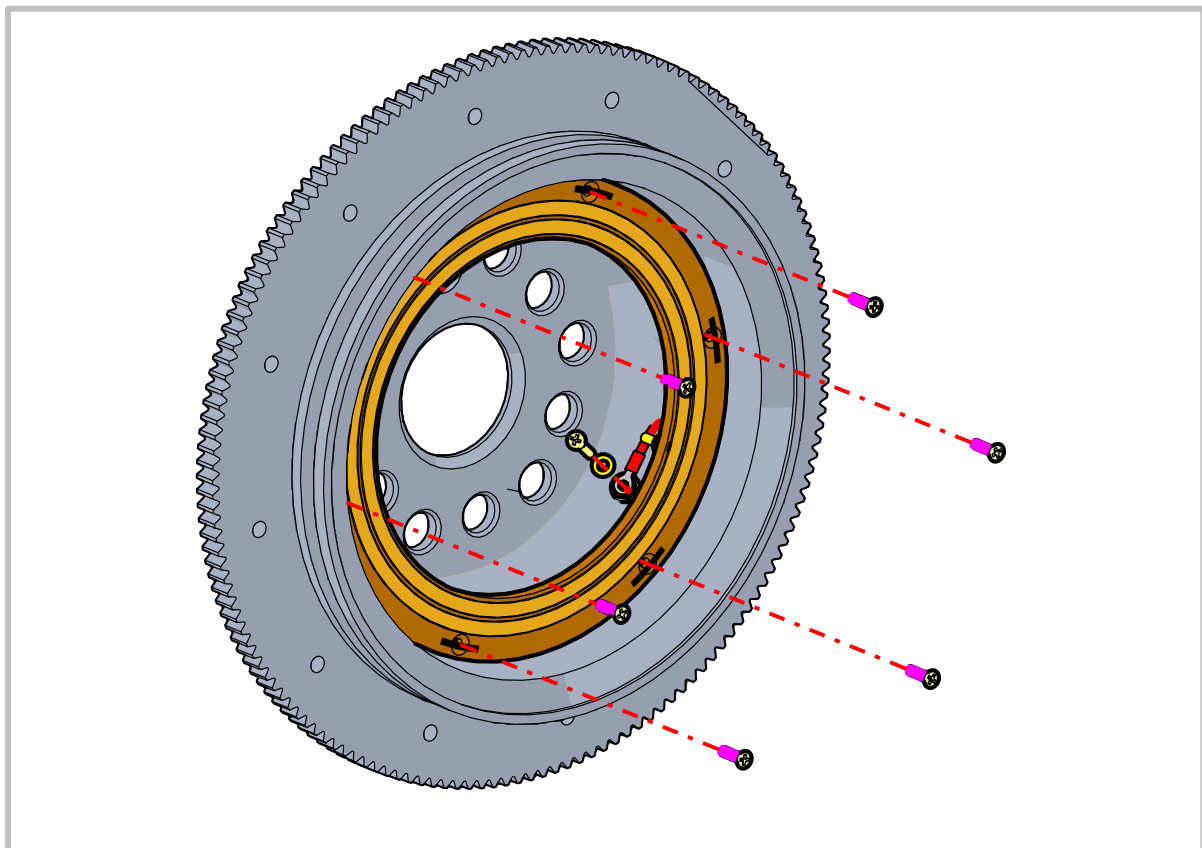


REVISION	CHANGE	APPROVED	DATE
1	Published release	JTS	27/11/2025
1a	Fitment checks and reference images	JTS	07/08/2026

ASI-4-3-3

LYCOMING SLIPRING INSTALLATION (RING GEAR)

PROCEDURE



SUBJECT:

Slipring Installation

ASSEMBLY NO:

AR-LS(+RG)

APPLICABILITY:

All propeller models used with a Lycoming engine incorporating a ring gear (with large alternator pulley)

1. TOPIC

1.1 Introduction

This document covers the procedure for installing an Airmaster slipring assembly (Lycoming-type) to a Lycoming starter ring gear (with large alternator pulley). Installers must complete this task before mounting the hub and ring gear to the engine flange.

The existence of the starter ring gear in Lycoming engines interferes with the normal position of the slipring (normally located behind the spinner backplate). As a result, the slipring is moved inside the starter ring gear, and a multi-component sensor-brush bracket assembly is used.

① 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 may be requested from Airmaster so that customers may arrange for their ring gear to be machined locally.

① Note

An alternative slipring assembly design is used for versions of the Lycoming starter ring gear that do not feature the alternator pulley.

1.2 Compatible Ring Gear Types

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



Figure 1. Airmaster Slipring assembly (and sensor-brush block) fitted inside Lycoming Ring Gear.

Some ring gears are already machined to accept sliprings for de-ice systems. These can be used, but the (6) mounting holes for the slipring must be rotated a few degrees. If you are unsure, please contact Airmaster.

1.3 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.

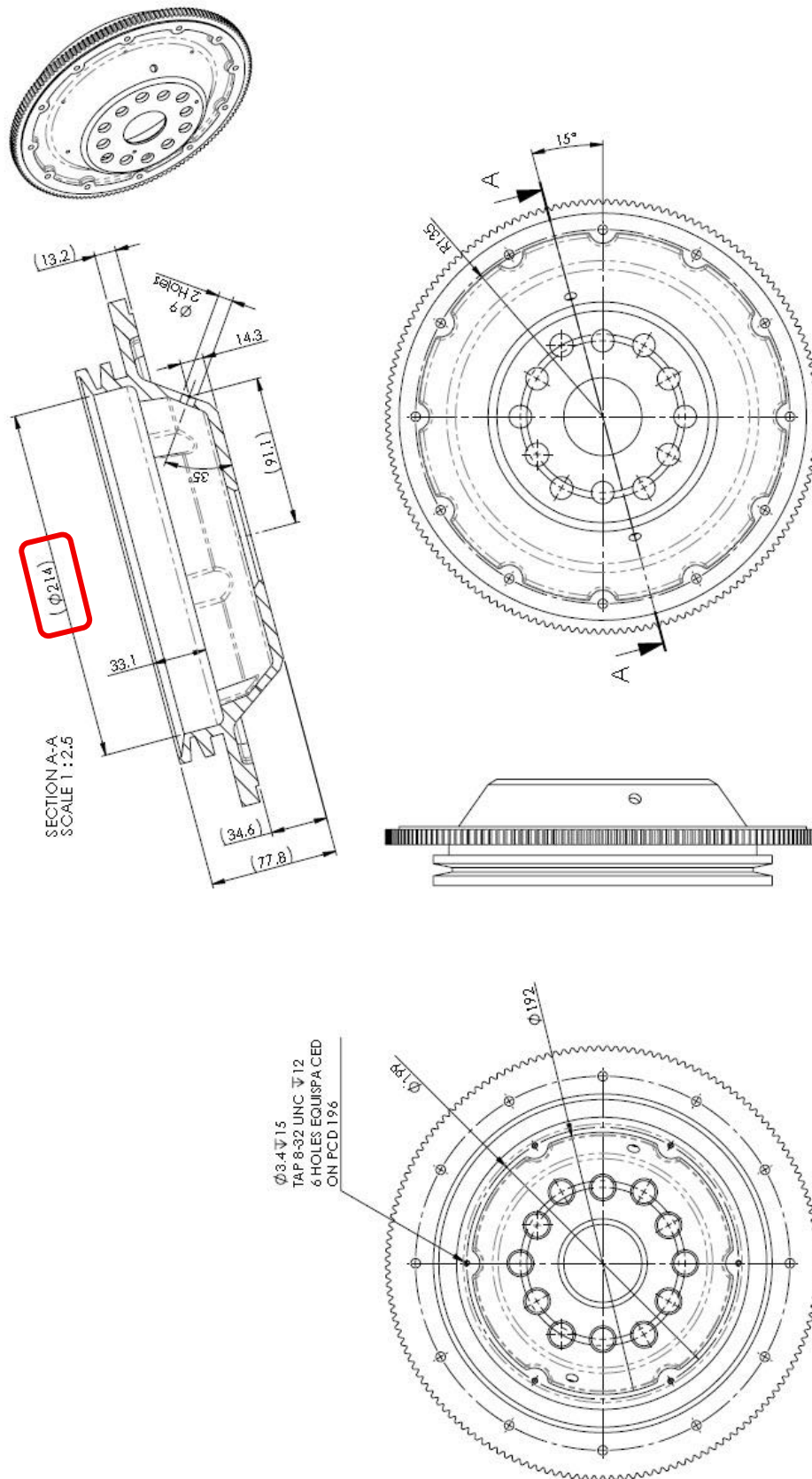


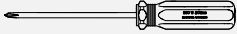
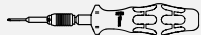
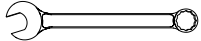
Figure 2. Lycoming Ring Gear Machining Dimensions.

2. MATERIAL REQUIREMENTS

2.1 Parts

ITEM	QTY	PART NO.	DESCRIPTION	IMAGE
1.	As required	AR-LS(+RG)	Airmaster Lycoming Slipring Assembly (incl. Ring Gear)	

2.2 Tooling

ITEM	QTY	DESCRIPTION	IMAGE
1.	1	PH2 Screwdriver	
2.	1	Torque Screwdriver (PH2) [1.6Nm]	
3.	1	Torque Screwdriver (11/32" Socket) [1.0Nm]	
4.	1	11/32" Spanner	
5.	1	Digital Multimeter (with probes)	

2.3 Consumables

ITEM	QTY	DESCRIPTION	IMAGE
1.	As required	Loctite 222	
2.	As required	Loctite 243	
3.	As required	Loctite 263	
4.	As required	Loctite Primer 7471	
5.	As required	Torque-Seal	
6.	1	Permanent Marker	

2.4 Paperwork

ITEM	QTY	CODE	DESCRIPTION
1.	1	AR-LS(+RG)	Airmaster Lycoming Slipring Assembly (incl. Ring Gear) Drawing & BoM

2.5 PPE

ITEM	QTY	DESCRIPTION	IMAGE
1.	As required	Protective Gloves	

3. PROCEDURE

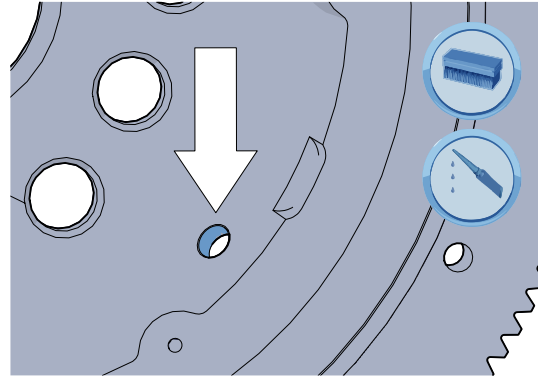
3.1 Install Isolating Bushes into Ring Gear

Note Generally, this task is completed for ring gears that are machined by Airmaster.

PROCEDURE

Step 1 Preparation

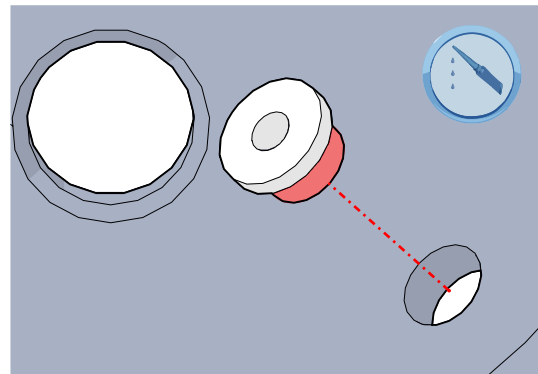
- Clean (2) holes machined through walls of ring gear (approx. 10mm diameter).
- Blow out with dry compressed air.
- Apply primer to both holes, as well as the outer diameter of (2) isolating bushes (P0840).



Attention Cleaning agent, Loctite Primer 7471

Step 2 Install Isolating Bushes in Ring Gear

- Apply a thin film of Loctite 263 to the outer diameter of (2) isolating bushes.
- Insert bushes into ring gear holes from inside.
- Ensure excess Loctite squeezes out (this indicates enough was applied). Wipe excess.
- Clamp bushes to maintain proper seating while Loctite cures..
- Once cured, check bush can't rotate in hole.



Note

If bushes can rotate, the slipring stud protruding through can rotate as well, which would cause the slipring wires to twist and damage.

Note

The length of the isolating washer must be at least 0.1mm less than the wall thickness of the ring gear to ensure correct compression with the isolating washer. Re-machine the bush as necessary.

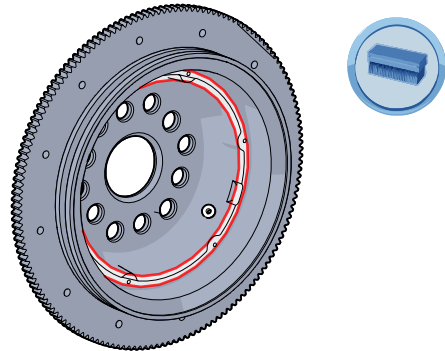
Attention Loctite Primer 7471, Loctite 263

3.2 Assemble Slipring to Ring Gear

PROCEDURE

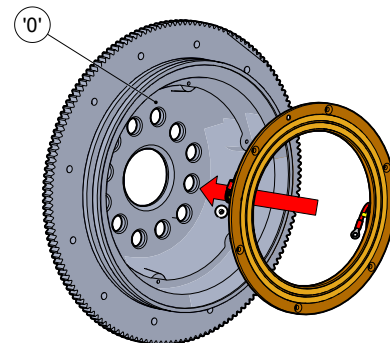
Step 1 Prepare Ring Gear

- Check stepped surfaces inside ring gear (where the slipring will be mounted) are clean and free from damage or defect.



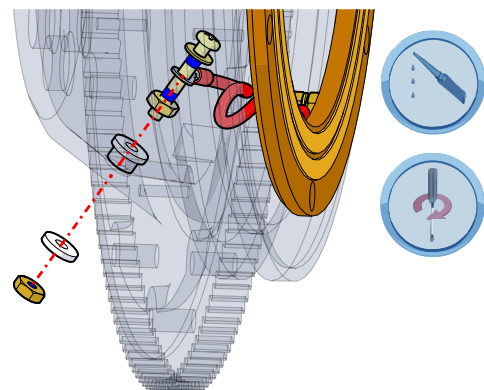
Step 2 Fit Slipring into Ring Gear

- Introduce slipring assembly into ring gear, note the position of the black and red wires in relation to the '0' marker' on the outside of the ring gear.
- Check fitment of both slipring wires, ensuring there is no obstruction or pinching. Check ring connectors are oriented with flat side against the walls of the ring gear.



Step 3 Connect Slipring Wires

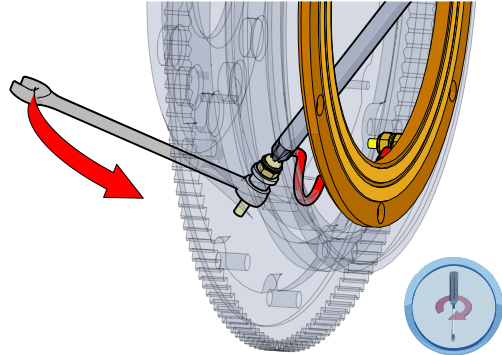
- Connect black and red slipring wires to opposite sides of the ring gear, as follows:
 - Fit brass washer (P0232) to 8-32UNC x 1.25" panhead screw (P0842).
 - Fit ring connector (slipring link wire) to screw.
 - Apply a small amount of Loctite 243 to the next few threads of the screw.
 - Fit 8-32 UNC brass nut (P0233) to screw.
 - Insert screw through isolating bush (wall of ring gear).
 - Fit isolating washer (P0841) on opposite side.
 - Apply a small amount of Loctite 243 to the next few threads of the exposed screw.
 - Fit a second brass nut (P0233) to the screw.



Attention Loctite 243, Paperclip

Step 4 Secure Ring Gear Studs

- Check the orientation and placement of both link wires. Manoeuvre the wires as necessary to avoid obstruction, pinching, or potential shorts.
- Check clearance around all locknuts, ensure they do not contact (short against) the ring gear.
- Secure both studs as follows:
 - Restrain the screw inside the ring gear with a PH2 screwdriver.
 - Torque the brass screw outside the ring gear (P0233) to **1.0Nm (0.74ft-lbs)**.
- Indicate with torque-seal.

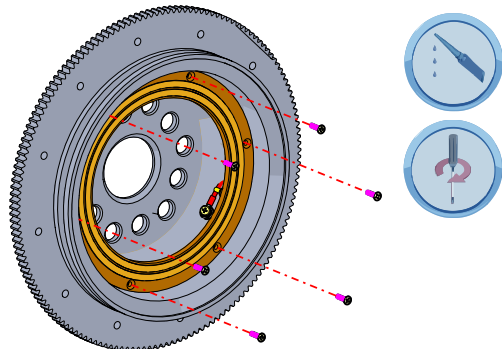


ⓘ Attention

Torque-seal, PH2 Screwdriver, Torque screwdriver (11/32" Socket)

Step 5 Attach Slipring to Ring Gear

- Align (6) holes in slipring with holes in stepped surfaces of ring gear.
- Apply a thin stripe of Loctite 222 to the threads of (6) 8-32 UNC countersunk screws (P0161).
- Attach slipring to ring gear with these screws.
- Torque screws to **1.6Nm (1.2ft-lbs)** in sequence of opposing pairs.
- Indicate with permanent marker line.



ⓘ Attention

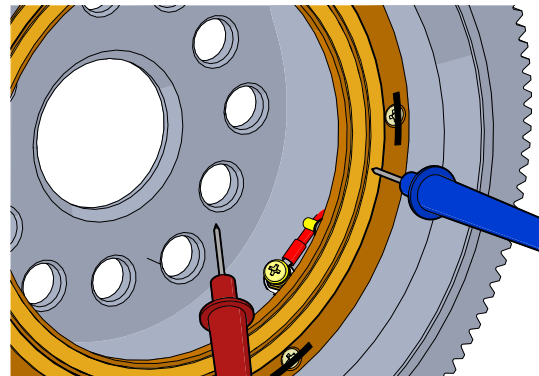
Loctite 222, PH2 Torque screwdriver, Permanent marker

Step 6 Check Electrical Continuity

- Check there is no electrical continuity between sliprings.
- Check there is no electrical continuity between each slipring and the ring gear casing.

ⓘ Attention

Digital multimeter (with probes)



3.3 Reference Images

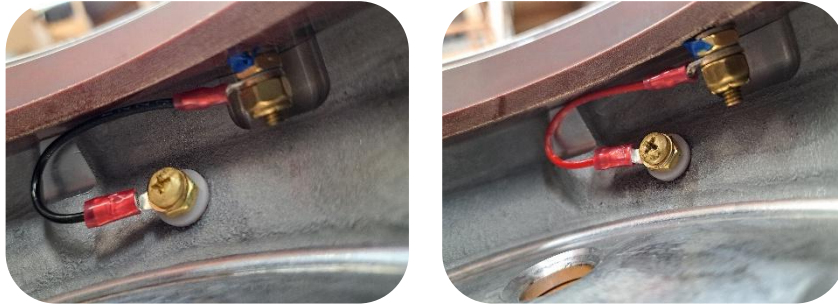


Figure 3. Lycoming slipring stud installation shown inside ring gear.

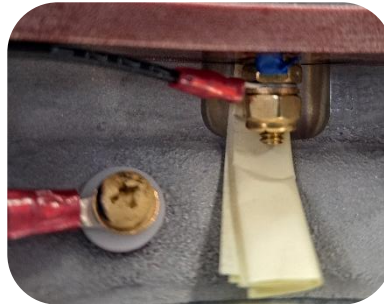


Figure 4. Paper wedged behind locknut to demonstrate clearance between slipring electrical connections and ring gear casing, to ensure no electrical shorts can occur.

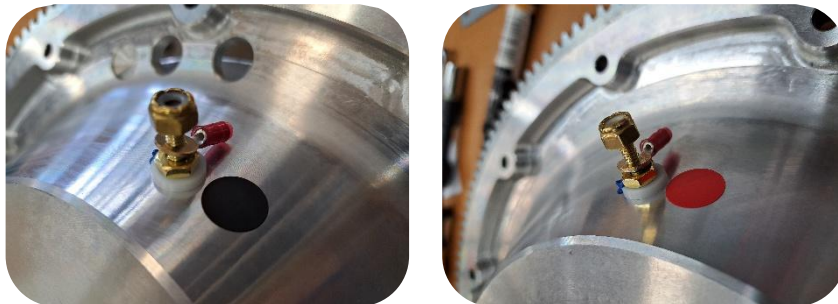


Figure 5. Lycoming slipring stud installation shown outside ring gear (wires indicated with sticker)

3.4 Subsequent Action

Perform the following tasks once this procedure is complete:

- Mark the black and red wires on the outside of ring gear, to enable clear connection to the hub wires later (these will not be visible when the hub is mounted to the engine flange).
- Installers may find it easier to set up the sensor-brush assembly bracket at this point in accordance with procedure **ASI-4-8-6**. This is more convenient while the ring gear can be easily removed from the engine flange, as it provides more space for installers to adjust and lock the brush block position.
- Mount the ring gear and hub to the engine flange in accordance with procedure **ASI-4-4-5**.