

Revison	Change	Approve	Date
0	Initial release	mje	18/10/2109

SERVICE BULLETIN

APL-SB18

Date of Issue: 18/Oct/2019

Applicability: Propeller Models: ALL AP332S models with steel retention components manufactured up to Nov 2019

Compliance: Initial: At Owners Discretion or in the event of grease seepage from the retention nut seal

Subsequent: Normal monitoring at 100 hr check

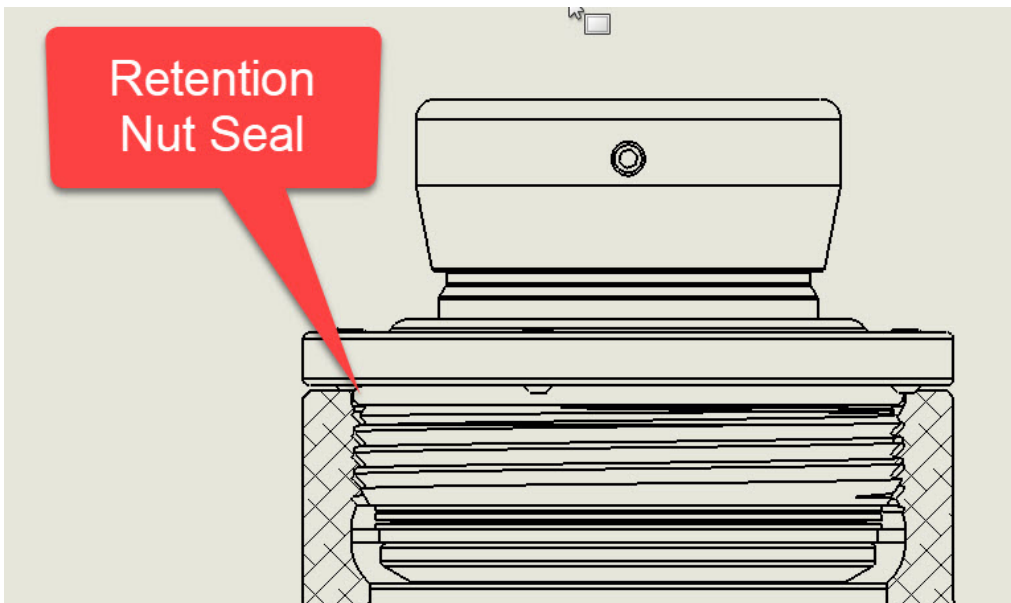
SUBJECT: GREASE SEEPAGE FROM RETENTION NUT SEAL

Introduction

Some customers of the AP332S model have noted a small seepage of grease emanating from the area between the retention nut and the hub on new or relatively new propellers.



Upon investigation it has become apparent that a cumulative tolerance stack up on all the retention components has led to the possibility that the O-ring seal may have insufficient engagement into the hub counterbore to properly retain the grease from escaping.



Solution

There are two possible solutions to this problem. O-ring replacement or thrust bearing spacer replacement. Only one of the two solutions needs to be carried out.

O-ring replacement

1. The o-ring (P0194) sealing between the retention nut and the hub can be replaced with one that is slightly larger (P0414-232). The increased interference from the larger o-ring will form an effective seal.

Note: This solution can be carried out in the field by any service personnel. No special tools are required other than those normally used to do the 100hrs service

Thrust bearing spacer replacement

2. The thrust bearing spacer (P0047) can be upgraded to the next revision of this part (P0047 r1A -> P0047 r2). The thinner section of the new part will allow the retention nut to seat more deeply in the hub bore and allow the existing seal to reach its proper engagement.

Note: This solution can not be performed in the field and involves sending the blade assemblies back to Airmaster for corrective action.

Note: All AP332S models manufactured after 1st Nov 2019 will have the revision 2 spacer and the original o-ring.

Compliance

O-ring Replacement.

- a. Use procedure described in the Operators Manual “Part 11.2.2 Periodic Inspection and Lubrication” for the 100hrs service to remove the three blade assemblies from the hub.
- b. Remove the existing o-ring situated at the base of the threaded section of the retention nut

Caution: Take care not to damage the retention nut threads or the area under the o-ring with any scratching

- c. Install new o-ring into the position occupied by the old o-ring.

Note: The new o-ring has a smaller inner diameter so will require to be stretched over the retention nut threads.

Caution: Take care not to over stretch the new o-ring. Use of a wooden spatula may help to install the new o-ring with minimal stretching

- d. Re-install the blade assembly as per instructions Operators Manual Part 11.2.2

Note: The increased interference of the o-ring will require a greater torque to be applied to the retention nut when installing it into the hub.

Standard torque	New torque
10Nm	15Nm

Caution: Ensure the o-ring and the blade bore are lubricated with a thin film of grease. Failure to properly lubricate the o-ring can cause the retention nut to reach the specified torque but not preload the bearing sets.

Note: The purpose of the torque specification on the retention nut is to eliminate play between the retention bearings. The final test that the play has been eliminated is to rock the blade fore and aft (at the 75% radial position) and observe that there is no movement between the ferrule and the retention nut.

Note: This test should be performed after installation of the retention nut at 15Nm and confirm that no rocking exists.

Note: If rocking cannot be eliminated with 15Nm of installation torque contact Airmaster propellers for advice.

Thrust bearing spacer replacement

- a. Use the procedure described in the operator’s manual “Part 11.2.2 Periodic Inspection and Lubrication” for the 100hrs service to remove the three blade assemblies from the hub
- b. Remove the bulk of the grease from the retention assemblies by wiping with a paper towel

- c. Carefully wrap the retention assemblies with plastic wrap (food grade sandwich wrap can be used)
- d. Fit blades into original Airmaster blade packaging boxes.

Caution: Failure to use original Airmaster blade packaging boxes can lead to blade damage during transport.

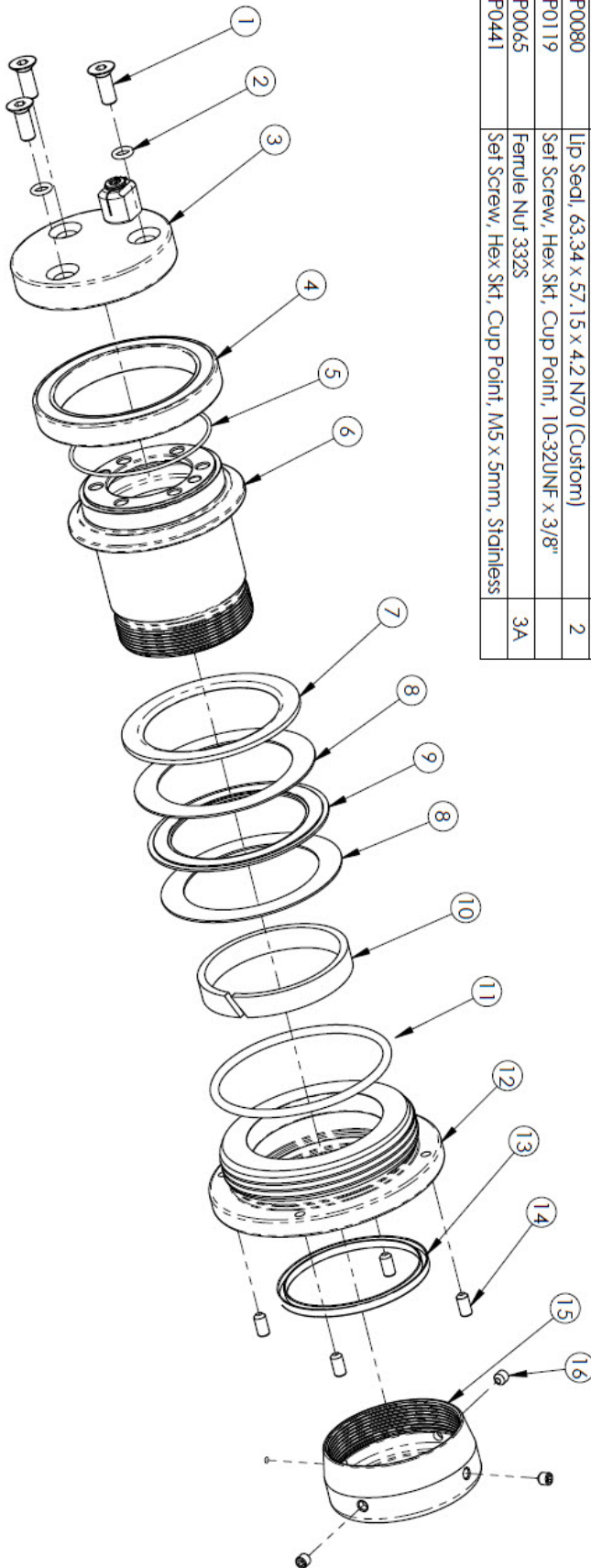
- e. Contact Airmaster propellers to arrange shipping back to Airmaster for spacer replacement.
- f. When blades are returned, grease and install in the normal way as described in the Operators Manual Part 11.2.2

Note: If this option is used then the installation torque for the retention nut remains at the original 10Nm

Subsequent Actions

- a. Return the completed compliance record to Airmaster propellers for our records
- b. Insert the updated BOM (see below) into the propeller file
- c. Record the new installation torque (15Nm) into the operators handbook
- d. Monitor propeller for grease leaks during normal pre-flight inspection

ITEM NO.	QTY	PART NO. ASSY NO.	DESCRIPTION	REV
1	3	P0438	Hex Skt Csk Hd Screw M6 x 16	
2	2	P0542	O-Ring 009N70 (7/32" x 11/32" x 1/16")	
3	1	A0322	Cam-Follower 332S Assy	2
4	1	P0108	Deep Groove Ball Bearing, 2RS1 Seal, 60x78x10	
5	1	P0081	O-ring Metric 57.0x1.5 N70	
6	1	P0064	Ferrule 332S	2A
7	1	P0047	Thrust Bearing Spacer 332S	1A
8	2	P0134	Thrust Washer, 2 1/4" x 3" x 0.032"	
9	1	P0109	Needle Roller Thrust Bearing, 2 1/4" x 3"	
10	1	P0079	Wear Ring 2.5 x 2.25 x 0.375 (WR2500)	
11	1	P0414-232	O-Ring, nitrile rubber, 69.44mm x 3.53mm	
12	1	P0048	Retention Nut 332S	1
13	1	P0080	Lip Seal, 63.34 x 57.15 x 4.2 N70 (Custom)	2
14	4	P0119	Set Screw, Hex Skt, Cup Point, 10-32UNF x 3/8"	
15	1	P0065	Ferrule Nut 332S	3A
16	3	P0441	Set Screw, Hex Skt, Cup Point, M5 x 5mm, Stainless	



ASSY FILE: Blade Retention 332S Assy		REV: 3B	3B	O Ring changed as per SB-18	18/10/19	BOM	<p>Airmaster Propeller Ltd 201 Hazard Rd, Manurewa PO Box 374, Kumeu Auckland, New Zealand Ph: +64 9 833 1794 Email: support@propeller.com Web: www.propeller.com</p>
DRG FILE: A0320 Blade Retention 332S BOM			3A	P0080 to Rev 2	07/01/19		
ASSY NO: A0320			3	O Rings added	11/09/17		
DESCRIPTION: Blade Retention 332S Assy			2	Lip seal added	11/11/16	COPYRIGHT RESERVED ©	<p>The information contained in this drawing is the sole property of Airmaster. Any reproduction in part or whole without written permission of Airmaster is prohibited.</p>
			1	Original	07/01/13		



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SB-18 COMPLIANCE RECORD

Propeller Serial #		Total Flight Hours:	
Model No:	AP-332S	Year of Manufacture:	

O-ring replacement

Blade serial numbers	
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Spacer replacement

Blade serial numbers	
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Customer Information

Name:			
Address:			
	State:	Country:	Postal Code:
Contact:			

Installed by

Name/
 Company: _____

Signature: _____

Date: _____