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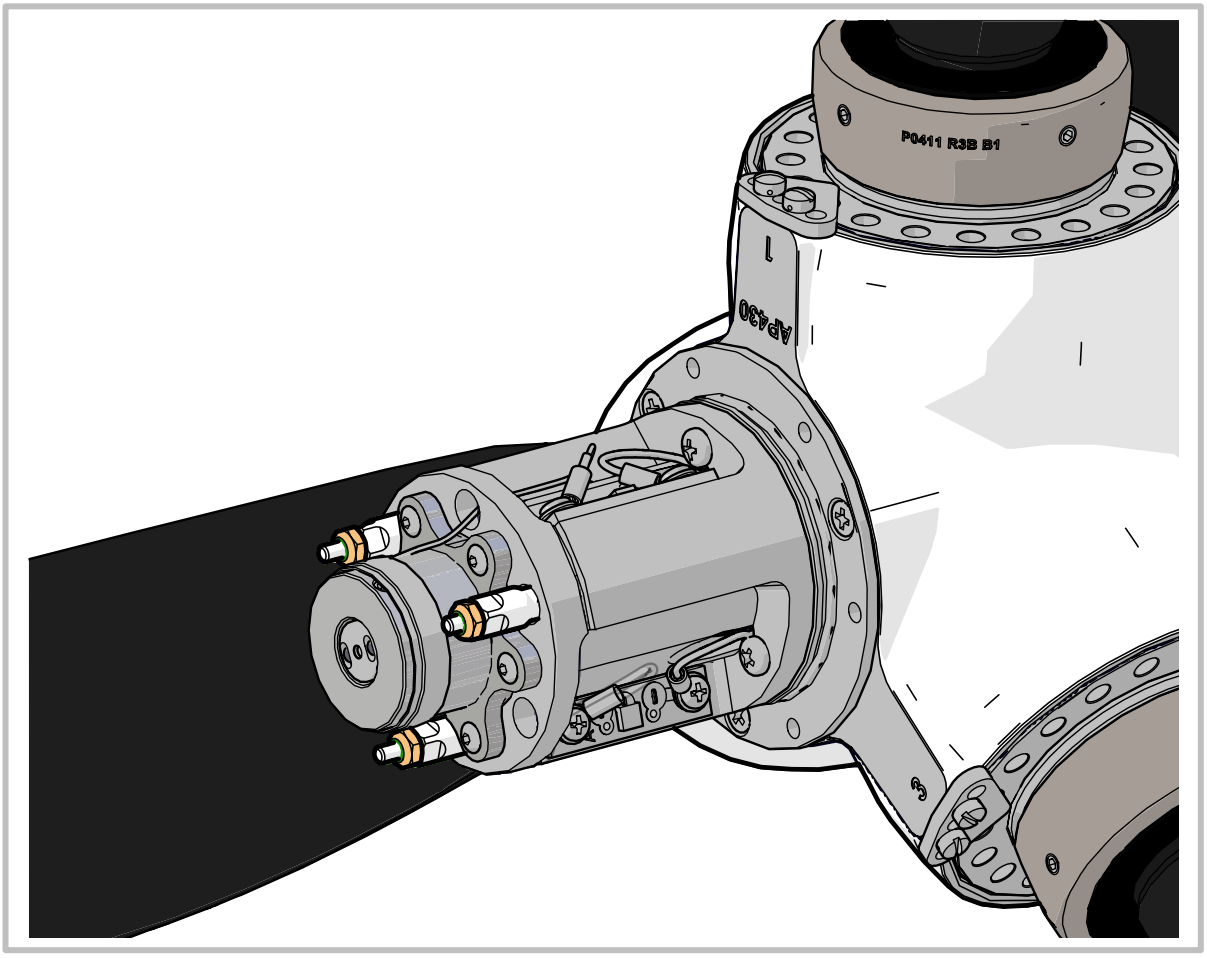
ASI-5-3-1

IDENTIFYING ADJUSTABLE PITCH STOPS FOR PROPELLER

GUIDE



SUBJECT:	
Propeller Setup	
ASSEMBLY NO:	**APPLICABILITY:**
AH-xxx	All propeller models

1. TOPIC

1.1 Introduction

This document covers the function of the adjustable pitch stops for an Airmaster propeller and outlines their configuration inside various hub models.

> ⓘ *Note*
> *The procedure for adjusting propeller's adjustable pitch limit stops and an overview of their recommended setting is covered in **ASI-5-3-2**.*

1.2 Description of Adjustable Pitch Stops

The propeller's adjustable pitch limit stops are located within the hub, in the area where the pitch change motor is found. This is accessible by removing the hub motor cap.

Each pitch stop consists of a cylindrical pitch feedback cam connecting to the pitch change slide by a threaded pitch feedback rod. The pitch feedback cam triggers a corresponding microswitch within the propeller's electrical circuit, which controls power supplied to the pitch change motor.

Propeller blade pitch is adjusted by the pitch change mechanism travelling fore and aft inside the propeller hub. When the mechanism reaches a predetermined pitch position (configured by the operator), the pitch feedback cam activates the corresponding microswitch. This activation interrupts power supplied to the pitch change motor, thus halting further pitch adjustment in that direction.

Operators can fine-tune the activation point of the microswitches by rotating the associated cam on its feedback rod, thereby setting the desired propeller pitch limit (and corresponding engine speed).

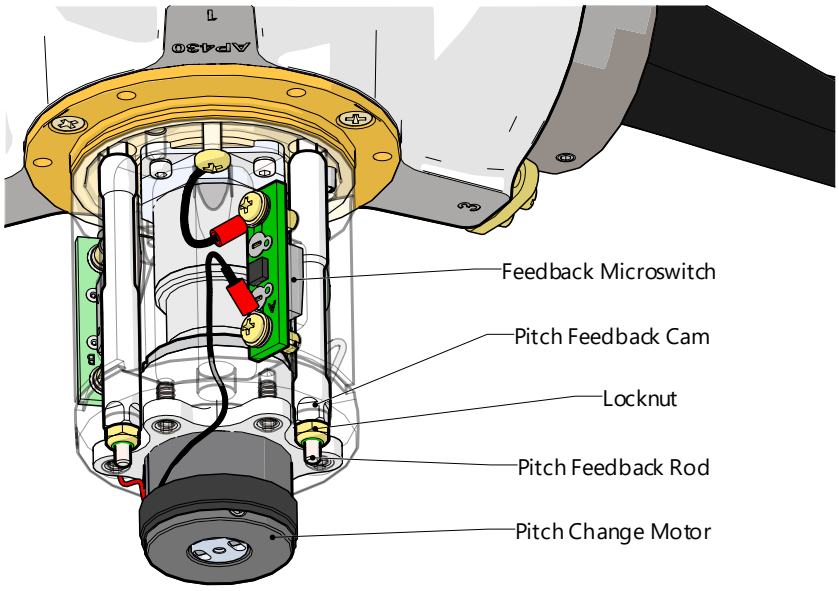


Figure 1. *Pitch Change Mechanism Components (AH-430CF shown).*

1.3 Identification of Adjustable Pitch Stops

Each adjustable pitch stop is associated with its own microswitch, electrical circuit and slipring. They can be distinguished by the colour of wiring associated with their corresponding microswitch:

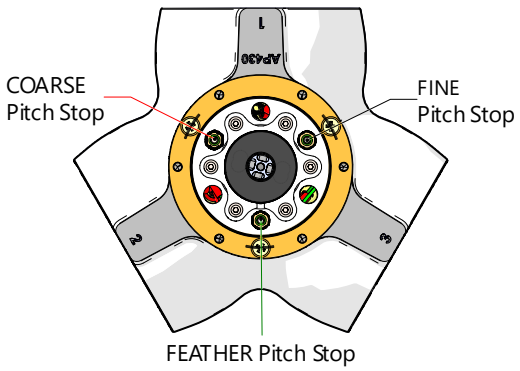
ADJUSTABLE PITCH STOP	CIRCUIT WIRING COLOUR	SLIPRING POSITION
Fine	**Black**	Outer
Coarse	**Red**	Centre
Feather *(option)*	**Green**	Inner *(if applicable)*
Reverse or Pre-Rotate *(option)*	**Blue**	Inner *(if applicable)*

The layout of adjustable pitch stops varies across different propeller hub models as shown below.

> *Note*
> *Digital servo-drive (DSD) hub models only incorporate physical stops for the fine and coarse pitch stops, whereas the feather/reverse pitch stops (as applicable) are virtually defined by the controller.*

1.3.1 3 or 5-Port Hubs

HUB CONFIGURATION	STANDARD or DSD	FEATHER	REVERSE or PRE-ROTATE
Pitch Feedback Cams:	(1) **Fine** (1) **Coarse**	(1) **Fine** (1)**Coarse** (1) **Feather**	(1) **Fine** (1) **Coarse** (1) **Reverse** or (1) **Pre-rotate**
Qty of Microswitches:	2	3	4 (*Fine pitch stop has 2 microswitches as a safeguard*)
Applicable Hub Models:	AH-*x*3*xx*S or AH-x3xxx(i30-xx) AH-*x*5*xx*S or AH-x5xxx(i30-xx)	AH-*x*3*xx*F AH-*x*5*xx*F	AH-*x*3*xx*R or AH-*x*3*xx*P AH-*x*5*xx*R or AH-*x*5*xx*P



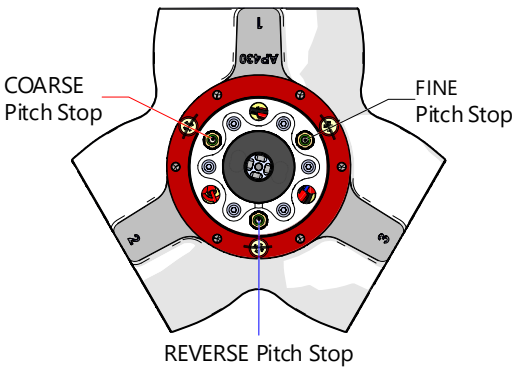


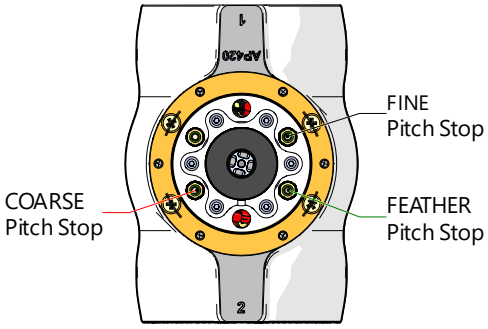
Figure 2. ***(Left)*** *Layout of adjustable pitch stops in a 3-port feathering hub (AH-430CF shown).*

Figure 3. ***(Right)*** *Layout of adjustable pitch stops in a 3-port reversing hub (AH-430AR shown).*

> *Note*
> *The layout of adjustable pitch stops in the 3-port hub models shown above also applies for 5-port hub models (with port 1 in the same orientation).*

1.3.2 2 or 4-Port Hubs

HUB CONFIGURATION	STANDARD or DSD	FEATHER	REVERSE or PRE-ROTATE
Pitch Feedback Cams:	(1) **Fine** (1) **Coarse**	(1) **Fine** (1) **Coarse** (2) **Feather** (*1 inactive*)	(2) **Fine** (1) **Coarse** (1) **Reverse** or (1) **Pre-rotate**
Qty Of Microswitches:	2	3 (*No microswitch for inactive feather cam*)	4 (*Fine pitch stop has 2 microswitches as a safeguard*)
Applicable Hub Models:	AH-*x*2*xx*S or AH-x2xxx(i30-xx) AH-*x*4*xx*S or AH-x4xxx(i30-xx)	AH-*x*2*xx*F AH-*x*4*xx*F	AH-*x*2*xx*R or AH-*x*2*xx*P AH-*x*4*xx*R or AH-*x*4*xx*R



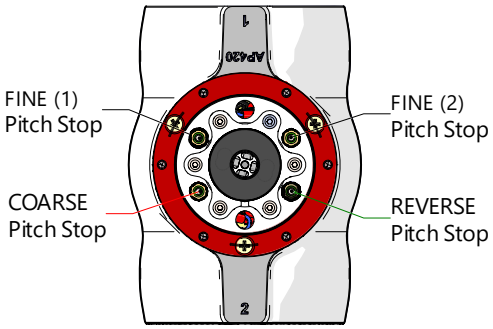


Figure 4. ***(Left)*** *Layout of adjustable pitch stops in a 2-port feathering hub (AH-420CF shown).*

Figure 5. ***(Right)*** *Layout of adjustable pitch stops in a 2-port reversing hub (AH-420AR shown).*

> *Note*
> *The layout of adjustable pitch stops in the 2-port hub models shown above also applies for 4-port hub models (with port 1 in the same orientation).*

> ***Caution***
> *Both fine pitch cams must be adjusted to the desired fine pitch limit setting.*

1.3.3 Exceptions to Rule

Propeller hub models **AH-544Sxx** or **AH-545Sxx** (incorporating pitch change assembly A0477(R) or A0478(R) respectively) are an exception to the conventions stated above.

The layout of adjustable pitch stops in these 4-port hubs follows the conventions for a 3 or 5-port hub instead.