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ASI-5-1-1

PROPELLER FUNCTIONAL TESTS (WITH ENGINE OFF)

PROCEDURE

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

1. TOPIC

1.1 Introduction

This document covers the recommended procedure for testing and verifying the basic functions of an Airmaster propeller while the engine is turned off. These tests are designed to check for correct operation of the propeller's pitch change mechanism, the adjustable pitch stops, and the basic functions of the Airmaster Controller.

Each test is presented as a step-by-step checklist with visual cues that operators can print. The left column outlines the operator's required action, while the right column details the expected response.

Operators should perform these checks during initial setup of the propeller (before first flight), and after periodic inspection routines or other service procedures.

Some tests apply exclusively for feathering or beta-enabled (reversing or pre-rotate) propellers. Operators must follow the tests which are relevant for their set up. It is the operator's responsibility to ensure that any incorrect operation is identified and rectified before next flight.

1.2 Prerequisites

Complete the following tasks before proceeding:

- Install Airmaster propeller system on to suited aircraft.
- Review controller status indications and their meanings in accordance with ***ASI-6-1-1*.**

1.3 Admonishments

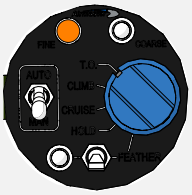
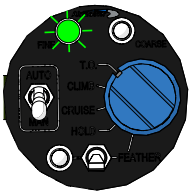
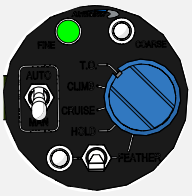
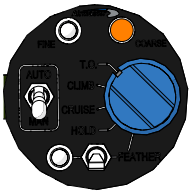
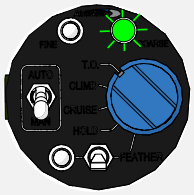
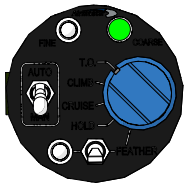
> ⓘ *Note*
> *The following procedures are a functional check only. The actual pitch limits for the propeller may not be correct for flight and should be set later. 'Pitch Limit' refers to the propeller pitch setting determined by the applicable adjustable pitch stop.*
>
> ⓘ *Note*
> *If these tests are performed for troubleshooting purposes, capture a video showing the controller and propeller response for each step to assist with subsequent review.*

2. PROCEDURE

2.1 Test Manual Operation

This test checks correct operation of the propeller using manual over-ride mode, and correct function of the fine and coarse pitch limit stops.

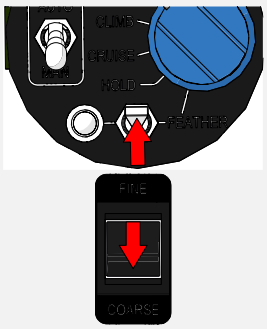
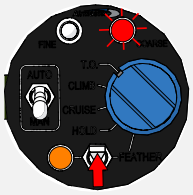
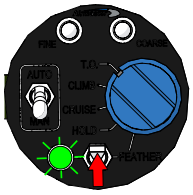
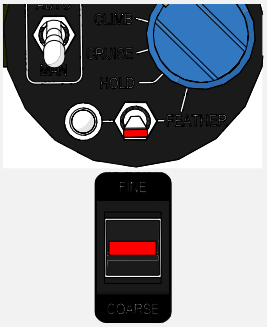
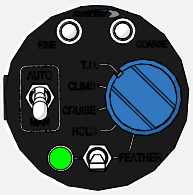
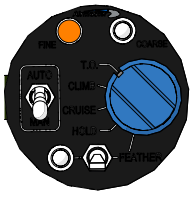
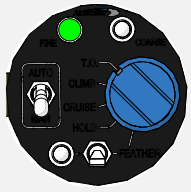
- This test is applicable for all propeller models.
- Perform this test with the engine off and aircraft power on.
- Set controller to manual over-ride mode (**MAN**) for the duration of this test.

STEP	ACTION	CORRECT RESPONSE		☑
1.		Toggle FINE on the manual switch: • Propeller pitch decreases smoothly. • FINE lamp illuminates orange.		☐
2.		When the fine pitch limit is reached (and the manual switch is toggled FINE): • Pitch adjustment halts. • FINE lamp flashes green.		☐
3.		Release the manual switch: • FINE lamp turns solid green.		☐
4.		Toggle COARSE on the manual switch: • Propeller pitch increases smoothly. • COARSE lamp illuminates orange.		☐
5.		When the coarse pitch limit is reached (and the manual switch is toggled COARSE): • Pitch adjustment halts. • COARSE lamp flashes green.		☐
6.		Release the manual switch: • COARSE lamp turns solid green.		☐

2.2 Test Manual Feather Operation (As Applicable)

This test checks correct operation of the propeller's feathering function using manual over-ride mode.

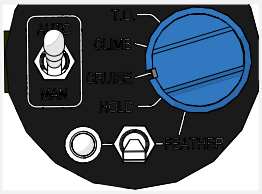
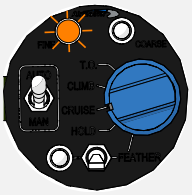
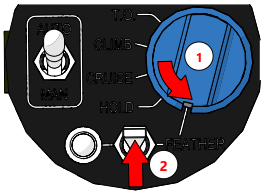
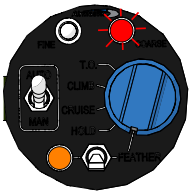
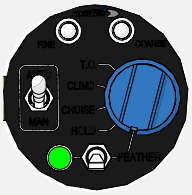
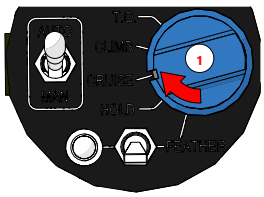
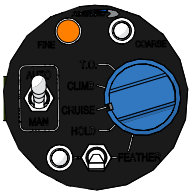
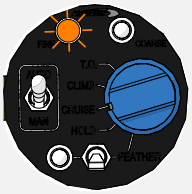
- This test applies for feathering-enabled propellers only.
- Perform this test with the engine off and aircraft power on.
- Set controller to manual over-ride mode (**MAN**) for the duration of this test.

STEP	ACTION	CORRECT RESPONSE	☑
1.		Simultaneously lift (hold up) the FEATHER engage switch and toggle COARSE on the manual switch: • Propeller pitch increases smoothly (bypasses the coarse pitch limit) towards the feather pitch limit. • COARSE lamp flashes red, FEATHER lamp illuminates orange. 	☐
2.		When the feather pitch limit is reached (and the manual switch is toggled COARSE): • Pitch adjustment halts. • FEATHER lamp flashes green. 	☐
3.		Release both switches: • FEATHER lamp turns solid green. 	☐
4.		Toggle FINE on the manual switch: • Propeller pitch decreases smoothly. • FINE lamp illuminates orange. 	☐
6.		When the FINE pitch limit is reached: • Pitch adjustment halts. • FINE lamp flashes green (turns solid green when the manual switch is released). 	☐

2.3 Test Automatic Feather Operation (As Applicable)

This test checks correct operation of the propeller's automatic feathering and unfeathering functions.

- This test applies for feathering-enabled propellers only.
- Perform this test with the engine off and aircraft power on.
- Set controller to automatic mode (**AUTO**) for the duration of this test.

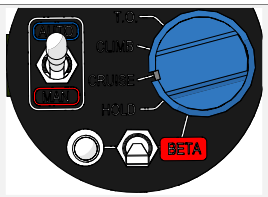
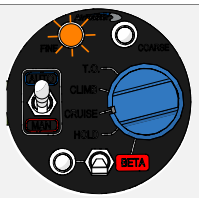
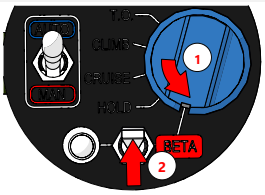
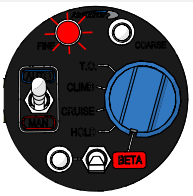
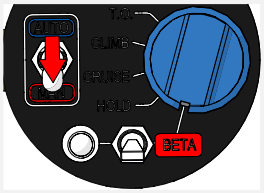
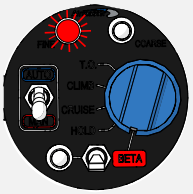
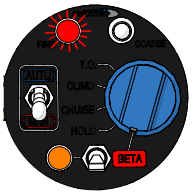
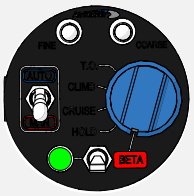
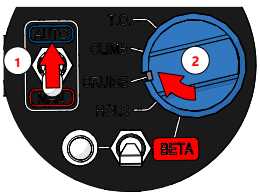
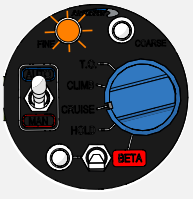
STEP	ACTION	CORRECT RESPONSE		☑
1.		Select AUTO/CRUISE: • FINE lamp flashes orange (this indicates no speed signal).		☐
2.		Select AUTO/FEATHER. Actuate the FEATHER engage switch: • Propeller pitch smoothly increases (bypasses the coarse pitch limit) towards the feather pitch limit. • COARSE lamp flashes red, FEATHER lamp illuminates orange.		☐
3.	-	When the feather pitch limit is reached: • Pitch adjustment halts. • FEATHER lamp turns green.		☐
4.		Select AUTO/CRUISE (to initiate the automatic pitch return cycle): • Propeller pitch decreases smoothly. • FINE lamp illuminates orange.		☐
5.	-	When propeller pitch returns to normal flight range: • Pitch adjustment halts (between the fine and coarse pitch limit). • FINE lamp flashes orange.		☐

ⓘ *Note* *It is normal to observe a brief pause in blade movement during the feather return cycle.*

2.4 Test Automatic Beta (or Pre-Rotate) Operation (As Applicable)

This test checks correct operation of the propeller's beta engage, drive and automatic return functions.

- This test applies for beta-enabled (reversing), or pre-rotate-enabled propellers only.
- Perform this test with the engine off and aircraft power on.

STEP	ACTION	CORRECT RESPONSE		☑
1.		Select AUTO/CRUISE: • FINE lamp flashes orange (this indicates no speed signal).		☐
2.		Select AUTO/BETA. Actuate the BETA engage switch (to initiate beta engage): • FINE lamp flashes red (1Hz).		☐
3.		Select MAN (to initiate beta drive): • FINE lamp flashes red rapidly (5Hz).		☐
4.		Toggle FINE on the manual switch: • Propeller pitch decreases (bypassses fine pitch limit) towards the beta pitch limit. • BETA lamp illuminates orange.		☐
5.		When the beta pitch limit is reached: • Pitch adjustment halts. • BETA lamp flashes green (turns solid green when the manual switch is released).		☐
7.		Select AUTO/CRUISE (to initiate the automatic pitch return cycle): • COARSE lamp illuminates orange. • Propeller pitch increases smoothly.		☐
8.	-	When propeller pitch returns to normal flight range: • Pitch adjustment halts (between the fine and coarse pitch limit). • FINE lamp flashes orange.		☐

2.5 Subsequent Action

Perform the following tasks once this procedure is complete:

- Test propeller function with the engine running in accordance with procedure ***ASI-5-1-2*.**