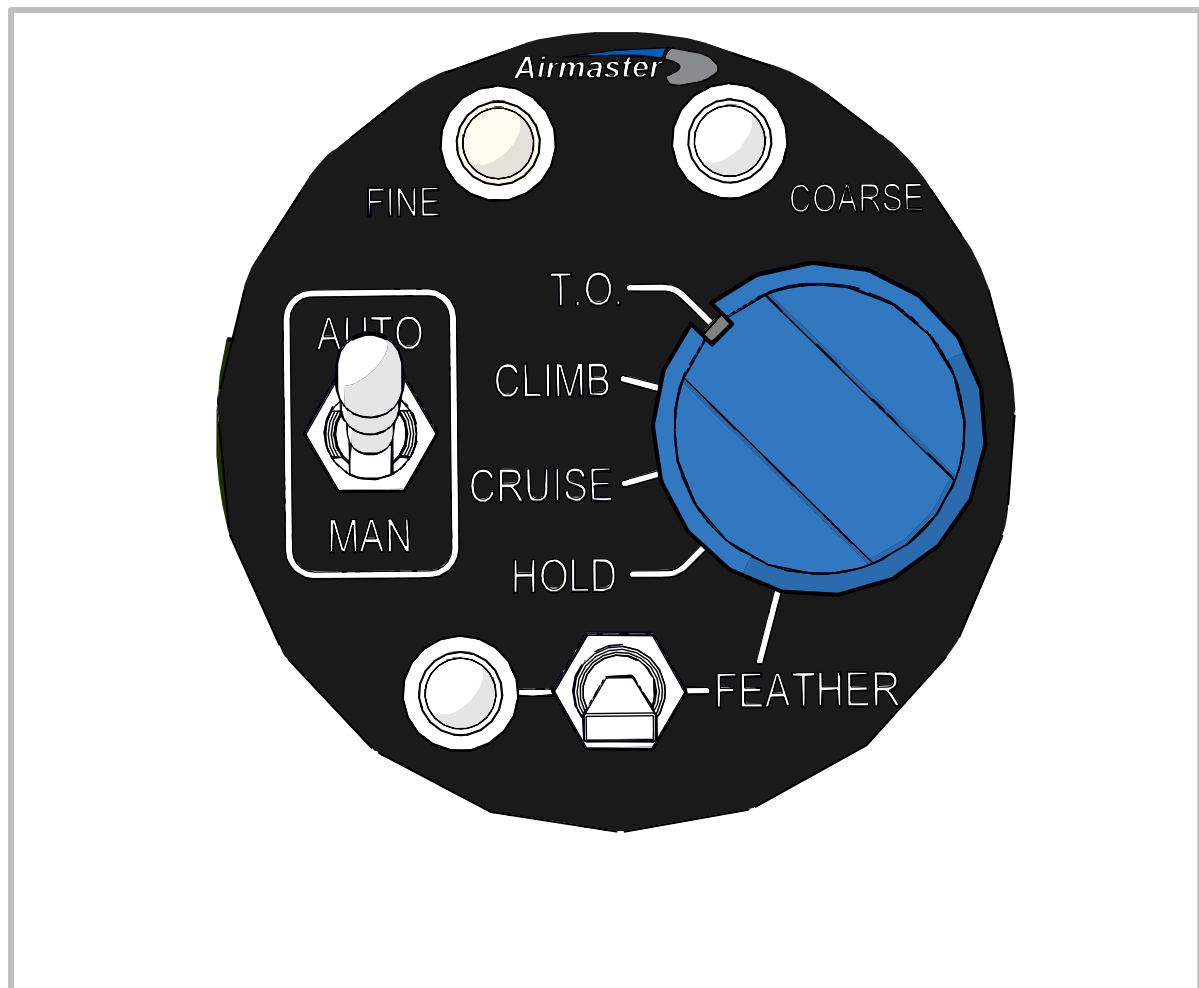


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ASI-6-1-1

CONTROLLER STATUS INDICATIONS

GUIDE



SUBJECT:

Operation of Controller

ASSEMBLY NO:

A0110x or A0170x

APPLICABILITY:

All propeller models

1. TOPIC

1.1 Introduction

The Airmaster controller uses indicator lamps (three-colour LEDs) to display the status of the propeller and control system. These lamps are labelled 'FINE', 'COARSE' and 'FEATHER' / 'BETA' (options) on the controller front panel; they indicate the drive states of the controller and the propeller's pitch limit stops.

Note 'Pitch limit' refers to the pitch setting determined by the relevant adjustable pitch stop.

1.2 Overview of Controller Indications

PROPELLER / CONTROLLER STATUS	APPLICABLE MODELS	CONTROLLER LAMP		
		FINE	COARSE	FEATHER / BETA
Pitch decreasing	All	Orange		
Pitch increasing	All		Orange	
Pitch increasing in feather / decreasing in beta	Feather/Beta Only			Orange
No speed signal	All	Orange Flash		
Hub calibration in progress	DSD Only			Double Orange Flash
Fine pitch limit	All	Green		
Coarse pitch limit	All		Green	
Feather / beta pitch limit	Feather/Beta Only			Green
Driving at fine pitch limit	All	Green Flash		
Driving at coarse pitch limit	All		Green Flash	
Driving at feather / beta pitch limit	Feather/Beta Only			Green Flash
Hub calibration complete	DSD Only	Double Green Flash		
Hub calibration error	DSD Only			Double Red Flash
Beta mode engaged	Beta Only	Red Flash		
Fine pitch limit over-ride	Beta Only	Rapid Red Flash		
Coarse pitch limit over-ride	Feather Only		Rapid Red Flash	
Over-current while pitch decreasing	All	Red		
Over-current while pitch increasing	All		Red	
Over-current while pitch adjusting in feather / beta	Feather/Beta Only			Red
Open circuit alarm	All	Red Flash	Red Flash	Red Flash
Controller software fault	All	Rapid Red Flash	Rapid Red Flash	Rapid Red Flash

Note
Normal flash rate = 1 flash/sec (1Hz). Rapid flash rate = 5 flash/sec (5Hz).

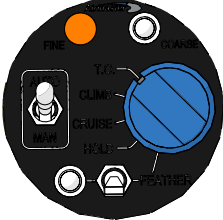
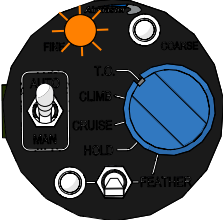
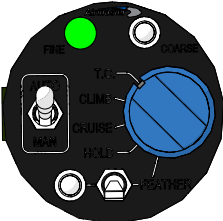
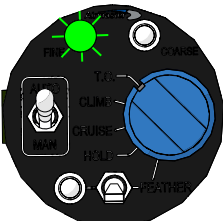
Note
When manual over-ride mode is enabled, many of these controller indications will still occur. While the automatic functions of the controller are replaced by direct input from the pilot, the indication system continues to function, displaying the same indications where applicable.

Note
Multiple controller indications may overlay. For example, with the engine off and power supplied to the controller (in AUTO), the FINE lamp may flash orange while also illuminating solid green between flashes. This indicates that the controller is receiving no speed signal, and the propeller is at the fine pitch limit.

1.3 Description of Controller Indications

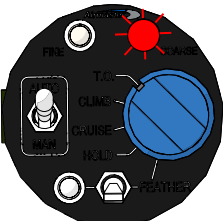
1.3.1 Normal Operation

The following indications are normal during operation for all propeller models.

INDICATION	DESCRIPTION
	ORANGE: The controller is adjusting propeller pitch in the direction indicated.
	FINE LAMP ORANGE FLASH (1Hz): The controller is not receiving a speed signal and has ceased attempting to control propeller pitch. <div> <i>Note</i> It is normal to observe this indication during start-up when power is supplied to the controller (in AUTO), and the engine is off. </div>
	GREEN: The propeller pitch is at the indicated pitch limit stop.
	GREEN FLASH (1Hz): The propeller pitch is at the indicated pitch limit and the controller is attempting to adjust pitch further in the same direction (propeller pitch will not travel further in this direction due to the action of the pitch limit stop). <div> <i>Note</i> This situation occurs when the propeller is unable to attain the desired governing speed due to a pitch limit stop being reached (e.g. when throttle is closed and the propeller pitch is at the fine pitch stop). </div>

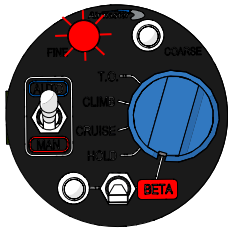
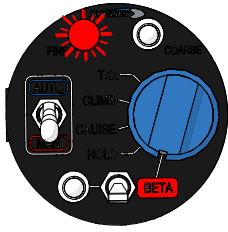
1.3.2 Feather Option

The following indication is normal during operation for feather enabled propeller models only.

INDICATION	DESCRIPTION
	COARSE LAMP RED FLASH (1Hz): The coarse pitch stop has been bypassed by the feather control circuits. Propeller pitch to be adjusted beyond the coarse pitch limit and into the feather pitch zone. <div> <i>Note</i> This indication displays during feather and unfeathering operation. </div>

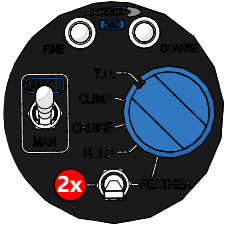
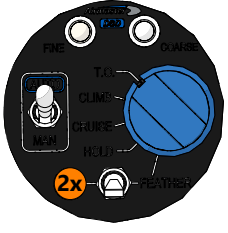
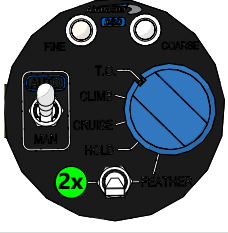
1.3.3 Beta (Reverse) or Pre-Rotate Option

The following indications are normal during operation for beta (reverse) or pre-rotate enabled propeller models only.

INDICATION	DESCRIPTION
	<p>FINE LAMP RED FLASH (1Hz): Beta control has engaged successfully. The fine pitch stop will be bypassed by the beta control circuit.</p> <p>Note This indication displays during beta initiation (step 1).</p>
	<p>FINE LAMP RAPID RED FLASH (5Hz): The fine pitch stop is now in over-ride and the propeller can be commanded to move beyond the fine pitch limit and into the beta pitch zone.</p> <p>Note This indication displays during beta operation (step 2).</p>

1.3.4 DSD Option

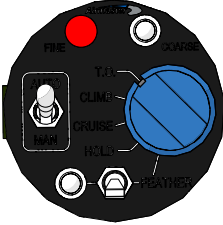
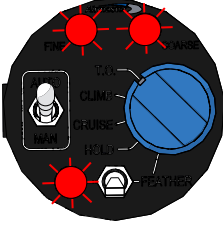
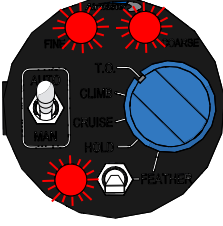
The following indications are normal for digital servo-drive (DSD) propeller models only.

INDICATION	DESCRIPTION
	<p>FEATHER / BETA LAMP DOUBLE RED FLASH (2 Flash/sec): The hub is detecting a calibration error, and the controller has ceased attempting to control propeller pitch. The hub must be re-calibrated.</p> <p>Note Propeller operation will continue in this state between the fine and coarse pitch limit stops. Emergency feather function is still possible.</p> <p>Caution No reversing functions are possible in this state.</p>
	<p>FEATHER / BETA LAMP DOUBLE ORANGE FLASH (2 Flash/sec): The hub calibration cycle is in progress.</p> <p>Note This indication only displays when the hub calibration cycle is initiated via physical command of the AC300 controller.</p>
	<p>FEATHER / BETA LAMP DOUBLE GREEN FLASH (2 Flash/sec): The hub calibration cycle has completed successfully.</p> <p>Note This indication only displays when the hub calibration cycle is initiated via physical command of the AC300 controller.</p>

1.3.5 Fault

The following indications represent a fault with the propeller and are applicable for all propeller models.

- i **Note** For more information on propeller failure modes, refer to **ASI-7-3-1**.
- i **Note** For more information on fault-finding and troubleshooting checks, refer to **ASI-7-3-2**.

INDICATION	DESCRIPTION
	<p>RED:</p> <p>The propeller and controller are suffering an over-current condition while adjusting propeller pitch in the direction indicated.</p>
	<p>ALL LAMPS RED FLASH (1Hz):</p> <p>The propeller is detecting an open circuit failure.</p> <p>⚠ Caution The controller is unable to control propeller pitch in this state.</p>
	<p>ALL LAMPS RAPID RED FLASH (5Hz):</p> <p>The controller is experiencing a software fault.</p> <p>⚠ Caution The controller is unable to control propeller pitch in this state.</p> <p>i Note This indicates a controller firmware or parameter setting issue.</p>