Airmaster Propellers Ltd
Variable Pitch Constant Speed Propellers for Light Aircraft

Airmaster Propellers Ltd
20 Haszard Rd, Massey
PO Box 374, Kumeu
Auckland, New Zealand

Ph: +64 9 833 1794
Fax: +64 9 833 1796
Email: sales@propellor.com
Web: www.propellor.com

INSTRUCTIONS TO FAULT FIND AP332 ELECTRICAL SYSTEM

Introduction

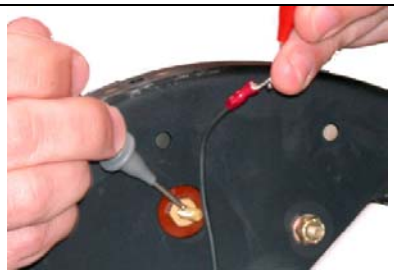
1. These instructions complement the owner's manual for the AP332 propeller, which covers assembly of the propeller after shipment, installation and set-up.

Procedure

2. Checking Slipring Voltage

Setup	Measurement	Results
• Use multimeter set to Voltage range. (0-30V) • Supply voltage on • Controller set to Man • Select 'Fine' or 'Coarse' on manual switch		
	Measure the Voltage at the slipring terminals (red and black).	Voltage should be between 11 to 13 V depending on supply voltage
• Voltage below 11V indicates a possible error in the circuit prior to the hub system.		

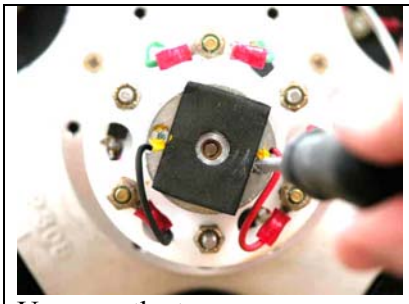
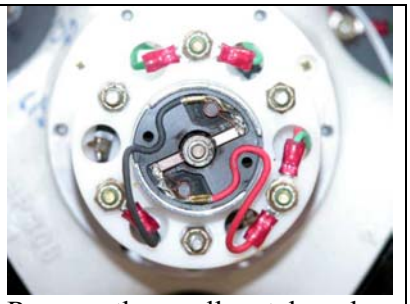
3. Checking Propeller Current

Setup	Measurement	Results
• Use multimeter set to Current range (0-10A) • Supply voltage on • Controller set to Man • Place meter in **series** by removing the black terminal from its post. • Select 'Fine' or 'Coarse' on manual switch		
	Measure the current in the Black circuit	Current ~700 – 900 mA
• 0 current shows an open circuit somewhere in the system • Current over 1A indicates possible mechanical restriction inside hub.		

4. Testing Pitch Change motor resistance

Setup	Measurement	Results
• Use multimeter set to ohm range. (0-1Kohm) • Have controller disconnected or the brushblock removed.		
	Measure the resistance at the motor terminals (red and black)	Motor resistance ~2ohms
• Resistance below 1ohm indicates a possible short in the PC Motor • Resistance above 5ohms indicates a problem with the PC motor brushes		

5. Checking the PC motor brushes

		
Unscrew the two screws holding the top of the PC motor on. Note: use Loctite 243 in thread when reassembling.	Remove the card spacer noting its orientation.	Remove the small metal washer and larger plastic washer noting their order for later reassembly.
• Blow out excess carbon from commutator area • Check brushes move freely when armature is moved from side to side • Re-assembly is the reverse of the dis-assembly procedure.		

6. Testing Pitch Stop switches

Setup	Measurement	Results
• Use multimeter set to ohm range. (0-1Kohm) • Have controller disconnected or the brushblock removed. • Ensure Pitch Change Block is in center of travel (not activating microswitch		
	Measure the resistance across each microswitch / diode	Switch resistance is ~0 ohms (either direction)
Any other reading indicates a faulty microswitch or microswitch lead.		

7. Testing Pitch Stop diodes

Setup	Measurement	Results
Use multimeter set to diode-test range. Have controller disconnected or the brushblock removed. Ensure Pitch Change Block is at end of travel (activating mircroswitch		
	Measure the resistance across each microswitch / diode (Red probe on diode bar)	Diode reverse resistance is high.
		
	Measure the resistance across each microswitch / diode (Grey probe on diode bar)	Diode forward resistance is low (screen shows ~0.5V)