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## SERVICE BULLETIN

### ATL-SB-6

Date of Issue: 23 November 2000

Applicability: Propeller Models: AP308 with Automatic Controller fitted to Rotax engines.  
Serial Numbers: All up to and including 50.  
(14,15,16,17,19,20,22,24,25,27,33,36,43,45,47,48,49,50)  
Note: Service Bulletin ATL-SB-5 must be actioned for this Service Bulletin to be effective.

Compliance: Initial: At Owners Discretion.  
Subsequent: Nil.

### SUBJECT: REPLACEMENT OF SPEED ENCODER TRANSFER

#### Reason

1. Reports concerning Rotax 4-stroke engines indicate that there are gains to be made in preservation of engine condition or health if the engines are operated above 5000rpm for the majority of the time. Such operation may lead to advantages in maintenance requirements and engine life. This company, Aero Trading Ltd, has also experienced customer demand for a constant speed controller that provides speed options within the range of 5000rpm to 5800rpm.

Note: Operating manuals for the Rotax 912/912S/914 engines outline suggested operating conditions that include speeds as low as 4300rpm. Rotax recommend these speeds for economic reasons, as they produce low fuel consumption. However, other advice has been received that consideration of engine health may give cause for an owner to choose to operate their engine at alternative conditions.

2. Testing by Aero Trading Ltd has shown that best climb performance is achieved at a higher engine speed than that currently produced by the automatic controller. A speed just below the maximum continuous operation limit of the engine is considered suitable.

### Summary of Effective Change

3. This service bulletin, if actioned, will ensure operation of the Airmaster propeller under automatic control at the following speeds:

| Aircraft Engine |               | Automatic Controller Governed Speeds<br>(Engine Speed) |                   |                      |
|-----------------|---------------|--|-------------------|----------------------|
| Model           | Gearbox Ratio | Cruise speed (rpm)                                     | Climb speed (rpm) | Take-Off speed (rpm) |
| Rotax 912       | 1 : 2.273     | 5050 ± 100   | 5350 ± 100        | 5700 ± 100           |
| Rotax 912S/914  | 1 : 2.430     | 5000 ± 100   | 5300 ± 100        | 5700 ± 100           |

Note: The figures in the above table are based on the assumption that Service Bulletin ATL-SB-5 has also been actioned.

### Optional Compliance

4. Owner must contact Aero Trading Ltd at the contact details at the top of this service bulletin if owner wishes to action this service bulletin.

Note: This service bulletin is not compulsory. If the owner is currently satisfied with the performance of the automatic controller they may choose not to action this service bulletin.

5. Once Aero Trading Ltd has been advised of the owner's desire to action the service bulletin, the necessary parts and specialist tooling will be sent to the owner.

### Materials and Parts Required

6. Residue free solvent such as 'CRC' contact cleaner, Isopropyl Alcohol, Acetone or Methylated Spirits.

7. Replacement transfer for speed encoder.

8. Special guide for replacement of speed encoder transfer.

### Action

#### Disassembly

9. Remove propeller from engine propeller flange.

Note: This operation may be made easier by removing the blade assemblies from the propeller hub. Use special C-spanner provided with propeller. Ensure that each blade assembly is numbered so that it may be later reassembled into the same bore of the hub.

10. Place propeller with the motor cover facing down so that the mounting surface is uppermost and horizontal.

### Replacement of Speed Encoder Transfer

11. Using a knife or a fingernail, carefully remove the markings that comprise the speed encoder transfer from the bare aluminium speed encoder ring. (These markings are the three concentric rings of alternating black pieces of adhesive plastic film.) Take care not to damage the underlying surface.

12. Clean the aluminium surface that the speed encoder transfer was adhered to. Ensure that a solvent that will leave no residue is used.

13. Place the supplied special guide in the propeller location hole in the centre of the base of the hub. Ensure that the metal guide pin points up.

14. Before the protective paper is removed temporarily place the supplied speed encoder transfer over the guide pin. Ensure that the transfer markings will be positioned correctly. That is, they should entirely lie on the aluminium ring, and be concentric with the centre of the propeller. Remove the transfer from the propeller again.

15. Carefully remove the protective paper (the stiffer white paper) from the transfer. This paper should be carefully pulled from the transfer, ensuring that the markings remain in their original position on the backing paper (the thinner translucent paper).

16. Hold the transfer upside down by two edges so that the adhesive side of the markings faces the propeller. Carefully lower the transfer so that the pin guides the hole in its centre. Allow the transfer to settle steadily onto the aluminium surface with no folds or creases.

17. Apply firm pressure in a rubbing manner to the backing paper of the transfer, to ensure the adhesive markings are well stuck to the aluminium surface. After initially using finger pressure, a smooth object such as the back of a spoon may be used.

18. Carefully remove the backing paper, ensuring that the adhesive markings remain stuck to the aluminium surface.

### Reassembly and Functional Check

19. Refit the propeller to the engine propeller flange in accordance with the Owner's Manual, Part 3.1.

Note: If the blade assemblies have been removed from the hub, refit them in accordance with the Owner's Manual, Part 2.2.

20. Conduct the engine-running test and set-up of controller in accordance with Owner's Manual, Section 4.2.2.

Note: The electrical fine-pitch stop of the propeller should not have to be adjusted as detailed in this section, as the fine-pitch setting of the propeller has not been altered.

## Recording

21. Record completion of service bulletin ATL-SB-6 in propeller logbook.
22. Replace the table in section 4.2.2. of the Owner's Manual with the following table:

| Aircraft Engine |               | Automatic Controller Governed Speeds<br>(Engine Speed) |                      |                         | Engine Limitations                     |                                      |
|-----------------|---------------|--|----------------------|-------------------------|--|--------------------------------------|
| Model           | Gearbox Ratio | Cruise speed<br>(rpm)                                  | Climb speed<br>(rpm) | Take-Off<br>speed (rpm) | Maximum<br>speed (rpm)<br>(5 mins max) | Maximum<br>Continuous<br>speed (rpm) |
| Rotax 912       | 1 : 2.273     | 5050 ± 100   | 5350 ± 100           | 5700 ± 100              | 5800                                   | 5500                                 |
| Rotax 912S/914  | 1 : 2.430     | 5000 ± 100   | 5300 ± 100           | 5700 ± 100              | 5800                                   | 5500                                 |