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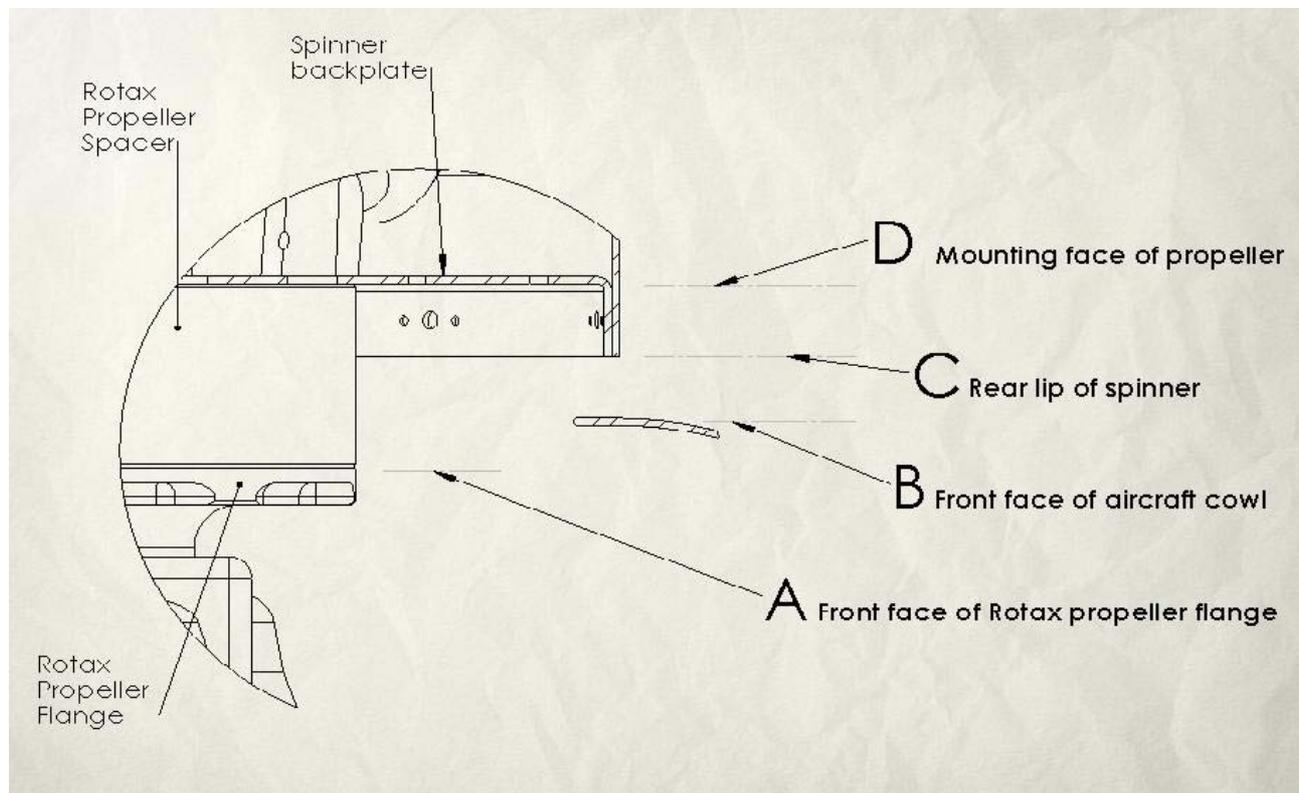
## SUBJECT: PROPELLER SPACER SELECTION

### Introduction

1. Sometimes the position of the propeller must be adjusted with respect to the propeller-mounting flange. This most commonly is to attain the correct clearance between the spinner back plate and the engine cowl. Airmaster manufactures a wide range of Rotax propeller spacers and extensions to suit many aircraft types. The correct spacer requirement for most aircraft types is already known. Please contact Airmaster for a listing.
2. This document is intended to assist the user in determining the correct spacer to use in their particular installation.

### Body

3. The following simplified diagram shows the layout of a typical aircraft propeller installation on a Rotax engine.



In this case the front of the engine cowl (B) is forward of the front face of the Rotax propeller mounting flange (A). Clearly a spacer is required to move the propeller / spinner forward but it must be decided how much this should be.

- a. **Cowl / Flange Distance AB** Use a straight edge to find the front face of the cowl (place the straight edge so that it represents the forward most part of the cowl that will be behind the spinner). Measure the distance from the front mounting surface of the Rotax propeller flange [A], to the straight edge [B].
- b. **Spinner Cowl Clearance BC** Determine what distance is required for clearance between the rear of the spinner [C] and the front of the cowl [B]. This may typically be 6mm-12mm (1/4 –1/2 in) but will vary depending on issues like the possible engine movement (how soft are the engine mounts) and the degree of ‘matching ‘ that is required between the spinner and cowl.
- c. **Spinner Back plate Fold back CD.** Airmaster manufactures a variety of spinners for different applications. The amount that the rear of the spinner [C] folds back from the mounting surface of the propeller [D], differs in each case.

<b>Spinner dia</b>	8.3in	9in	10.3in	11.2in
<b>Fold-back</b>	0	18mm (0.71in)	20mm (0.93in)	19mm (0.75in)

- d. **Spacer Calculation** The calculation for finding the required spacer is

$$\text{SPACER LENGTH [AD]} = \text{AB} + \text{BC} + \text{CD}$$

A typical calculation would be

<b>Spacer Requirement</b>	<b>AB</b> Cowl Distance	<b>BC</b> Spinner clearance	<b>CD</b> 10in spinner
50 =	20 +	10 +	20

- e. **Spacer Sizing** Airmaster Propellers manufactures a range of standard sizes for propeller spacers which include the following

<b>Part Number</b>	<b>Imperial</b>	<b>Metric</b>
AP-P0353	0.5in	13mm
AP-P357	1in	26mm
AP-P0361	1.5in	38mm
AP-P0365	2in	51mm

<b>Part Number</b>	<b>Imperial</b>	<b>Metric</b>
AP-P0367	2.25in	57mm
AP-P0369	2.5in	64mm
Extension 3.5	3.5mm	88mm
Extension 4	4in	102mm

Although the above sizes are always kept in stock other sizes can be made by request in increments of 1/8 in (3mm), please enquire with Airmaster.

- f. **Spacer Selection** Once the required spacer sizing has been calculated, choose the next largest spacer that is available from Airmaster. In the example (d) the calculated spacer was 50mm but the next largest spacer available is 51mm so 51mm would be selected.

## Conclusion

4. This paper is intended to assist with the selection of a propeller spacer. If you are not sure of this process, please contact Airmaster for assistance. They will ask for the measurement of Cowl/Flange [AB], but can do the other calculations for you.