



SUBJ: Propeller Search Inspection (General Visual Inspection)

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts you, owners, operators, mechanics, and certificated repair stations of **recommended procedures for a “propeller search inspection” or “general visual inspection” and performance of “cosmetic repairs”**.

Propeller repair stations can service propellers without performing a complete overhaul. Such work is typically performed because of a minor service problem with the propeller or perhaps to comply with a service bulletin or airworthiness directive. When repair work is performed (whether the propeller is disassembled or not), repair stations are expected to perform a “propeller search inspection” or “general visual inspection” in addition to the original task. Such an inspection has value in that serious problems or airworthiness issues might easily be found and corrected. The scope of a propeller “search inspection” or “general visual inspection” has been debated and could be better defined.

Service issues, such as oil leaks or minor blade damage, typically involve repair of the specific problem without repair or rework of the entire propeller. During repair of a specific problem, propellers are sometimes given additional cosmetic repairs, for example, repainting of blades and/ or replacement of decals. If the blade is not given a thorough rework and inspection prior to repainting, there is concern that the paint may hide flaws such as nicks, corrosion, or other material surface flaws. Airplane owners, operators, and propeller repair stations should have FAA accepted guidelines for performing “cosmetic repairs”.

Recommendations

For a “Propeller Search Inspection”

- Perform a visual inspection of all observable component parts for evidence of wear, damage, corrosion, grease leaks, or oil leaks. Any defects found will require further evaluation to determine whether the component remains serviceable until the next scheduled maintenance or overhaul. If vibration, oil, or grease leakage was reported, this may be a sign of a failed seal(s) or a more serious flaw such as a fractured hub or blade (especially if both an oil or grease leak and vibration initiate simultaneously), and a more thorough investigation is appropriate.
- If the work being performed does not require complete disassembly, additional disassembly is not required to satisfy Propeller Search Inspection requirements unless evidence of observed defects suggests the need for further investigation.
- Perform a logbook review that includes:
 - Determination of the date and flight time-since-last-overhaul.
 - Confirmation that the basic propeller model, blade model, and diameter are approved for the aircraft application involved (use FAA data, e.g., TCDS, or propeller manufacturers’ application guide).

- Verification of the basic propeller model, blade model, and diameter for the application involved (if there is no propeller logbook or if time-in-service is unknown, a further Propeller Search Inspection might be warranted to determine airworthiness).
- A properly maintained logbook is important and is required by FAA regulation.
- Review and discuss the following items with the aircraft owner/ operator:
 - Determination of the date and flight time-since-last-overhaul (from propeller logbook).
 - Determination of compliance with all applicable FAA airworthiness directives.
- Make a logbook entry of all repairs. If the customer either does not authorize, or postpones, correction of conditions found during a search inspection; the repairman should record the issues through entries in both the propeller logbook and customer work order. The aircraft owner/ operator should be notified that this documentation was created.
- Examples of defects that might be returnable to service:
 - Minor deterioration of paint or corrosion protection (however, consider that if repair or overhaul may be some years in the future, immediate repair of damaged paint or corrosion may be appropriate).
 - Light wear or scoring typical of normal operation. Refer to the propeller manufacturer’s instructions for continued airworthiness (ICAW) for the appropriate acceptance criteria.
- Examples of defects that require maintenance action or further evaluation prior to return to service:
 - Unusual wear of either unexpected severity or in an unexpected location that might be beyond the manufacturer’s service limits.
 - Damage or corrosion of aluminum blades, hubs, or other highly stressed propeller parts.
 - Deteriorated seals or O-rings.
 - Incomplete adhesion or sealing of de-ice boots, erosion shields, or decals.
 - Any suspected crack indication requires confirmation with the appropriate nondestructive test (NDT) inspection.
 - Deteriorated or broken electric de-ice lead wires.
 - If only one blade is removed for repair and found to have either external or internal corrosion, also remove and inspect other blades as they are likely to have similar defects.
- Reference Documents - For additional guidance, refer to the appropriate manufacturers’ Propeller Maintenance Manuals and Owner’s Manuals; FAA Advisory Circular 20-37E, Aircraft Propeller Maintenance; and FAA Advisory Circular 43.13-1B, Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair.

For “Cosmetic Repairs”

- For aluminum propeller blades, prior to painting, rework all damage using the manufacturer’s published field rework procedures in the manufacturers’ manuals or the FAA Advisory Circulars mentioned above. Before painting, inspection and application of a chemical conversion coating and primer paint are required following the manufacturer’s ICAW.
- For exposed aluminum surfaces, an exposed defect can be inspected while a hidden defect cannot be inspected. A cosmetic repair that creates a hidden defect in an exposed surface is an unacceptable practice. Complete rework and proper repair should be accomplished prior to painting.

- Composite propeller blades have different inspection/ acceptance criteria than aluminum propeller blades. Composite propeller blades generally require strict adherence to the manufacturer's maintenance instructions. Any alternate procedures or materials require FAA approval.
- When resealing the edges of de-ice boots or applying decals to aluminum propeller blades, manufacturers commonly require that sealants and decals NOT be applied to bare aluminum. For long term corrosion protection, it is important that the aluminum be properly prepared and painted prior to resealing de-ice boots or applying decals. Likewise, sealants and adhesives should not be applied to bare aluminum unless specified by the propeller manufacturer's maintenance instructions.
- Polished propeller blades are rarely an acceptable configuration. Corrosion protection such as paint and anodize should not be removed from the surface of a propeller blade. If the original design had corrosion protection and the propeller manufacturer's ICAW call for corrosion protection, then the corrosion protection should be maintained to those instructions. Therefore, do not return polished propeller blades to service without verification of acceptability.

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