Service Newsletter

December 10, 1993

TITLE
FIELD INSPECTION AND REPAIR OF McCauley PROPELLER BLADES

TO
Cessna Distributors and Service Stations

MODELS AFFECTED
All Single Engine, Multi-engine and Propjet Models equipped with McCauley aluminum propellers

DISCUSSION
McCauley has issued a Customer Information Letter (CIL) concerning field inspection and repair of propeller blades. The CIL discusses the types of propeller blade surface damage that should be repaired in the field and provides information for accomplishing the repairs.

It is recommended that McCauley’s procedures are followed to assist in obtaining optimum service life from McCauley propellers.

A copy of the McCauley Customer Information Letter is attached to this Service Newsletter.

OWNER NOTIFICATION
On December 23, 1993, a copy of this Service Newsletter will be sent to Caravan I owners of record.
Customer Information Letter

November 25, 1991

TO: FAA Approved Propeller Repair Stations, Aircraft Manufacturers and Owners/Operators

SUBJECT: FIELD INSPECTION AND REPAIR OF PROPELLER BLADES

MODELS AFFECTED: All Propeller Models

This Service Letter is being written to help clarify what type of damage needs repaired and how the repair should be accomplished on McCauley aluminum propeller blades, when found during inspection. (EXAMPLE: Pre-Fight, 100hr & Annual inspection)

The only repairs that a pilot or mechanic need to be concerned with are sharp "stress riser" type of damage. This type of damage is caused by stones or other small objects striking the propeller blade as it is rotating. Erosion caused by sand, dirt, water, etc. not creating sharp "stress riser" type damage DOES NOT NEED repaired in the field.

The use of a "rasp file" is not recommended for field repairs. Rasp type files will remove more metal than necessary and may cause premature rejection of the blade at time of overhaul.

Special attention should be given to De-Ice boots during visual inspection. If boot damage has occurred, it may have penetrated the boot heating element and damaged the blade. If there is any indication of this, the boot must be removed and blade inspected.

CAUTION
Do not assume De-Ice boot is not damaged if heating normally.

Small object damage is normally found on the lead edge and face side of the propeller blade. Those propellers capable of reversing will have damage occur on the camber side at the outboard blade stations only. To better clarify how repairs should be accomplished we are supplying the following recommendation.
First: It is very important that sharp "stress riser" type damage be completely repaired. When filing of the damage is complete it may require dye check be preformed to verify that the "stress riser" has been completely removed.

Second: As important as it is to remove the damage completely, it is just as important that the repair go no further after the "stress riser" is gone. Unnecessary repairs will cause premature replacement of blades at overhaul.

**LEAD EDGE REPAIR PROCEDURE:**

Remove metal at damaged area starting back from, and working toward the edge in such a way that the contour remains substantially the same. File strokes must run from blade shank to blade tip. Avoid abrupt changes in contour and blunt edges. The length of the blended area shall be equal to 10 times the depth of the nick (see figure on page 3). Use a suitable fine cut file and coarse grain emery cloth to remove damage, then smoothly finish surface with fine grain emery cloth, crocus cloth, or 600 grit paper.

**FACE AND CAMBER REPAIR PROCEDURE:**

Remove metal at damaged area using a hand held rotary grinder with 120 or less grit bob, or by hand using coarse grain emery cloth. Use of a file in this area is not recommended.

**Caution:**

Care must be taken to control a hand held grinder.

Grind with light pressure in a circular motion until damage is totally removed. The diameter of the repair shall be equal to 20 times the depth of the damage (see figure on page 3). Smoothly finish surface with fine grain emery cloth, crocus cloth, or 600 grit paper.

Prepare repaired area for touch up paint by wiping with a Ketone dampened cloth. Apply, as required, polyurethane enamel paint per manufactures instructions to blend with original finish.

Turbine propellers should be re-checked for dynamic balance.
RECOMMENDED BLADE REPAIR

EDGE REPAIR TYPICAL

RADIUS = 10d
TYPICAL CENTER AT DEEPEST POINT(S)
(SURFACE REPAIR)

\[ d = \text{DEPTH of NICK} \]
\[ 5d = 5 \times \text{DEPTH} \]
\[ 10d = 10 \times \text{DEPTH} \]