SERVICE BULLETIN 240E

December 15, 2002

TO: FAA-Approved Propeller Repair Stations, Cessna Aircraft Owners and Operators

SUBJECT: Inspection of Propeller Blade for Cracking

MODEL AFFECTED: 1A170E/JHA[XXXX], See Compliance: for Specific Serial Numbers

SERVICE MANUAL AFFECTED: 730720

This service information is to be added to the appropriate McCauley Service Manual until the next manual revision is issued.

Service Bulletin 240E replaces the original issue and previous revisions of SB240 in their entirety. Service Bulletin 240E changes the logbook entry in Section III, Step G. Lines in the margins indicate changes.

CONDITION: There has been a report of a blade crack on the affected propeller. The crack propagated from a forging defect on the trailing edge of the blade.

Propagation of the crack was enhanced by a higher than average number of takeoff cycles per flight hour as typified by aircraft operated by pilot schools under 14 CFR, Part 141. Compliance by all other operators exceeding 2000 takeoff cycles per 1000 flight hours is now required.

APPROVAL: FAA approval has been obtained on technical data in this publication that affects product type design.

TO OBTAIN SATISFACTORY RESULTS, PROCEDURES SPECIFIED IN THIS SERVICE INFORMATION MUST BE ACCOMPLISHED IN ACCORDANCE WITH ACCEPTED METHODS AND PREVAILING GOVERNMENT REGULATIONS. MCCAULEY PROPELLER SYSTEMS CANNOT BE RESPONSIBLE FOR THE QUALITY OF WORK PERFORMED IN ACCOMPLISHING THIS SERVICE INFORMATION.

McCauley Propeller Systems
3535 McCauley Drive
Vandalia, Ohio 45377 USA

COMPLIANCE: **Aircraft Operating as Pilot Schools per 14 CFR, Part 141 and aircraft exceeding 2000 takeoff cycles per 1000 flight hours**

1) Initial Inspection Compliance:

   Propeller serial numbers between RK015 and VA23060 inclusive:

   Propellers which have not previously been inspected per Service Bulletin 240[X] or overhauled, perform inspection per Section II within 75 hours of receipt of this service bulletin.

   Propeller serial numbers VB23001 and above:

   If propeller total time is less than or equal to 1000 hours and propeller has never been overhauled, perform inspection per Section II upon reaching 1000 flight hours.

   If propeller total time is more than 1000 hours and less than 2000 hours and propeller has never been overhauled, perform inspection per Section II within 100 hours of receipt of this service bulletin.

2) Repetitive Inspection Compliance:

   All propeller serial numbers:

   Perform inspection per Section II every 6 years or 1000 hours whichever occurs first from date of previous inspection per Service Bulletin 240[X] or from last overhaul.

NOTE: Refer to Figure 1 for serial number explanation.

PROCEDURE:

1) Perform the liquid penetrant inspection per Section II.
2) Any propeller showing relevant indications must be removed from service. Contact McCauley Product Support.
3) Stamp compliance indicator per Section II and make logbook entry noting compliance with this Service Bulletin.

As of June 15, 2000, McCauley has revised the serial number stamping system on blades and fixed pitch propellers. The first letter remains the year of manufacture, the second letter remains the month of manufacture, the next two digits will reference the forging model, and the last three digits reference the number of propeller or blades manufactured in that month.

YEAR				MONTH	
A	1980	N	1993	A	January
B	1981	O	1994	B	February
C	1982	P	1995	C	March
D	1983	Q	1996	D	April
E	1984	R	1997	E	May
F	1985	S	1998	F	June
G	1986	T	1999	G	July
H	1987	U	2000	H	August
I	1988	V	2001	I	September
J	1989	W	2002	J	October
K	1990	X	2003	K	November
L	1991	Y	2004	L	December
M	1992	Z	2005		

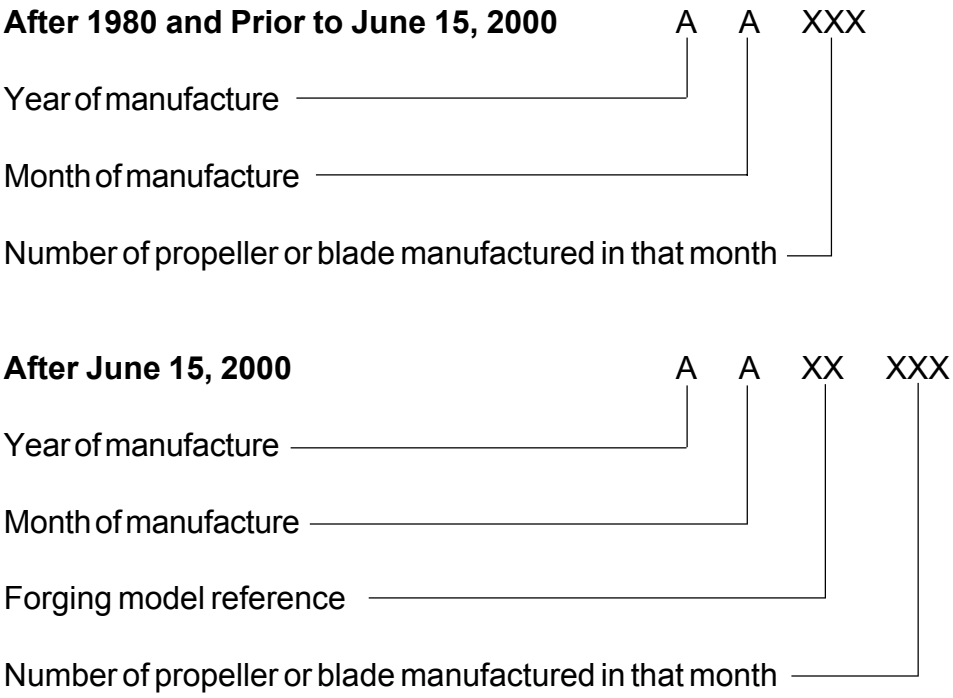

Figure 1

SECTION I

Propeller and Spacer Removal:

A. Remove propeller from aircraft per aircraft manufacturer's instructions.

B. Remove spacer and bulkhead from propeller per the following instructions:

1. Support propeller by nesting it between two shot or sand-filled bags, placed as closely to the hub as possible with the spacer down. Allow sufficient clearance (approximately 2 inches) for the spacer and bulkhead to separate from the hub.

CAUTION: ROD MUST HAVE A SMOOTH SURFACE FINISH TO AVOID SCRATCHING SURFACE OF DOWEL HOLE.

2. Select a smooth rod of proper diameter, approximately 6 inches long, and insert into dowel pin hole.

3. With light hammer blows, alternately tap one dowel and then the other to free the spacer and bulkhead from the propeller. The dowels will remain captive in the spacer.

4. Tapered end of dowel is to be installed in spacer. If tapered end was installed in hub remove dowels from spacer by inserting rod into dowel pin hole in spacer. With light hammer blows, alternately tap one dowel and then the other to free the dowel from the spacer.

SECTION II

Propeller Inspection

A. Clean propeller:

NOTE: Entire propeller to be inspected.

Propeller should be cleaned with a non-oil based solvent to remove oils, greases, lubricants, etc. from details. This can be accomplished by hand wiping using a non-oil based solvent or vapor degreasing.

B. Paint Removal:

CAUTION: COMPLETE PAINT REMOVAL IS REQUIRED PRIOR TO LIQUID PENETRANT INSPECTION.

Chemical stripper per MIL-R-81903 Type II, QPL-81294-26 or equivalent.

Immersion:

Soak part to be stripped completely below solution level. The part shall remain immersed in the solution for the time necessary to completely loosen the paint film (Ref: one half hour to several hours).

Remove the loose paint with a water rinse or a pressurized water spray. The part shall be completely clean after rinsing with no residual contamination.

or Spray or Brush Application:

Spray or brush the applicable stripper on the surface to be stripped starting at the top and working down. Allow the first application to work from 5 to 45 minutes and then water rinse. If hard paint remains, repeat the operation.

Paint surfaces softened by strippers may be scrubbed with a nonmetallic brush and/ or scraped with a plastic or rubber knife to loosen the paint.

After stripping, the surfaces shall be rinsed clean, starting at the top surface using a water spray. Type II chemical strippers contain acids. Therefore, rinse shall be done in a continuous and rapid process to prevent pitting of aluminum.

or Plastic Media:

Topcoat and primer may be removed using Type II, Size 30/40 plastic media per MIL-P-85891 or equivalent. Procedure to be performed with nozzle distance of 4 to 6 inches (101.6 to 152.4 mm) at less than 90° to the part. Air pressure not to exceed 100 psi. Part must be cleaned using a non-oil based solvent or vapor degreaser to remove media residue prior to liquid penetrant inspection.

NOTE: Part must be alkaline etched to remove anodize coating and required amount of material prior to liquid penetrant inspection.

C. Alkaline Etch:

Immerse part in 5% solution by volume of Sodium Hydroxide (NaOH) at 75°-85°F for 8 minutes. Immediately remove part from solution and rinse thoroughly with water. Immerse part in 10% Nitric Acid (HNO3 ~ 40° Be') solution by volume at room temperature for 2-5 minutes to remove black oxide layer.

Immediately remove from solution and thoroughly rinse with water. Caution must be taken to ensure all acid is rinsed out of bolt holes, dowel holes, balance holes, and hub bore.

D. Liquid penetrant inspect propeller per ASTM-E-1417. McCauley requires fluorescent method Type I with Sensitivity Level 3.

E. Careful attention must be taken when inspecting the trailing edge, face and camber side, between the 6 and 24 inch (152.4 and 609.6 mm) stations.

Residual penetrant and developer must be removed prior to recoating using a non-oil based solvent or vapor degreasing. Verify complete removal by inspecting under blacklight.

F. All relevant indications found during this inspection must be reported to McCauley Propeller Systems. Do not reinstall any propeller showing relevant indications.

G. Stamp propeller hub with compliance indicator "P" at initial inspection per Figure 2 using 0.125 inch (3.18 mm) round bottom steel stamp. Stamp applicable number after letter "P" to indicate second ("2") and additional ("3", "4" etc.) inspections. Compliance indicator is to be stamped 180° from "McCauley" stamping. Propeller may have previous compliance indicator "E" stamped on the hub, stamp new indicator after the "E", if present.

H. Propellers must be chemically recoated per MIL-C-5541 (alodine) or MIL-A-8625 (anodize) prior to painting. Paint per McCauley Manual 730720.

SECTION III

Spacer and Propeller Reinstallation

A. Locate spacer on arbor press table, hub mating surface face up.

B. If dowels were removed from spacer, reinstall dowels in spacer, with tapered end in spacer, by applying a film of oil to each selected dowel and press into spacer. Engage just enough to hold dowel solidly, final location will be made after installation in propeller hub. Extension of both dowels above face of spacer should be the same.

C. Locate propeller hub on arbor press table, spacer mating surface face up.

D. Place bulkhead over hub, aligning with dowel holes.

E. Align spacer so that serial number stamping on spacer aligns with number 1 blade and dowels will engage hub holes. Press spacer down tightly against hub. No clearance is allowed.

NOTE: Propeller attaching bolts do not require magnetic particle inspection when removed for this inspection.

F. Install propeller on engine flange per aircraft manufacturer's instructions.

G. Make an entry in the logbook stating compliance with this service bulletin.

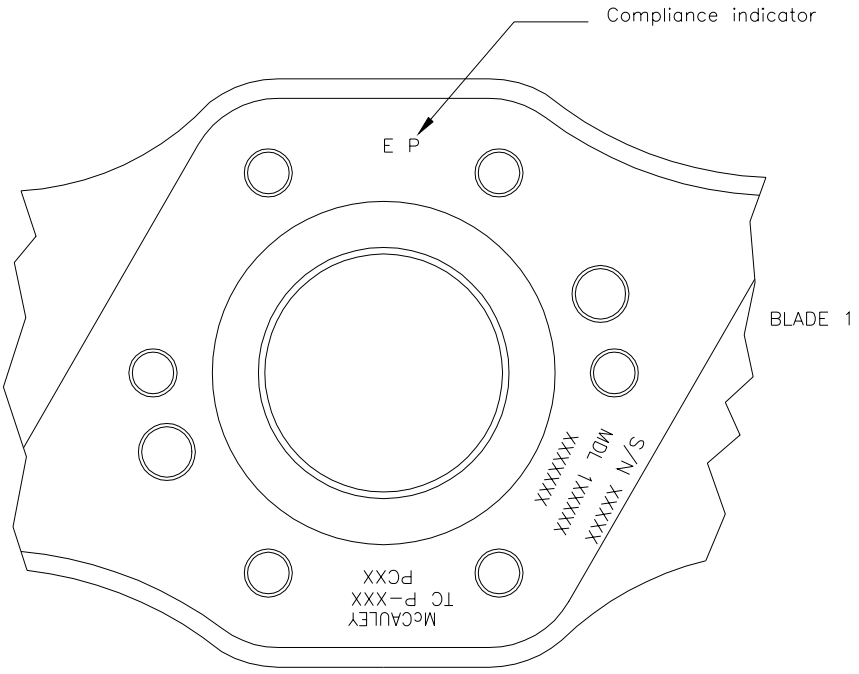
Compliance indicator
E P
BLADE 1
S/N XXXXX
MDL XXXXX
XXXXXX
McCAULEY
TC P-XXX
PCXX

Figure 2