

# SERVICE BULLETIN



December 1, 2005

**SB137AA**

## TITLE

REVISED TIME BETWEEN OVERHAUL (TBO) SPECIFICATIONS

## TO:

FAA-Approved Propeller Repair Stations, Aircraft Manufacturers, Owners and Operators

## MODELS AFFECTED

All Propellers, Governors, and Accumulators

## PUBLICATIONS AFFECTED

701115, 710930, 720415, 730720, MPC400, 780401, MC200OM, 790901, 810301, MC500OM, 860201, 880415, 890119, MC1100OM, MC1100CM

## REASON

This revision changes the reference for blade life limits for the C1101, C1102, C1103, and C1104 and adds life limits for hubs. Changes to this service bulletin, with the exception of editorial and formatting changes, are indicated by vertical lines in the margin.

## DESCRIPTION

Service Bulletin 137AA replaces Service Bulletin 137Z dated May 2, 2005.

## APPROVAL

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

## ACCOMPLISHMENT INSTRUCTIONS

### 1. General

- A. The following pages show McCauley's mandatory specified time between overhaul for propellers, governors, and accumulators. Specifications are based on hours of operation and calendar time, whichever occurs first. The starting point for the calendar limit is the date of first installation on an engine (not from date of manufacture or overhaul). Date of manufacture or overhaul is applicable when determining long term storage inspections. If the propeller has been removed from service, the TBO calendar limit still applies, not long term storage.

**NOTE:** Calendar month is the period of time from the first day of a month to the last day of the month. When the term calendar month is used, compliance can be achieved at any time during the month, up to and including the last day of the month. For Example: a propeller with a 60 calendar month inspection interval is inspected and approved upon any given day

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*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.*

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of the month. This propeller will become due for inspection upon the last day of the same month, 60 months later.

- B. All deviations from published TBOs must be approved by your local Regulatory Authority with a recommendation from McCauley.
- C. If the propeller, governor, or accumulator is in storage in excess of two years, additional inspections are required. Once installed on an aircraft the propeller, governor, or accumulator calendar limit is not interrupted by subsequent removal and/or storage.
- D. Propeller, governor, and accumulator overhaul should, as much as practical, coincide with engine overhaul. For example, in a case where propeller TBO is 1500 hours and engine TBO is 1400 hours, the propeller should be overhauled at the same time as the engine. This is appropriate as long as neither TBO limit is exceeded.

**CAUTION:** REVIEW APPLICABLE FAA AIRWORTHINESS DIRECTIVES OR MCCAULEY SERVICE BULLETINS. THESE MAY REQUIRE COMPLIANCE PRIOR TO TBO.

- E. TBO specifications are based on normal aircraft with normal and continuous usage. Flight time and calendar limit must not be the only factors considered in determining when a propeller, governor, or accumulator needs to be overhauled. Factors such as operating conditions or environment often demand that a propeller, governor, or accumulator be overhauled prior to TBO. Even though a propeller, governor, or accumulator may be operating normally and have a good external appearance when the TBO flight time or calendar limit is reached, operation beyond the specified TBO limits is not permitted.

## 2. Long Term Storage of Controllable Pitch Propellers

- A. The following is applicable to new and overhauled propellers prior to entering service (engine installation) or at any time propeller is removed from service. Storage time is determined from date of manufacture, overhaul, or removal from aircraft.
  - (1) Storage must be in a clean and dry environment, preferably in the original shipping carton and above ground level, to minimize exposure to dirt and moisture.
  - (2) If storage period exceeds 2 years before entering service or returning to service perform the following inspection:
    - (a) For all propeller models, inspect externally for damage and corrosion. Inspection may be accomplished by an A & P mechanic or international equivalent. Make logbook entry of compliance with Service Bulletin 137Y.
    - (b) For non-oil-filled propeller models, remove propeller cylinder, inspect for internal corrosion and signs of deterioration, and repair as necessary. This must be accomplished only by a FAA approved propeller repair station or international equivalent in accordance with the appropriate propeller service manual. Make logbook entry of compliance with Service Bulletin 137Y.
  - (3) For all propeller models, If storage period exceeds five (5) years, before entering service or returning to service perform the following inspection and parts replacement:
    - (a) Disassemble as necessary to replace all rubber seals and lubricants. Total disassembly (such as removing ferrules from blades) is not required unless evidence of corrosion warrants further disassembly. This must be accomplished only by a FAA approved propeller repair station or international equivalent in accordance with the appropriate propeller service manual. Make logbook entry of compliance with Service Bulletin 137Y.
    - (b) Inspect parts for damage and corrosion, repair/replace parts as necessary. Work must be accomplished only by a FAA approved propeller repair station or international equivalent in accordance with the appropriate propeller service manual. Make logbook entry of compliance with Service Bulletin 137Y.



### 3. Long Term Storage of Governors and Accumulators

- A. The following is applicable to new and overhauled governors or accumulators prior to entering service (engine installation) or at any time governor or accumulator is removed from service. Storage time is determined from date of manufacture or overhaul or removal from aircraft.
- (1) Storage must be in a clean and dry environment, preferably in the original shipping carton and above ground level, to minimize exposure to dirt and moisture.
  - (2) If storage period exceeds 2 years, before entering service or returning to service, perform the following inspection:
    - (a) Inspect externally for damage and corrosion.
    - (b) Test run the governor on a governor test bench to verify correct operation and check for leakage. This must be accomplished only by a FAA approved governor repair station or international equivalent in accordance with the governor service manual.
    - (c) Pressure check accumulator to verify correct operation and check for leakage. This must be accomplished only by a FAA approved governor repair station or international equivalent in accordance with the governor service manual.
  - (3) If storage period exceeds 5 years before entering service or returning to service, perform the following inspection and parts replacement:

**WARNING: COMPLETELY RELEASE ALL AIR OR NITROGEN PRESSURE BEFORE ANY DISASSEMBLY OF ACCUMULATOR. REMOVAL OF RETAINING RINGS WITH AIR PRESSURE INSIDE THE CYLINDER WILL RESULT IN EXPLOSIVE BLOW-OUT OF PARTS WITH DANGER OF SERIOUS INJURY.**

- (a) Disassemble as necessary to replace **all** rubber seals and gaskets. Total disassembly (such as disassembling the flyweight assembly) is not required unless evidence of corrosion warrants further disassembly.
- (b) Inspect parts for damage and corrosion, repair/replace parts as necessary.
  - 1 Critical inspection areas for governors are I.D. of drive gear, O.D. of the pilot spool, and "toes" of flyweight. Work must be accomplished only by a FAA approved governor repair station or international equivalent in accordance with the governor service manual.
  - 2 Critical inspection area for accumulators is inside of cylinder for corrosion. Work must be accomplished only by a FAA approved governor repair station or international equivalent in accordance with the governor service manual.
- (4) Test run the governor on a governor test bench to verify correct operation and check for leakage. This must be accomplished only by a FAA approved governor repair station or international equivalent in accordance with the governor service manual.
- (5) Pressure check accumulator to verify correct operation and check for leakage. This must be accomplished only by a FAA approved governor repair station or international equivalent in accordance with the governor service manual.

### 4. Propeller Models

- A. The propeller model designation is impression stamped on the propeller hub. Change letters are frequently stamped at the end of the model designation (e.g. 2A34C50-BM). These letters indicate engineering changes and/or previous overhaul modifications. In Table 1, unless specific change letters are shown, the overhaul frequency note applies to all propellers of that model, regardless of change letters. Use the highest letter stamped after hub model number to determine frequency of overhaul. (Refer to Step 5.)

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**Example :** Propeller model 2A36C66-ALMOR  
'R' is the highest letter = TBO note C. applies  
Propeller model 2A36C66-AEF  
'F' is the highest letter = TBO note A. applies

**Table 1: Propeller Models**

<b>Model Designation</b>	<b>Overhaul Frequency Note</b>
2A36C1	A.
2B36C7	B.
2D34C8	B.
2D34C9	B.
2AF31C10	A.
2D34C11	A.
B2D34C11	A.
2D36C14	A.
B2D34C15	A.
B2D34C16	A.
2A36C18	A.
2A31C21	A.
2A34C22	A.
2A36C23	A.
2AF36C26	A.
2D36C28	A.
2A36C29	A.
D2AF34C30	A.
B2A36C31	A.
D2A36C31	A.
C2A36C32	A.
D2A36C33	A.
D2A34C34	A.
D3AF32C35	A.
2AF36C38	A.
2AF36C39	A.
D2AF34C41	A.
D2AF34C42	A.
2A36C43	A.

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Model Designation	Overhaul Frequency Note
D2A36C45	A.
D2AF34C46	A.
D2AF36C48	A.
D2A34C49	A.
2A34C50	A.
D2AF34C52	A.
2D34C53-less than O	A.
2D34C53-O or higher	C.
B2D34C53-less than O	A.
B2D34C53-O or higher	C.
D2AF34C54	A.
2AF34C55-less than O	A.
2AF34C55-O or higher	C.
D3AF34C56	A.
B2E34C57	A.
D2A34C58-less than O	A.
D2A34C58-O or higher	C.
F2A34C58	A.
D2AF34C59	A.
D2AF34C60	A.
D2AF34C61-less than O	A.
D2AF34C61-O or higher	C.
D2AF34C65-less than O	A.
D2AF34C65-O or higher	C.
2A34C66-less than P	A.
2A34C66-P or higher	C.
D2A34C67	A.
2AF36C68	A.
B2D34CT69	A.
E2A34C70-less than P	A.
E2A34C70-P or higher	C.
D2AF34C71	A.
3AF32C72-less than N	A.
3AF32C72-N or higher	C.
E2A34C73-less than P	A.

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Model Designation	Overhaul Frequency Note
E2A34C73-P or higher	C.
3AF34C74	A.
3AF32C75	A.
3A32C76	A.
D3A32C77	A.
D2A34C78-less than P	A.
D2A34C78-P or higher	C.
D3A32C79	A.
D3AF32C80-less than N	A.
D3AF32C80-N or higher	C.
D2AF34C81-less than O	A.
D2AF34C81-O or higher	C.
2A36C82	A.
3AF34C86	A.
3AF32C87-less than N	A.
3AF32C87-N or higher	C.
D3AF32C87-less than N	A.
D3AF32C87-N or higher	C.
D3A32C88	A.
2AF36C89	A.
D3A32C90-less than N	A.
D3A32C90-N or higher	C.
D2AF34C91	A.
3AF34C92	A.
SAF32C93-less than N	A.
3AF32C93-N or higher	C.
D2A34C98	A.
2A34C201-less than C	C.
2A34C201-C or higher	E.
2D34C202	D.
2A34C203-less than C	D.
2A34C203-C or higher	E.
C2A34C204-less than C	D.
C2A34C204-C or higher	E.
B2A34C205	A.

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Model Designation	Overhaul Frequency Note
B2D34C206	D.
B2D34C207	D.
B2D34C208	D.
2A34C209-less than C	D.
2A34C209-C or higher	E.
2A34C210	D.
B2D34C211	D.
B2D34C212	D.
B2D34C213	D.
B2D34C214	D.
2D34C215	D.
2A34C216	D.
B2D34C217	D.
B2D34C218	D.
B2D34C219	D.
B2D34C220	D.
2A34C221	D.
2A37C223-less than C	C.
2A37C223-C or higher	E.
B2D37C224	D.
B2A34C225	D.
2A34C227-less than C	D.
2A34C227-C or higher	E.
B2A37C228	A.
B2D37C229	D.
D2A37C230	E.
D2A37C231	E.
2A37C232	E.
E2A37C233	E.
E2A37C234	E.
B2D34C235	E.
C2D37C236	E.
B2A37C238	E.
2A34C239	E.
2A34C240	D.

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Model Designation	Overhaul Frequency Note
2A34C241	E.
D2AF34C301	D.
D2AF34C302	D.
D2AF34C303	D.
D2AF34C304	D.
D2AF34C305-less than B	A.
D2AF34C305-B or higher	D.
D2AF34C306	D.
D2AF34C307	D.
D2AF34C308	D.
D2AF34C310	D.
D2AF34C312	E.
D2AF34C314	E.
D2AF34C315	E.
D2AF34C317	E.
D2AF34C318	E.
D2AF34C320	E.
D3A34C401	D.
D3A34C402	D.
D3A34C403	D.
D3A34C404	D.
B3D34C405	D.
3A32C406-less than D	S.
3A32C406-D or higher	T.
B3D32C407	D.
D3A32C408	A.
D3A32C409-less than D	S.
D3A32C409-D or higher	T.
D3A36C410	D.
D3A32C411	D.
B3D32C412	D.
B3D34C413	D.
B3D32C414	D.
C3D36C415	D.
B3D36C416	D.

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Model Designation	Overhaul Frequency Note
B3D32C417	D.
3A32C418	D.
B3D32C419	D.
D3A34C420-less than D	D.
D3A34C420-D or higher	E.
B3D34C421	D.
3A34C422	D.
3A34C423-less than D	D.
3A34C423-D or higher	E.
B3D36C424	D.
B3D36C427	D.
B3D36C428	D.
B3D36C429	D.
D3A36C430	E.
B3D36C431	E.
B3D36C432	E.
B3D36C433	E.
3A36C434	E.
D3A36C435	E.
D3A36C436	E.
B3D36C442	E.
D3A34C443	E.
3FF32C501	D.
3AF34C502	D.
3AF34C503	D.
3AF32C504	D.
3AF32C505	D.
3AF32C506	D.
3AF32C507	D.
3AF32C508	D.
3AF32C509	D.
3AF37C510	D.
3AF32C511	D.
3AF32C512	D.
3AF36C514	D.

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Model Designation	Overhaul Frequency Note
3AF32C515	D.
3AF37C516	D.
3AF32C521	D.
3AF32C522	D.
3AF32C523	D.
3AF32C524	F.
3AF32C525	D.
B3DF36C526	F.
B3DF36C527	F.
3AF32C528	F.
3FF34C529	F.
3GFR34C601	G.
3GFR34C602	G.
4HFR34C652	H.
4HFR34C653	O.
4HFR34C661	H.
4HFR34C662	H.
4HFR34C663	L.
4HFR34C664	H.
4HFR34C665	K.
3GFR34C701	G.
3GFR34C702	G.
3GFR34C703	I.
3GFR34C704	G.
4HFR34C754	G.
4HFR34C755	G.
4HFR34C756	G.
4JFR34C758	G.
4HFR34C762	G.
4HFR34C763	G.
4HFR34C764	H.
4HFR34C766	G.
4HFR34C768	H.
4HFR34C769	H.
4HFR34C771	H.

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Model Designation	Overhaul Frequency Note
4HFR34C773	H.
4HFR34C774	G.
4HFR34C775	G.
5JFR36C1003	F.
5HFR34C1008	H.
B5JFR36C1101	M.
C5JFR36C1102	M.
B5JFR36C1103	N.
C5JFR36C1104	N.
5HFR34C1105	H.
Fixed Pitch Propellers	P.
Propeller Governors	Q.
Propeller Accumulators	R.

## 5. Overhaul Frequency Notes

- A. **1200 hours or 60 calendar months**, whichever occurs first, except:
- (1) All C1, C14, C18, C28, C29, C31, C32, C33 and C45 propellers with plain (no prefix or suffix) blade serial numbers (00000 thru 21297) - the overhaul frequency is 1000 hours or 60 calendar months, whichever occurs first.
  - (2) All 2A36C23, D2AF34C30, D3AF32C35, 2AF34C55, 3AF32C75, 3A32C76 and 2A36C82 propellers with hub serial number 71XXXX and higher - the overhaul frequency is 1500 hours or 60 calendar months, whichever occurs first.
- B. **1000 hours or 60 calendar months**, whichever occurs first, except:
- (1) All 2D34C9 propellers with hub serial number 71XXXX and higher - the overhaul frequency is 1500 hours or 60 calendar months, whichever occurs first.
- C. **1500 hours or 60 calendar months**, whichever occurs first, except:
- (1) Agricultural aircraft installations - the overhaul frequency is 1200 hours or 60 calendar months, whichever occurs first.
- D. **2000 hours or 72 calendar months**, whichever occurs first, except:
- (1) Agricultural aircraft installations - the overhaul frequency is 1200 hours or 60 calendar months, whichever occurs first.
  - (2) Aerobatic installations - the overhaul frequency is 1000 hours or 72 calendar months, whichever occurs first.
- E. **2400 hours or 72 calendar months**, whichever occurs first.
- F. **3000 hours or 72 calendar months**, whichever occurs first.
- G. **3500 hours or 72 calendar months**, whichever occurs first.
- H. **5000 hours or 72 calendar months**, whichever occurs first.
- I. **4000 hours or 72 calendar months**, whichever occurs first.
- J. **2000 hours or 72 calendar months**, whichever occurs first.

- K. **5000 hours or 72 calendar months**, whichever occurs first. **10,000 hour** life limit on blades and hub.
- L. **5000 hours or 72 calendar months**, whichever occurs first. **16,000 hour** life limit on blades.
- M. **6000 hours or 60 calendar months**, whichever occurs first.
- NOTE:** For blade Life Limits, refer to McCauley Alert Service Bulletin ASB246, latest revision, and Federal Aviation Administration Airworthiness Directive AD 2003-17-10.
- The hub assembly of any B5JFR36C1101 or C5JFR36C1102 propeller that has never operated on a water-methanol assist Jetstream 4100 aircraft -- Replace 18,000 hours
  - The hub assembly of any B5JFR36C1101 or C5JFR36C1102 propeller that is operating on, or has ever operated on, a water-methanol assist Jetstream 4100 aircraft -- Replace 6000 hours
- N. **5000 hours or 60 calendar months**, whichever occurs first.
- NOTE:** For blade Life Limits, refer to McCauley Alert Service Bulletin ASB246, latest revision, and Federal Aviation Administration Airworthiness Directive AD 2003-17-10.
- The hub assembly of any B5JFR36C1103 or C5JFR36C1104 propeller that has never operated on a water-methanol assist Jetstream 4100 aircraft -- Replace 18,000 hours
  - The hub assembly of any B5JFR36C1103 or C5JFR36C1104 propeller that is operating on, or has ever operated on, a water-methanol assist Jetstream 4100 aircraft -- Replace 6000 hours
- O. **5000 hours or 72 calendar months**, whichever occurs first. Only for L106FA-0 blades used in the 4HFR34C653 propeller assemblies or blades that have been installed on Jetstream Series 3200 aircraft or history unknown:
- (1) Blades without change letter "A" must be retired from service before December 1, 2001 or upon reaching 2400 flight hours after August 1, 2000 or 16,000 hours time since new, whichever occurs first.
  - (2) Blades with change letter "A" are life limited to 16,000 hours.
- P. **Fixed pitch propellers - 2000 hours or 72 calendar months which ever occurs first.** Additionally, the propeller mounting bolt torque should be checked at least once per year. Propeller mounting bolts must be magnetic particle inspected per ASTM E-1444 or liquid penetrant inspected per ASTM E-1417 or replaced at every overhaul. Propeller mounting bolts must be replaced whenever the propeller is involved in a blade strike as defined in Service Bulletin 176[X].
- (1) 1A170E/JHA[XXXX] propellers only, installed on Aircraft Operating as Pilot Schools per 14 CFR, Part 141, must be inspected per Service Bulletin 240[X] every 1000 hours or 72 calendar months which ever occurs.
- Q. **All Propeller Governors - 1800 hours or 60 calendar months**, whichever occurs first.
- R. **All Propeller Accumulators - 1800 hours or 60 calendar months**, whichever occurs first.
- S. **2000 hours or 72 calendar months, 10,000 hour** life limit on blades and hub, except:
- (1) Aerobatic installations - the overhaul frequency is 1000 hours or 72 calendar months, whichever occurs first. **10,000 hour** life limit on blades and hub.
- T. **2400 hours or 72 calendar months**, whichever occurs first. **10,000 hour** life limit on blades and hub, except:
- (1) Aerobatic installations - the overhaul frequency is 1500 hours or 72 calendar months, whichever occurs first. **10,000 hour** life limit on blades and hub.

