

# SERVICE BULLETIN



December 1, 2003

SB137Y

## 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, 780630, 790901, 810301, 810915, 860201, 880415, 890119, MPC1100-[X], CMM1100-[X]

## REASON

This update corrects the model designation B3D36C442 and adds the new model D3A34C443. Changes to this service bulletin, with the exception of editorial and formatting changes, are indicated by vertical lines in the margin.

## DESCRIPTION

Service Bulletin 137Y replaces Service Bulletin 137W dated May 15, 2002. Service Bulletin 137V was not released to the field. Service Bulletin 137X was never used since the letter "X" is used as a "wildcard character" referring to the latest document revision level.

## 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

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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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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 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 137[X].
    - (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 137[X].
  - (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 137[X].
    - (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 137[X].

### 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**

Model Designation	Overhaul Frequency Note
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.

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Model Designation	Overhaul Frequency Note
2A36C43	A.
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.

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Model Designation	Overhaul Frequency Note
3AF32C72-N or higher	C.
E2A34C73-less than P	A.
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.

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Model Designation	Overhaul Frequency Note
C2A34C204-less than C	D.
C2A34C204-C or higher	E.
B2A34C205	A.
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.
B2D34C235	E.
C2D37C236	E.
B2A37C238	E.
2A34C239	E.
2A34C240	D.
2A34C241	E.

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Model Designation	Overhaul Frequency Note
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	D.
3A32C406-D or higher	E.
B3D32C407	D.
D3A32C408	A.
D3A32C409-less than D	D.
D3A32C409-D or higher	E.
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.

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Model Designation	Overhaul Frequency Note
3AF36C514	D.
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.

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4HFR34C769	H.
4HFR34C771	H.
4HFR34C773	H.
4HFR34C774	G.
4HFR34C775	G.
5JFR36C1003	F.
5HFR34C1008	H.
B5JFR36C1101	M.
C5JFR36C1102	M.
B5JFR36C1103	N.
C5JFR36C1104	N.
5HFR34C1105	J.
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.

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- I. **4000 hours or 72 calendar months**, whichever occurs first.
- J. **5000 hours or 60 calendar months**, whichever occurs first.
- K. **5000 hours or 60 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. **4000 hours or 60 calendar months**, whichever occurs first. **16,800 hour** life limit on blades.
  - (1) **6000 hours or 60 calendar months**, whichever occurs first, for those propellers with serial numbers higher than 931333, and those propellers serial number 931333 and lower modified per McCauley Service Letter 1993-12. **16,800 hour life limit on blades.**
- N. **5000 hours or 60 calendar months**, whichever occurs first. **14,500 hour** life limit on blades, **26,500 hour** life limit on hub.
  - (1) **6000 hours or 60 calendar months**, whichever occurs first, for those C1103 and C1104 propellers identified by serial number in the Airworthiness Limitations Section, section 11, of the MPC1100-[X] or section 8, of the CMM1101-[X] and installed on 1500 shp aircraft. **16,800 hour life limit on blades.**
- 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.