

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2006-25244; Directorate Identifier 2006-NE-25-AD; Amendment 39-16054; AD 2009-22-03]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Hartzell Propeller Inc. ()HC-()2Y(K,R)-() Series Propellers**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule; request for comments.

---

**SUMMARY:** The FAA is superseding an existing airworthiness directive (AD) for Hartzell Propeller Inc. ()HC-()2Y()-() series propellers with non-suffix serial number (SN) propeller hubs installed on Lycoming O-, IO-, LO-, and AEIO-360 series reciprocating engines. That AD currently requires initial and repetitive eddy current inspections (ECIs) of the front cylinder half of the propeller hub for cracks and removing cracked hubs from service before further flight. In addition, that AD allows installation of an improved design propeller hub (suffix SN "A" or "B") as terminating action to the repetitive ECI. This ad requires the same actions but changes the affected propeller series designation to ()HC-()2Y(K,R)-() series propellers with non-suffix SN propeller hubs and suffix SN letter "E" propeller hubs. This AD also expands the engine eligibility to include Lycoming LIO-, TO-, LTO-, AIO-, and TIO-360-series engines. This AD results from the need to make changes to the affected series designation of propellers, to expand the engine applicability, and to respond to comments received on AD 2006-18-15. We are issuing this AD to prevent failure of the propeller hub causing blade separation and subsequent loss of airplane control.

**DATES:** Effective November 12, 2009. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of November 12, 2009. We must receive any comments on this AD by December 28, 2009.

**ADDRESSES:** Use one of the following addresses to comment on this AD.

- Federal eRulemaking Portal: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

- Fax: (202) 493-2251.

**FOR FURTHER INFORMATION CONTACT:** Tim Smyth, Senior Aerospace Engineer, Chicago Aircraft Certification Office, FAA, Small Airplane Directorate, 2300 East Devon Avenue, Des Plaines, IL 60018-4696; e-mail: timothy.smyth@faa.gov; telephone (847) 294-7132; fax (847) 294-7834.

**SUPPLEMENTARY INFORMATION:** The FAA amends 14 CFR part 39 by superseding AD 2006-18-15, Amendment 39-14754 (71 FR 52994, September 8, 2006). That AD requires initial and repetitive ECIs of the front cylinder half of the propeller hub for cracks and removing cracked hubs from service before further flight. In addition, that AD allows installation of an improved design propeller hub (suffix SN "A" or "B") as terminating action to the repetitive ECI. That AD was the result of a report of a propeller blade separating from a propeller hub. That condition, if not corrected, could result in failure of the propeller hub causing blade separation and subsequent loss of airplane control.

### **Actions Since AD 2006-18-15 Was Issued**

Since AD 2006-18-15 was issued, we discovered that we need to add Lycoming 360 engine models LIO-, TO-, LTO-, AIO-, and TIO- to the AD applicability. We also found the need to change the affected propeller series designation to ()HC-()2Y(K,R)-() series propellers with non-suffix SN propeller hubs and suffix SN letter "E" propeller hubs.

### **Comments Received on AD 2006-18-15**

We provided the public the opportunity to comment on AD 2006-18-15, which was a final rule; request for comments AD. We have considered the comments received.

### **Repetitive Inspection Interval**

Five commenters request that we change the repetitive inspection interval from within every 100 operating hours time-in-service (TIS) to an interval of within every five years, which would be less of an economic burden.

We do not agree. The repetitive interval is based on service experience and engineering analysis. The cause of the hub crack initiation is unknown, however a crack can grow to a critical failure length in an amount of time that requires a short inspection interval. We did not change the AD.

Another commenter requests that the repetitive inspection interval be associated with the hours actually used or some reasonable interval like within every 100 hours or three years. The commenter would like to see the evidence that supports a theory and the AD, that a crack will develop in a propeller hub sitting in a hangar for as little as one year with no hours flown.

We agree with the commenter that little or no propeller hub damage can be done if the airplane does not fly. The AD compliance time interval of within every 100 operating hours TIS after the last propeller hub ECI, or at every annual inspection, whichever occurs first, was based on an average general aviation airplane usage and other analysis. However, since we issued the original AD, we have re-evaluated the calendar-month interval and determined that it is not measurably contributing to the minimum level of safety. We changed the compliance interval to just every 100 operating hours TIS after the last propeller hub ECI, and we eliminated the requirement of performing ECIs at every annual inspection.

Another commenter requests that we eliminate the yearly inspection requirement and just have the 100-hour requirement. Since the annual aircraft inspections do include a visual propeller hub inspection for any cracks they would be detected at that time. The hub thickness does not allow any cracks not to be visual. The eddy current test would only reveal the instant the cracks were formed.

We agree. We have reviewed additional data, and changed the repetitive inspection interval in the AD to every 100 operating hours TIS after the last propeller hub ECI.

### **Use of Other Inspection Methods**

Four commenters suggest that the use of other inspection methods such as observation of vibration during flight, visual inspections for grease, visual inspections with a 10X power inspection glass magnification, or dye penetrant inspections, would be just as effective as doing ECIs.

We do not agree. The commenters' opinions that a hub crack will leak grease, will be noticed either as a grease leak or in-flight vibration has been studied, evaluated, and determined to be unreliable to detect a hub crack prior to catastrophic failure. In the past, we imposed a similar visual inspection process, proposed by a commenter, with a 10X power inspection glass magnification and or the use of a dye penetrant inspection process to attempt to detect a hub crack prior to failure. Service experience has shown the propeller hub crack growth rate has been rapid enough at times that a missed crack detection using those inspection processes can result in a catastrophic hub failure. Use of a dye penetrant type inspection process would require a much more burdensome repetitive inspection interval than using the ECI process. Past AD service history demonstrated the dye penetrant or Zyglo inspection process to be less reliable than ECIs in finding a crack in the suspect area. We did not change the AD.

### **Cost of Complying With the AD and Economic Evaluation**

Nine commenters state that the cost of complying with the AD will be a huge financial burden, and that ECIs present an unwarranted yearly investment of over \$300 per inspection.

We do not agree. Based on review of service experience and inspection results over the last several years, we determined that the yearly ECI requirements can be eliminated to require inspections every 100 operating hours TIS after the last propeller hub ECI.

Another commenter states that that our evaluation of the economic impact (posted in the docket file) is seriously flawed. On one line the evaluation has 10,000 units affected, then on the next line, only 100. The commenter asks why such a discrepancy. The commenter thinks that the total of 10,000 units should actually be higher.

We do not agree our unit estimates are wrong. The 10,000 units referenced in the Economic and Regulatory Evaluation, posted in the docket file, refers to the estimated number of products on U.S.-registered aircraft. The 100 units referenced is the estimated number of hubs that we anticipate to be found cracked that will require replacement. However, as clarification, we will send to the docket file a revised Economic and Regulatory Evaluation, which will identify the total ECI costs for the U.S. fleet as the total costs of one inspection cycle.

### **Question of Lack of Maintenance, or Poor Maintenance, on the Failed Propeller**

Seven commenters question if the lack of maintenance, or poor maintenance, of the propeller that failed caused the failure, and they state that the AD should provide more history of the failed propeller and history of the airplane it was installed on.

We do not agree. We do not know the cause of the hub cracking. But, we expect that the inspection defined in this AD is an effective means to detect a propeller hub crack to minimize a catastrophic propeller hub failure. The hub failure report cited in the AD resulted in a blade separation and an airplane accident. No prior warning was noted except just prior to blade separation. No in-flight corrective action was possible. The airplane crew experienced loss of normal airplane control and was only able maintain a descent to a crash landing. The accident investigation indicated that the airplane was properly maintained in accordance with 14 CFR part 43. We did not change the AD.

## **Clarification Needed in Engine/Model Listing**

One commenter states that the applicable model list of aircraft and engines seems to indicate that all of the aircraft/engines mentioned are 180 horsepower, yet the propeller applicable model list covers propellers installed on counterweighted angle valve engines which are 200 horsepower. Specific inclusion or exclusion of counterweighted engines and valve configuration (whichever is the case) needs to be incorporated for clarification; or the aircraft/engine model list needs to be finite instead of, "not limited to."

We agree that clarification is needed to define the engine models and airplane models that are affected by this AD. We changed the AD to clarify the callouts for the engine and airplane model listing.

## **AD Does Not List the Seneca I Airplane**

One commenter states that the current AD does not list the Seneca I airplane. According to the propeller number, it should. The Seneca I hubs are part numbers (P/Ns) D-2201-16 and D-2201-16F. The hubs that Hartzell wants to be used, for compliance to Service Bulletin No. HC-SB-61-269, lists hub, P/N D-6522-1. Hub, P/N D-6522-1, which happens to be a P/N that was part of another AD, (AD 2003-01-03, Directorate Identifier 2002-NE-25-AD) is to be removed and replaced. Something is wrong with the AD and the service bulletin.

We agree that the Seneca I (PA-34-200) airplane should be listed in the AD. We also agree that we need to prohibit taking a retired hub from the AD 2003-01-03 compliance effort and allowing that same model hub to be installed under this AD compliance effort. We changed this AD to add that airplane and to clarify that language.

## **Question on AD Terminology**

One commenter asks if the terminology of "front cylinder half", in the AD, is correct. A cylinder does not have two halves. Should it instead say front half of the propeller hub? A hub has two halves.

We do not agree. The intent is to inspect the front hub half of the propeller hub. That half of the propeller hub has the cylinder installed. The terminology used in the AD is the common identification phrase used for this propeller hub part area. We did not change the AD.

## **Claim That AD Is Difficult To Comply With**

One commenter states that the AD is difficult to comply with as-written with an ECI every 100 hours or annual whichever occurs first. In checking, he has not been able to find anyone who does annual inspections who can do ECIs. If an annual inspection is due in May and he got an ECI in April (at some distant prop shop and Hartzell-certified), he would need it again at an annual inspection in May.

We partially agree. Hartzell Service Bulletin No. HC-SB-61-269 was revised to allow an alternative method of compliance (AMOC), which defines a repetitive inspection interval of 100 operating hours or 12 calendar months, to eliminate the potential need for two inspections per year unless the operator exceeds 100 operating hours in that 12-calendar-month timeframe. We determined there are numerous locations throughout the U.S. that can perform this inspection using ECI equipment. We changed the repetitive inspection interval in the AD to just every 100 operating hours TIS after the last propeller hub ECI.

Another commenter states that the AD is of concern for several reasons. The commenter checked on having the ECI completed and there is not a shop within 100-plus miles that can perform the ECI. The second part is its limits where the commenter can have an annual inspection performed as the ECI is to be done at each annual inspection. It would appear that the fixed base operators (FBOs) that do offer to do the ECI will also be well booked in advance for annual inspections also. Even though it

has only been three years since the commenter's propeller was overhauled, he is sure that the only solution will be replacing the hub. The commenter was quoted \$4,300 plus any additional needed parts, and an ECI at Santa Monica, for \$350.00.

In response, we understand the airplane owner's concerns with maintenance facility availability, but the owner and or operator is responsible for maintenance, including getting required inspections done. We determined that there are numerous facilities available to perform the ECI process. We did not change the AD.

### **AD Is an Undue Burden for Low Utilization Aircraft**

One commenter states that AD paragraph (h) indicates that initial compliance is due within 50 operating hours TIS after the effective date of this AD. Under this initial requirement a low utilization aircraft operating 5 hours per year could go 10 years before initial compliance is mandatory. The commenter asks if this is truly the intent of the initial compliance portion of the AD. AD paragraph (l) appears to require a repetitive inspection within every 100 operating hours TIS after the last propeller hub inspection or at every annual inspection, whichever occurs first. The literal interpretation of this appears to be that if an operator were to accumulate 100 hours TIS within a 10 month period after an initial inspection that coincided with that operator's annual inspection and then had the repetitive completed at the 10 month point, then at that operator's annual, 2 months later, another inspection would be due. Neither paragraph (h) nor paragraph (l) appear to be worded in such a fashion to truly accomplish the intent of desired initial compliance for safety reasons nor appropriate recurring compliance without undue burden.

In response, if an owner and or operator only flies his or her airplane 5 hours per year, the likelihood of a propeller hub crack growing to catastrophic failure is reduced. The average flight time utilization of privately owned airplanes is about 62 hours per year. This average was used in part along with other service experience and engineering analysis to establish the initial and repetitive inspection intervals. Because the cause of the hub crack is unknown, we were not able to provide an inspection process that was less burdensome. However, since we issued the proposed AD, we have re-evaluated the calendar-month interval and determined that it is not measurably contributing to the minimum level of safety. We changed the compliance interval to just every 100 operating hours TIS after the last propeller hub ECI, and we eliminated the requirement of performing ECIs at every annual inspection.

### **AD Does Apply to Suffix SN "E" Hubs**

One commenter states that the way the AD is written, it is misleading and needs further clarification: The applicability states the AD applies to propellers with non-suffix SN prop hubs. There are prop hubs out there that have the suffix SN "E", which the AD does apply to "E" suffix hubs that were originally non-suffix hubs that had an ECI in accordance with Hartzell SB No. HC-SB-61-269 and were then marked with an "E" to indicate the ECI was accomplished and the hub must be repetitively inspected. If a person doesn't know this, or doesn't read the service bulletin, they will look at their prop hub SN, see that it has an "E" and presume the AD doesn't apply.

We agree. We changed the AD applicability to state that it applies to Hartzell Propeller Inc. (OHC-)(2Y(K,R)-) series propellers with non-suffix SN propeller hubs and suffix SN letter "E" propeller hubs, installed on Lycoming O-, IO-, LO-, LIO-, TO-, LTO-, AIO-, AEIO-, and TIO-360 series reciprocating engines.

### **Conclusion**

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously.

We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

### **Relevant Service Information**

We have reviewed and approved the technical contents of Hartzell Propeller Inc. Service Bulletin No. HC-SB-61-269, Revision 3, dated September 17, 2007. That SB describes procedures for ECIs of propeller hubs on affected propellers. That SB also lists improved design replacement propeller hub part numbers.

### **FAA's Determination and Requirements of This AD**

The unsafe condition described previously is likely to exist or develop on other Hartzell Propeller Inc. ()HC-()2Y(K,R)-() series propellers of the same type design. For that reason, we are issuing this AD to prevent failure of the propeller hub causing blade separation and subsequent loss of airplane control. This AD requires, within 50 operating hours TIS, an initial ECI of the front cylinder half of propeller hubs with non-suffix SNs and SNs with a suffix letter "E", for cracks. This AD also requires, within every 100 operating hours TIS thereafter, repetitive ECIs of the front cylinder half of propeller hubs with non-suffix SNs and SNs with a suffix letter "E", for cracks. This AD also requires removing cracked hubs from service before further flight. You must use the service information described previously to perform the actions required by this AD.

### **FAA's Determination of the Effective Date**

Since an unsafe condition exists that requires the immediate adoption of this AD, we have found that notice and opportunity for public comment before issuing this AD are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

### **Comments Invited**

This AD is a final rule; request for comments that involves requirements affecting flight safety. This AD is superseding the original AD which was also a final rule; request for comments. We invite you to send us any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2006-25244; Directorate Identifier 2006-NE-25-AD" in the subject line of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of the Web site, anyone can find and read the comments in any of our dockets, including, if provided, the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78).

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is

the same as the Mail address provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in subtitle VII, part A, subpart III, section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

#### **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing Amendment 39-14754 (71 FR 52994, September 8, 2006), and by adding a new airworthiness directive, Amendment 39-16054, to read as follows:



**FAA**  
**Aircraft Certification Service**

## AIRWORTHINESS DIRECTIVE

[www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)  
[www.gpoaccess.gov/fr/advanced.html](http://www.gpoaccess.gov/fr/advanced.html)

**2009-22-03 Hartzell Propeller Inc.:** Amendment 39-16054. Docket No. FAA-2006-25244;  
Directorate Identifier 2006-NE-25-AD.

### Effective Date

(a) This airworthiness directive (AD) becomes effective November 12, 2009.

### Affected ADs

(b) This AD supersedes AD 2006-18-15, Amendment 39-14754.

### Applicability

(c) This AD applies to Hartzell Propeller Inc. ()HC-()2Y(K,R)-() series propellers with non-suffix serial number (SN) propeller hubs and propeller hubs suffix SN letter "E", installed on Lycoming O-, IO-, LO-, LIO-, TO-, LTO-, AIO-, AEIO-, and TIO-360 series reciprocating engines. These propellers and engines could be installed on, but not limited to:

|            |                 |                                  |
|------------|-----------------|----------------------------------|
| O-360-A1A  | Piper Aircraft  | Comanche (PA-24)                 |
|            | Lake Aircraft   | Colonial (C-2, LA -4, 4A, or 4P) |
|            | Mooney Aircraft | Mark "20B" (M-20B)               |
|            | Earl Horton     | Pawnee (Piper PA-25)             |
|            | Partenavia      | Oscar (P-66)                     |
|            | Siai-Marchetti  | (S-205)                          |
|            | Procaer         | Picchio (F-15-A)                 |
|            | S.A.A.B.        | Safir (91-D)                     |
|            | Malmo           | Vipan (MF-10B)                   |
|            | Aero Boero      | AB-180                           |
|            | Beagle          | Airedale (A-109)                 |
|            | DeHavilland     | Drover (DHA-3MK3)                |
|            | Kingsford-Smith | Bushmaster (J5-6)                |
| O-360-A1AD | S.O.C.A.T.A.    | Tabago TB-10                     |



|             |                       |                                                                                |
|-------------|-----------------------|--------------------------------------------------------------------------------|
| O-360-A1D   | Piper Aircraft        | Comanche (PA-24)                                                               |
|             | Lake Aircraft         | Colonial (LA -4, 4A, or 4P)                                                    |
|             | Doyn Aircraft         | Doyn-Beech (Beech 95)                                                          |
|             | Mooney Aircraft       | Master “21” (M-20E), Mark “20B”, “20D”, (M20B, M20C), Mooney Statesman (M-20G) |
| O-360-A1F6  | Cessna Aircraft       | Cardinal                                                                       |
| O-360-A1F6D | Cessna Aircraft       | Cardinal 177                                                                   |
|             | Teal III              | TSC (1A3)                                                                      |
| O-360-A1G6  | Aero Commander        |                                                                                |
| O-360-A1G6D | Beech Aircraft        | Duchess 76                                                                     |
| O-360-A1H6  | Piper Aircraft        | Seminole (PA-44)                                                               |
| O-360-A1P   | Aviat                 | Husky                                                                          |
| O-360-A2A   | Avion Jodel           | D-140-B                                                                        |
|             | S.O.C.A.T.A.          | Rallye Commodore (MS-893)                                                      |
|             | Partenavia            | Oscar (P-66)                                                                   |
|             | Beagle                | Husky (D5-180) (J1-U)                                                          |
| O-360-A2D   | Piper Aircraft        | Comanche (PA-24), Cherokee “C” (PA-28 “180”)                                   |
|             | Mooney Aircraft       | Master “21” (M-20D), Mark “21” (M-20E)                                         |
| O-360-A2F   | Dynac Aerospace Corp. | Aero Commander Model 100                                                       |
| O-360-A2G   | Beech Aircraft        | Sport                                                                          |
| O-360-A3A   | C.A.A.R.P.S.A.N.      | (M-23III)                                                                      |
|             | Robin                 | Regent (DR400/180), Remorqueur (DR400/180R), R-3170                            |
|             | S.O.C.A.T.A.          | Rallye 180GT, Sportavia Sportsman (RS-180)                                     |
|             | Norman Aeroplane Co.  | NAC-1 Freelance                                                                |
|             | Nash Aircraft Ltd.    | Petrel                                                                         |
| O-360-A3AD  | S.O.C.A.T.A.          | TB-10                                                                          |
|             | Robin                 | Aiglon (R-1180T)                                                               |
| O-360-A4A   | Piper Aircraft        | Cherokee “D” (PA-28 “180”)                                                     |
| O-360-A4D   | Varga                 | Kachina                                                                        |
| O-360-A4G   | Beech Aircraft        | Musketeer Custom III                                                           |

|              |                        |                           |
|--------------|------------------------|---------------------------|
| O-360-A4K    | Grumman American       | Tiger                     |
|              | Beech Aircraft         | Sundowner 180             |
| O-360-A4M    | Piper Aircraft         | Archer II (PA-28 “18”)    |
|              | Valmet                 | PIK-23                    |
| O-360-A4N    | Cessna Aircraft        | 172 (Optional)            |
| O-360-A4P    | Penn Yan               | Super Cub Conversion      |
| O-360-A5AD   | C. Itoh and Co.        | Fuji FA -200              |
| O-360-B2C    | Seabird Aviation       | SB7L                      |
| O-360-C1A    | Intermountain Mfg. Co. | Call Air (A-6)            |
| O-360-C1E    | Bellanca Aircraft      | Scout (8GCBC-CS)          |
| O-360-C1F    | Maule                  | Star Rocket MX-7-180      |
| O-360-C1G    | Christen               | Husky (A-1)               |
| O-360-C2E    | Bellanca Aircraft      | Scout (8GCBC FP)          |
| O-360-C4F    | Maule                  | MX-7-180A                 |
| O-360-C4P    | Penn Yan               | Super Cub Conversion      |
| O-360-F1A6   | Cessna Aircraft        | Cutlass RG                |
| O-360-J2A    | Robinson               | R22                       |
| IO-360-B1A   | Beech Aircraft         | Travel-Air (B-95A)        |
|              | Doyn Aircraft          | Doyn-Piper (PA -23 “200”) |
| IO-360-B1B   | Beech Aircraft         | Travel-Air (B-95B)        |
|              | Doyn Aircraft          | Doyn-Piper (PA -23 “200”) |
|              | Fuji                   | (FA-200)                  |
| IO-360-B1D   | United Consultants     | See-Bee                   |
| IO-360-B1E   | Piper Aircraft         | Arrow (PA-28 “180R”)      |
| IO-360-B1F   | Utva                   | 75                        |
| IO-360-B2E   | C.A.A.R.P.             | C.A.P. (10)               |
| IO-360-B1F6  | Great Lakes            | Trainer                   |
| IO-360-B1G6  | American Blimp         | Spector 42                |
| IO-360-B2F6  | Great Lakes            | Trainer                   |
| IO-360-C1E6  | Piper Aircraft         | Seneca I (PA-34-200)      |
| LO-360-A1G6D | Beech Aircraft         | Duchess                   |
| LO-360-A1H6  | Piper Aircraft         | Seminole (PA-44)          |
| IO-360-E1A   | T.R. Smith Aircraft    | Aerostar                  |
| IO-360-M1A   | Diamond Aircraft       | DA-40                     |

|               |                   |                              |
|---------------|-------------------|------------------------------|
| IO-360-M1B    | Vans Aircraft     | RV6, RV7, RV8                |
|               | Lancair           | 360                          |
| AEIO-360-B1F  | F.F.A.            | Bravo (200)                  |
|               | Grob              | G115/Sport-Acro              |
| AEIO-360-B1G6 | Great Lakes       |                              |
| AEIO-360-B2F  | Mundry            | CAP-10                       |
| AEIO-360-B4A  | Pitts             | S-1S                         |
| AEIO-360-H1A  | Bellanca Aircraft | Super Decathalon (8KCAB-180) |
| AEIO-360-H1B  | American Champion | Super Decathalon             |

(d) Any hub, part number (P/N) D-6522-1, retired from service under AD 2003-01-03 must not be returned to service under this AD unless an additional airworthiness determination is made and recorded in the appropriate propeller and or airplane maintenance logbook. Also, any hub, (P/N) D-6522-1, that is returned to service is still subject to the inspection requirements of this AD.

(e) The parentheses appearing in the propeller model number indicates the presence or absence of an additional letter(s) that varies the basic propeller model. This AD still applies regardless of whether these letters are present or absent in the propeller model designation.

#### **Propellers Not Affected by This AD**

(f) Hartzell Propeller Inc. ()HC-()2Y(K, R)-() series propellers installed on the following aircraft are not affected by this AD, but are affected by AD 2001-23-08, which addresses the same unsafe condition:

(1) Aerobatic aircraft (including certificated aerobatic aircraft, military trainers, or any aircraft routinely exposed to aerobatic usage).

(2) Agricultural aircraft.

(3) Piper PA-32() series aircraft with Lycoming 540 series reciprocating engines rated at 300 horsepower or higher.

(4) Britten Norman BN-2() series aircraft with Lycoming 540 series reciprocating engines.

#### **Unsafe Condition**

(g) This AD results from the need to make changes to the affected series designation of propellers, to expand the engine applicability, and to respond to comments received on AD 2006-18-15. We are issuing this AD to prevent failure of the propeller hub causing blade separation and subsequent loss of airplane control.

#### **Compliance**

(h) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

## **Initial Propeller Hub Eddy Current Inspection (ECI)**

(i) Within 50 operating hours time-in-service (TIS) after the effective date of this AD, perform an initial ECI of the front cylinder half of the propeller hub for cracks.

(j) Use paragraphs 3.A. through 3.A.(4)(g) of the Accomplishment Instructions of Hartzell Propeller Inc. Service Bulletin (SB) No. HC-SB-61-269, Revision 3, dated September 17, 2007, to perform the ECI.

(k) If any cracks are found, remove the propeller hub from service before further flight.

(l) If no cracks are found, mark the propeller using paragraph 3.A.(6)(a) of the Accomplishment Instructions of Hartzell Propeller Inc. SB No. HC-SB-61-269, Revision 3, dated September 17, 2007, to indicate compliance with Hartzell Propeller Inc. SB No. HC-SB-61-269, dated April 18, 2005.

## **Repetitive Propeller Hub ECIs**

(m) Within every 100 operating hours TIS after the last propeller hub ECI, perform repetitive ECIs of the front cylinder half of the propeller hub for cracks.

(n) Do not repetitively mark the propeller once it is initially marked as specified in paragraph (l) of this AD.

(o) If any cracks are found, remove the propeller hub from service before further flight.

## **Optional Terminating Action**

(p) As optional terminating action to the repetitive ECIs required by this AD:

(1) Replace the non-suffix SN propeller hub with a propeller hub identified by an "A" or "B" suffix letter in the propeller hub SN; except:

(2) Do not install a suffix "A" propeller hub that was previously installed on an aircraft affected by the original issue or later revision of Hartzell Propeller Inc. SB No. HC-SB-61-227.

(3) Replacement propeller hub part numbers can be found in paragraph 2.A., Material Information, of Hartzell Propeller Inc. SB No. HC-SB-61-269, Revision 3, dated September 17, 2007.

## **Alternative Methods of Compliance**

(q) The Manager, Chicago Aircraft Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

## **Related Information**

(r) Hartzell Propeller Inc. SB No. HC-SB-61-227, Revision 2, dated April 18, 2005, and AD 2001-23-08 pertain to the subject of this AD.

(s) Contact Tim Smyth, Senior Aerospace Engineer, Chicago Aircraft Certification Office, FAA, Small Airplane Directorate, 2300 East Devon Avenue, Des Plaines, IL 60018-4696; e-mail: timothy.smyth@faa.gov; telephone (847) 294-7132; fax (847) 294-7834, for more information about this AD.

## **Material Incorporated by Reference**

(t) You must use Hartzell Propeller Inc. Service Bulletin No. HC-SB-61-269, Revision 3, dated September 17, 2007, to perform the eddy current inspections required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Hartzell Propeller Inc. Technical Publications Department, One Propeller Place, Piqua, OH 45356; telephone (937) 778-4200; fax (937) 778-4391, for a copy of this service information. You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on October 2, 2009.

Peter A. White,  
Assistant Manager, Engine and Propeller Directorate,  
Aircraft Certification Service.