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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2009-1015; Directorate Identifier 2009-CE-039-AD; Amendment 39-16376; AD 2010-15-10]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Piper Aircraft, Inc. PA-28, PA-32, PA-34, and PA-44 Series Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Piper Aircraft, Inc. (Piper) PA-28, PA-32, PA-34, and PA-44 series airplanes. This AD requires you to inspect the control wheel shaft on both the pilot and copilot sides and, if necessary, replace the control wheel shaft. This AD results from two field reports of incorrectly assembled control wheel shafts. We are issuing this AD to detect and correct any incorrectly assembled control wheel shafts. This condition, if left uncorrected, could lead to separation of the control wheel shaft, resulting in loss of pitch and roll control.

**DATES:** This AD becomes effective on August 31, 2010.

On August 31, 2010, the Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD.

**ADDRESSES:** To get the service information identified in this AD, contact Piper Aircraft, Inc., 2926 Piper Drive, Vero Beach, Florida 32960; telephone: (772) 567-4361; fax: (772) 978-6573; Internet: <http://www.newpiper.com/company/publications.asp>.

To view the AD docket, go to U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590, or on the Internet at <http://www.regulations.gov>. The docket number is FAA-2009-1015; Directorate Identifier 2009-CE-039-AD.

**FOR FURTHER INFORMATION CONTACT:** Hector Hernandez, Aerospace Engineer, Atlanta Aircraft Certification Office, 1701 Columbia Avenue, College Park, GA 30337; telephone: (404) 474-5587; fax: (404) 474-5606.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On October 23, 2009, we issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Piper Aircraft, Inc. (Piper) PA-28, PA-32, PA-34, and PA-44 series airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on October 30, 2009 (74 FR 56138). The NPRM proposed to detect and correct any incorrectly assembled control wheel shafts.

### **Comments**

We provided the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and FAA's response to each comment:

#### **Comment Issue No. 1: Difficulty in Disassembling Components**

Fifteen commenters, including the Aircraft Owners and Pilots Association (AOPA), Barry Rogers, Bruce Chien, and Harry Cook commented that some Piper airplanes do not have inspection holes and may require disassembly of the control wheel shaft. Disassembly can take several hours due to the difficulty in removing (or separating) the parts, which could be very costly and possibly damage a perfectly good component.

We infer from these comments that the commenters want us to rescind the NPRM due to difficulty in disassembling the parts and cost of labor for disassembly.

The FAA partially agrees with the above comment. We disagree that we should rescind the NPRM due to difficulty in disassembling the parts. According to Piper, the universal joint has rotating parts that wear, and replacement of those parts, which requires disassembly, is a routine procedure done with little difficulty. Piper sales history records show, that on average, they sell over 400 of these as service spare replacements each year, and the Piper technical support department is not aware of anyone reporting difficulty in replacing them. Piper has revised their service bulletin, to provide more information about the different control wheel shaft configurations. We agree that disassembly of the control shaft wheel may take more time than an inspection with witness holes. However, the FAA has determined that there is an unsafe condition and has identified actions to correct that unsafe condition. It is every owner's and operator's responsibility to maintain the airplane to the type design and address any airworthiness concerns. This includes all maintenance requirements and ADs that correct an unsafe condition.

We will change the final rule AD action to include Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197B, dated May 3, 2010, to use for the procedures to comply with the actions required by this AD. We will allow "unless already done" credit to anyone who already accomplished the actions following the previous service bulletin included as part of the NPRM.

#### **Comment Issue No. 2: Cost Absorbed by Piper**

John Witosky, Thomas McIntosh, Claude Dalrymple, Jr., M. Hefter, and George Haffey commented that the cost for maintenance and replacement parts should be absorbed by Piper. Several aircraft owners disagreed with covering the cost for a Piper mistake. Several aircraft owners/operators felt that Piper failed to manufacture the aircraft to design specification and their quality system did not detect a bad assembly.

The FAA has determined that there is an unsafe condition and has identified actions to correct that unsafe condition. One of the FAA's responsibilities is to identify the direct costs involved (labor and parts) with the corrective actions. It is every owner's and operator's responsibility to maintain the

airplane to the type design and address any airworthiness concerns. This includes all maintenance requirements and ADs that correct an unsafe condition.

We are not changing the final rule AD action based on this comment.

### **Comment Issue No. 3: Date Range of Manufacturing Error**

M. Hefter, Barry Rogers, Matt Gunsch, Thomas McIntosh, and four other commenters stated that the FAA needs to determine a date range when the control wheel assemblies' manufacturing errors were most likely to have occurred. This would narrow the number of aircraft required to be inspected. This AD would require the inspection of the control wheel assemblies on approximately 41,928 airplanes. There are reports from Piper owners that the inspection is not simple and can take several hours due to difficulty in removing (or separating) the parts.

The FAA agrees that it would be helpful to know an exact time period when the manufacturing errors occurred. Piper is unable to determine a time period when the assembly error occurred. Therefore, we are unable to comply with owner's/operator's requests to narrow the number of aircraft based on date of manufacture.

We are not changing the final rule AD action based on this comment.

### **Comment Issue No. 4: Various Configurations and Cost of Compliance**

The AOPA, Bruce Chien, M. Hefter, and Barry Rogers commented that the cost of compliance should be revised based on field experience and difficulty in removing these parts for inspection, along with replacing these assemblies and different configurations used in the control wheel shaft assemblies. Piper owners claim there are different configurations used in the control wheel shaft assemblies as follows:

- Taper pin on aircraft with witness holes;
- Taper pin on aircraft without witness holes;
- Bolt with witness hole;
- Bolt with no witness hole; and
- The older Piper aircraft do not use fastener (taper pin or bolt) or have witness holes.

The FAA agrees with this comment. Piper has revised the service information to provide more information about the different control wheel shaft configurations. We are including this revised service bulletin in the final rule AD action, and including the estimated cost of each configuration in the Costs of Compliance section of this AD. We will allow "unless already done" credit to anyone who already accomplished the actions following the previous service bulletin included as part of the NPRM.

### **Comment Issue No. 5: Inadequate Service Information**

The AOPA and Harry Cook commented that there should be a revision to the service bulletin to address the different control wheel shaft assemblies. Piper owners are requesting more instructions in the service bulletin to address the older Piper aircraft that do not use taper pins or have witness holes.

The FAA agrees with this comment. Piper has revised the service bulletin to provide more information about the different control wheel shaft configurations. We will change the final rule AD action to include Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197B, dated May 3, 2010, to use for the procedures to comply with the actions required by this AD. We will allow "unless already done" credit to anyone who already accomplished the actions following the previous service bulletin included as part of the NPRM.

## **Comment Issue No. 6: Alternative Methods of Inspecting**

Neal Bachman, M. Hefter, and several other commenters had several suggestions for control wheel shafts lacking a witness hole. One commenter suggested that information should be provided in the service bulletin on drilling a witness hole based on Piper design specifications. Another commenter suggested revising the service bulletin to include an alternative method to determine the location of the drilled taper pin hole, which requires a measurement from the sprocket end of the shaft instead of measuring from the universal joint end of the shaft (which requires the removal of the tapered pin). The commenters feel this will greatly reduce the burden to remove the universal joint/taper pin on airplanes lacking a witness hole.

The FAA disagrees with this comment. Based on input from Piper, we determined these were not viable options due to the many different control wheel shaft configurations within each airplane model. However, anyone may submit substantiating data to show compliance with the actions of this AD. The FAA will review and consider all alternative method of compliance (AMOC) requests we receive provided they follow the procedures in 14 CFR 39.19

We are not changing the final rule AD action based on this comment.

## **Comment Issue No. 7: Compliance Times**

The AOPA and M. Hefter commented that the compliance time should be changed to be at the next scheduled annual or 100-hour inspection, whichever occurs first. The low fleet incidences do not justify a more restrictive timetable.

The FAA agrees and based on comments received from owners/operators we will change the compliance time to be within the next 100 hours time-in-service or within the next 12 months, whichever occurs first.

## **Comment Issue No. 8: Unnecessary AD Action**

The AOPA, James M. Stockdale, Steven Barnes, and others commented that the proposed AD is a result of two reports of control wheel shafts incorrectly drilled at Piper. The AD would require the inspection of the control wheel assemblies on approximately 41,928 airplanes. Several aircraft owners/operators feel that a control wheel shaft problem would have shown a much greater incidence level than two field reports.

The FAA does not agree that the scope needs to be changed or that this NPRM is not necessary. A loss of the control wheel due to misdrilling of the attachment hole may lead to separation of the control wheel shaft, resulting in loss of pitch and roll control. The FAA has determined that there is an unsafe condition as described and justified in the NPRM. It is every owner's responsibility to maintain their airplane to type design and address any airworthiness concern.

## **Conclusion**

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed except for the changes previously discussed and minor editorial corrections. We have determined that these minor corrections:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

## **Costs of Compliance**

We estimate that this AD would affect 41,928 airplanes in the U.S. registry.

We estimate the following costs to do the inspection:

<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Total Cost Per Airplane</b>	<b>Total Cost on U.S. Operators</b>
From .5 work-hour to 3 work-hours X \$85 per hour = \$42.50 to \$255	Not applicable	From \$42.50 to \$255	From \$1,781,940 to \$10,691,640

We estimate the following costs to do any necessary replacements that would be required based on the results of the inspection. We have no way of determining the number of airplanes that may need this repair/replacement:

<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Total Cost Per Airplane</b>
<u>Taper Pin with and without witness hole</u> : 16 work-hours X \$85 per hour = \$1,360	\$75 per side X maximum of 2 per airplane = \$150	\$1,510
<u>Bolt with and without witness hole</u> : 15 work-hours X \$85 per hour = \$1,275	\$75 per side X maximum of 2 per airplane = \$150	\$1,425

### **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 AD.

### **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 other information as included in the Regulatory Evaluation) and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "Docket No. FAA-2009-1015; Directorate Identifier 2009-CE-039-AD" in your request.

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

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

### **Adoption of the Amendment**

Accordingly, 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. FAA amends § 39.13 by adding a new AD to read as follows:



**2010-15-10 Piper Aircraft, Inc.:** Amendment 39-16376; Docket No. FAA-2009-1015; Directorate Identifier 2009-CE-039-AD.

**Effective Date**

(a) This AD becomes effective on August 31, 2010.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to the following airplane models and serial numbers that are certificated in any category:

<b>Models</b>	<b>Serial Nos.</b>
PA-28-140	28-20001 through 28-26946 and 28-7125001 through 28-7725290
PA-28-150	28-03; 28-1 through 28-4377; and 28-1760A
PA-28-160	28-03; 28-1 through 28-4377; and 28-1760A
PA-28-180	28-03; 28-671 through 28-5859; and 28-7105001 through 28-7205318
PA-28S-160	28-1 through 28-1760 and 28-1760A
PA-28S-180	28-671 through 28-5859 and 28-7105001 through 28-7105234
PA-28-235	28-10001 through 28-11378; 28-7110001 through 28-7210023; 28E-11 and 28-7310001 through 28-7710089
PA-28-236	28-7911001 through 28-8611008 and 2811001 through 2811050
PA-28-151	28-7415001 through 28-7715314
PA-28-161	2841001 through 2841365; 28-7716001 through 28-8216300; 28-8316001 through 28-8616057; 2816001 through 2816109; 2816110 through 2816119; and 2842001 through 2842305
PA-28-180	28-E13 and 28-7305001 through 28-7505260
PA-28-181	28-7690001 through 28-8690056; 28-8690061; 28-8690062; 2890001 through 2890205; 2890206 through 2890231; and 2843001 through 2843672
PA-28-201T	28-7921001 through 28-7921095
PA-28R-180	28R-30002 through 28R-31270 and 28R-7130001 through 28R-7130013

PA-28R-200	28R-35001 through 28R-35820; 28R-7135001 through 28R-7135229; and 28R-7235001 through 28R-7635545
PA-28R-201	28R-7737002 through 28R-7837317; 2837001 through 2837061; and 2844001 through 2844138
PA-28R-201T	28R-7703001 through 28R-7803374 and 2803001 through 2803012
PA-28RT-201	28R-7918001 through 28R-7918267 and 28R-8018001 through 28R-8218026
PA-28RT-201T	28R-7931001 through 28R-8631005 and 2831001 through 2831038
PA-32-260	32-03; 32-04; 32-1 through 32-1297; and 32-7100001 through 32-7800008
PA-32-300	32-15; 32-21; 32-40000 through 32-40974; and 32-7140001 through 32-7940290
PA-32S-300	32S-15; 32S-40000 through 32S-40974; and 32S-7140001 through 32S-7240137
PA-32R-300	32R-7680001 through 32R-7880068
PA-32RT-300	32R-7885002 through 32R-7985106
PA-32RT-300T	32R-7787001 and 32R-7887002 through 32R-7987126
PA-32R-301 (SP)	32R-8013001 through 32R-8613006; 3213001 through 3213028; and 3213030 through 3213041
PA-32R-301 (HP)	3213029; 3213042 through 3213103; 3246001 through 3246217; 3246219; 3246223; 3246218; 3246220 through 3246222; and 3246224 through 3246244
PA-32R-301T	32R-8029001 through 32R-8629008 and 3229001 through 3229003
PA-32-301	32-8006002 through 32-8606023; 3206001 through 3206019; 3206042 through 3206044; 3206047; 3206050 through 3206055; and 3206060
PA-32-301T	32-8024001 through 32-8424002
PA-32R-301T	3257001 through 3257483
PA-32-301FT	3232001 through 3232074
PA-32-301XTC	3255001 through 3255014; 3255026, 3255015 through 3255025; 3255027; and 3255051
PA-34-200	34-E4 and 34-7250001 through 34-7450220
PA-34-200T	34-7570001 through 34-8170092
PA-34-220T	34-8133001 through 34-8633031; 3433001 through 3433172; 3448001 through 3448037; 3448038 through 3448079; 3447001 through 3447029; and 3449001 through 3449377
PA-44-180	44-7995001 through 44-8195026; 4495001 through 4495013; and 4496001 through 4496251
PA-44-180T	44-8107001 through 44-8207020

### Unsafe Condition

(d) This AD results from two field reports of incorrectly assembled control wheel shafts. We are issuing this AD to detect and correct any incorrectly assembled control wheel shafts. This condition,

if left uncorrected, could lead to separation of the control wheel shaft, resulting in loss of pitch and roll control.

## Compliance

(e) To address this problem, you must do the following, unless already done:

Actions	Compliance	Procedures
(1) Inspect the pilot and copilot control wheel columns for correct control wheel shaft installation.	Within 100 hours time-in-service after August 31, 2010 (the effective date of this AD), or within the next 12 months after August 31, 2010 (the effective date of this AD), whichever occurs first.	Follow Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197A, dated September 1, 2009; or Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197B, dated May 3, 2010.
(2) If during the inspection required in paragraph (e)(1) of this AD an incorrectly installed control wheel shaft is found, replace the appropriate shaft with a new shaft.	Before further flight after the inspection where incorrect installation of the control wheel shaft is found.	Follow Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197A, dated September 1, 2009; or Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197B, dated May 3, 2010.
(3) Inspect the universal joint and all other control wheel parts when doing the action required in (e)(2) of this AD and, if any deterioration, excessive wear, or damage is found, replace the universal joint and/or other control wheel parts with a new universal joint and/or other applicable new control wheel parts as necessary.	Before further flight after the inspection where incorrect installation of the control wheel shaft is found.	Follow Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197A, dated September 1, 2009; or Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197B, dated May 3, 2010.

## Alternative Methods of Compliance (AMOCs)

(f) The Manager, Atlanta Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Hector Hernandez, Aerospace Engineer, Atlanta Aircraft Certification Office (ACO), 1701 Columbia Avenue, College Park, GA 30337; telephone: (404) 474-5587; fax: (404) 474-5606. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

## Related Information

(g) To get copies of the service information referenced in this AD, contact Piper Aircraft, Inc., 2926 Piper Drive, Vero Beach, Florida 32960; telephone: (772) 567-4361; fax: (772) 978-6573; Internet: <http://www.newpiper.com/company/publications.asp>. To view the AD docket, go to U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-

140, 1200 New Jersey Avenue, SE., Washington, DC 20590, or on the Internet at <http://www.regulations.gov>.

### **Material Incorporated by Reference**

(h) You must use Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197A, dated September 1, 2009, or Piper Aircraft, Inc. Mandatory Service Bulletin No. 1197B, dated May 3, 2010, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Piper Aircraft, Inc., 2926 Piper Drive, Vero Beach, Florida 32960; telephone: (772) 567-4361; fax: (772) 978-6573; Internet: <http://www.newpiper.com/company/publications.asp>.

(3) You may review copies of the service information incorporated by reference for this AD at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the Central Region, call (816) 329-3768.

(4) You may also review copies of the service information incorporated by reference for this AD 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Kansas City, Missouri, on July 16, 2010.

Kim Smith,  
Manager, Small Airplane Directorate,  
Aircraft Certification Service.