

Issued in Fort Worth, Texas on June 3, 2013.

**Kimberly K. Smith,**

*Manager, Rotorcraft Directorate, Aircraft Certification Service.*

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**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2012-0983; Directorate Identifier 2012-CE-001-AD; Amendment 39-17457; AD 2013-10-04]

**RIN 2120-AA64**

#### **Airworthiness Directives; Piper Aircraft, Inc. Airplanes**

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

**ACTION:** Final rule.

**SUMMARY:** We are superseding an existing airworthiness directive (AD) for all Piper Aircraft, Inc. Models PA-31, PA-31-325, and PA-31-350 airplanes. That AD currently requires a detailed repetitive inspection of the exhaust system downstream of the turbochargers and repair or replacement of parts as necessary. This new AD requires visual repetitive inspections, expanding the inspection scope to include the entirety of each airplane exhaust system. This AD was prompted by reports of exhaust system failures upstream of aircraft turbochargers and between recurring detailed inspections. We are issuing this AD to correct the unsafe condition on these products.

**DATES:** This AD is effective July 17, 2013.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of July 17, 2013.

**ADDRESSES:** 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: [www.piper.com/home/pages/Publications.cfm](http://www.piper.com/home/pages/Publications.cfm). You may review copies of the referenced service information at the FAA, FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility 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 address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Gary Wechsler, Aerospace Engineer, Atlanta Aircraft Certification Office, FAA, 1701 Columbia Avenue, College Park, Georgia 30337; telephone: (404) 474-5575; fax: (404) 474-5606; email: [gary.wechsler@faa.gov](mailto:gary.wechsler@faa.gov).

**SUPPLEMENTARY INFORMATION:**

**Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 82-16-05 R1, amendment 39-5278 (51 FR 11707, April 7, 1986). That AD applies to the specified products. The NPRM published in the *Federal Register* on September 18, 2012 (77 FR 57534). The NPRM included a detailed inspection that involved disassembling the v-band couplings. We removed that detailed inspection, and we added a table listing specific parts and inspection criteria to clarify the visual inspection. We also identified that airplanes with the STC SA240CH heat exchanger installed may not have all of the parts requiring the visual inspection. (Information on STC SA240CH may be found at [http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rqstc.nsf/0/30C512E870BE421D86257297005B6822?OpenDocument&Highlight=sa240ch](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rqstc.nsf/0/30C512E870BE421D86257297005B6822?OpenDocument&Highlight=sa240ch).) We determined that these changes will not increase the economic burden on any operator or increase the scope of the AD over what was originally proposed in the NPRM.

#### **Comments**

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

**Revise Cost of Compliance**

Douglas Deering and Terry Mangione stated the compliance costs are too high and could lead to cost saving attempts in other places. Douglas Deering added the cost does not include clamps and gaskets.

#### **Comments**

We partially agree. We agree that the cost of compliance per airplane may

vary depending on the location in which compliance is made because the cost of labor and parts varies throughout the United States of America. We disagree with the claim that the cost of compliance is too great because of the safety risk the current design poses. Additionally, the cost of replacing clamps and gaskets is part of the on-condition costs, which cannot be predicted because of the multitude and manner of environments in which these airplanes operate result in widely varying exhaust system conditions over time.

We did not make any changes to this final rule AD action as a result of this comment.

#### **Eliminate or Change Visual Inspection Compliance Requirement**

Douglas Deering, Joe Miller, and Lycoming Engines suggested eliminating the visual inspection compliance requirement and instead visually inspecting the entire exhaust system at 100 hours time-in-service (TIS) or every other engine inspection event if maintained by an FAA-approved aircraft inspection program (AAIP). Visual inspections are already required under AAIP, 100-hour, and annual inspections; and Lycoming engine operations manuals currently recommend 50-hour visual inspections of the entire exhaust manifold for leaks.

We agree that manufacturer's maintenance instructions include visual inspection requirements for exhaust and turbocharger systems. However, these manufacturer's maintenance instructions are only recommendations from which operators may base individual, FAA approved, maintenance programs on. Thus, AAIP, 100-hour, and annual inspection programs may or may not include the inspections proposed by this AD. The only way to ensure that a level of maintenance is performed to mitigate the safety risk the current design poses is through mandating these inspections, hence the need for the AD.

We disagree with the request to eliminate the recurring 50-hour visual inspection compliance requirement because a visual inspection to look for specific signs of imminent failure at intervals less than 100 hours was determined necessary to mitigate the safety risk the current design poses. The inspections required by AAIP, 100-hour and annual inspections, and Lycoming engine manual requirements do not mitigate the unsafe condition identified in this AD.

We changed this final rule AD action to clarify the visual inspection process. We added a table of part numbers requiring inspection and the signs of

imminent failure to inspect for on these parts (and referenced a source of pertinent methods). Also, we expanded the visual inspection interval from 50 hours to 60 hours TIS in an attempt to encompass operators with FAA-approved inspection plans without an adverse effect to inspection effectiveness.

#### **Eliminate Calendar Time Limited Inspection Intervals**

Douglas Deering, Allen M. Bower, and AMBO Ltd. stated we should eliminate the calendar time inspection interval limits for the compliance requirements because they do not believe calendar time outside of usage could adversely affect exhaust system integrity. Allen M. Bower, and AMBO Ltd. cited Special Airworthiness Information Bulletin (SAIB) CE-00-16, dated February 4, 2000, dealing with the twin Cessna exhaust system, as an example of a safety action that does not require calendar time inspection limits, "You do not have to accomplish any action toward the AD until 2,500 hours TIS have accumulated on the exhaust system or exhaust system components."

We do not agree because the 6-month inspection requirement is necessary to check for the effects of corrosion that can occur while an aircraft is not in service. The level of exhaust system corrosion that can occur over a 6-month period is largely dependent on environmental conditions (higher moisture, temperature, and salinity lead to higher corrosion rates), exhaust material surface condition (higher levels of oxidation and scratches lead to higher corrosion rates), and material geometry and assembly (crevices created by mating part surfaces and tight cracks corrode faster than open surfaces.)

The AD, 2000-01-16 (65 FR 2844, January 19, 2000), cited by the SAIB referenced above, clearly requires actions before 2,500 hours TIS via the statements listed within that AD's figure 1, Compliance Table, of which several are paraphrased here: Visually inspect exhaust systems within 50 hours TIS after the effective date of the AD or within the next 30 calendar days, whichever occurs later; remove tailpipes and visually inspect for any crack, corrosion, holes, or distortion upon the accumulation of 5 years since installing a new or overhauled exhaust system or within the next 100 hours TIS after the effective date of this AD, whichever occurs later; and, inspect and pressure test exhaust systems upon the accumulation of 5 years since installing a new or overhauled exhaust system or within the next 100 hours TIS after the effective date of the AD, whichever

occurs later. In summary, AD 2000-01-06 (65 FR 2844, January 19, 2000) requires exhaust inspections with a calendar time limit for their intervals, before 2,500 hours TIS.

We did not make any changes to this final rule AD action as a result of this comment.

#### **Limit Compliance to One Manufacturer**

Douglas Deering stated that we should limit compliance requirements to a single exhaust system manufacturer because recent exhaust pipe flange failures were due to a single manufacturer.

We do not agree because the FAA has not concluded the root cause of recent exhaust pipe flange failures is due to a single exhaust pipe manufacturer.

We did not make any changes to this final rule AD action as a result of this comment.

#### **Discuss Exhaust System Misalignment, Its Effect on Exhaust System Failures, and Pertinent Company Service Information**

Douglas Deering and Acorn Welding stated that we should mention exhaust parts fail at flanges due to exhaust assembly misalignment created by improper assembly, mis-manufactured parts, and/or slip joint seizing. They state exhaust system installation should be in accordance with Lycoming Service Instruction 1320, dated March 7, 1975, and Lycoming Service Instruction 1391, dated October 5, 1979; v-band coupling installation should be in accordance with Lycoming Service Instruction 1238B, dated January 6, 2010, and exhaust system improvements should be required per Lycoming Service Instruction 1410, dated June 19, 1981. They recommended Lycoming service instructions that address practices and assemblies meant to address the aforementioned problems.

We agree that exhaust assembly misalignment due to improper exhaust system assembly, mis-manufacturing, and/or slip joint seizures can contribute to and/or cause the cracking of exhaust pipe flanges because of excessive eccentric loading. We disagree with requiring exhaust system improvements per Lycoming Service Instruction 1410, dated June 19, 1981, because the events that prompted this AD were not documented as due to the absence of the slip joint introduced by this service instruction. Also, Lycoming Service Instruction 1238B, dated January 6, 2010, is referenced elsewhere in the proposed AD with regards to v-band coupling installation.

We changed this final rule AD action to clarify the repair/replacement

process. We changed paragraph (i)(1)(ii) (which is now (h)(1)(ii)) to read: "Repair or replace exhaust system parts exhibiting bulges, cracks and/or exhaust leak stains with airworthy parts in accordance with Lycoming Service Information 1320, dated March 7, 1975, and Lycoming Service Information 1391, dated October 5, 1979, as applicable."

#### **Reduce/Eliminate Recurring V-Band Clamp Disassembly for Inspections**

Douglas Deering, Joe Miller, Terry Mangione, Lycoming Engines, Allen M. Bower, and AMBO Ltd. stated we should reduce/eliminate the frequency of inspections requiring v-band clamp disassembly because the v-band clamp disassembly subjects the v-band clamp to a high degree of stress.

We agree because v-band clamp disassembly can cause damage. Therefore, a decrease in recurrent inspection intervals requiring v-band clamp disassembly may increase the rate at which v-band clamps and/or locking nuts accumulate damage.

We changed paragraph (h) of this AD to eliminate the recurring 100-hour disassembly of v-band clamps.

#### **Remove the Corrective Actions of Paragraph (i)**

Douglas Deering stated we should remove the corrective actions contained in paragraph (i) of this AD (which has now been merged into paragraph (h)). The paragraph (i) (which is now merged into paragraph (h)) corrective actions only reinforce what any technician would be required to do upon finding defects during an exhaust system inspection.

We do not agree because we determined the corrective actions of paragraph (i) (which is now merged into paragraph (h)) were necessary to mitigate the safety risk the current design poses.

We did not make any changes to this final rule AD action as a result of this comment.

#### **Eliminate V-Band Clamp Replacement at 1,000 TIS**

Douglas Deering, Joe Miller, Acorn Welding, Allen H. Bower, and AMBO Ltd. stated we should specify which v-band clamp numbers need to be replaced at 1,000 hours TIS and delete the requirement to replace v-band clamp part numbers (P/N) 557-584 and 557-369 at 1,000 hours TIS. The installation of v-band clamps P/N 557-584 and P/N 557-369 exempts one from the detailed inspections of Part II of Piper Service Bulletin 644E, dated May 9, 2012. They state Piper Service Bulletin

644E, dated May 9, 2012, should be a template for the proposed AD. Piper Service Bulletin 644E does not require a life limit for v-band coupling P/N 557–584 and P/N 557–369 (only replacement on condition) and requires 100-hour TIS recurring inspections and 1,000-hour TIS replacement for v-band coupling P/N 555–511 and P/N 555–366. Anecdotal experience substantiates longevity of v-band coupling P/N 557–584 and P/N 557–369.

We agree because initial data indicated that the Piper v-band clamps (P/N 557–584 and P/N 557–369) connecting the turbocharger exhaust outlet flange with the tailpipe were failing with fewer hours TIS than engine time between overhaul (TBO). Further data and feedback indicates that the cases where the clamps may have failed in service, the clamps were not recovered (they were lost during the event). The clamps found cracked were found cracked during inspections.

We changed this AD to not require mandatory replacement of Piper clamps P/N 557–584 and P/N 557–369 at 1,000 hours TIS.

#### **Remove Exhaust System Installation Steps Already Contained in Company Service Information**

Douglas Deering stated that we should delete paragraphs (k)(2) and (k)(3) of this AD and make paragraph (k)(4) a note to paragraph (k). The v-band coupling installation steps defined by paragraphs (k)(2) and (k)(3) are already stated in Piper Service Bulletin 644E, dated May 9, 2012, and Lycoming Service Instruction 1238B, dated January 6, 2010, and the text of paragraph (k)(4) is not required by the AD, but might help the operator to comply with the AD.

We agree because the v-band coupling installation steps defined by paragraphs (k)(2) and (k)(3) (now (h)(2) and (h)(3)) are already stated in Piper Service Bulletin 644E, dated May 9, 2012, and Lycoming Service Instruction 1238B, dated January 6, 2010. The text of paragraph (k)(4) (now (h)(4)) is not required by the AD itself but might help the operator to comply with the AD.

We will change this AD to eliminate paragraphs (k)(2) and (k)(3) and make the text of paragraph (k)(4) part of a Note to paragraph (k) (now referred to as paragraph (h)).

#### **Change Inspection Process for Airplanes With Supplemental Type Certificate (STC) SA240CH Installations**

Douglas Deering stated heat exchanger installations in accordance with STC SA240CH are not uncommon and would require an alternative method of compliance (AMOC) to the NPRM's inspection procedure. (Information on STC SA240CH may be found at [http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rqstc.nsf/0/30C512E870BE421D86257297005B6822?OpenDocument&Highlight=sa240ch](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rqstc.nsf/0/30C512E870BE421D86257297005B6822?OpenDocument&Highlight=sa240ch).) The commenter requests the NPRM inspection procedure be revised in a manner that airplanes modified per STC SA240CH will not require an AMOC.

We agree with this comment. A high percentage of airplanes have STC SA240CH installed, approximately 310 out of 508 airplanes (61 percent), and would require an AMOC to comply with the AD as written because those airplanes will not have all of the exhaust parts requiring inspection.

We added a subparagraph to paragraph (g) of this AD that eliminates the inspection for the exhaust system parts referenced above regarding the STC SA240CH heat exchanger. This allows airplanes with STC SA240CH heat exchanger installed to comply with the AD without applying for an AMOC.

#### **Limit Exhaust System Life to Time-Between-Overhauls**

Douglas Deering, Terry Mangione, and Acorn Welding stated that we should limit exhaust system life to engine TBO. Exhaust system failure rates increase quickly once exhaust life surpasses engine TBO.

We do not agree because the intent of the proposed AD is not to designate a life limit for exhaust systems. Instead, the intent of the proposed AD is to implement a 60-hour TIS recurring visual inspection to identify and correct v-band coupling and exhaust flange issues before they lead to a safety event.

We did not make any changes to this final rule AD action as a result of this comment.

#### **Change Product Applicability**

Douglas Deering and Acorn Welding stated we should change the AD applicability from Piper aircraft to include Lycoming engines TI0–540–A2C, LFFI0–540–F2BD, –J2B, –J2BD, –N2BD, and –R2BD.

We do not agree because the previous AD and this superseding AD are based on the configuration and installation of the engine on the aircraft and not the type design of the engine.

We did not make any changes to this final rule AD action as a result of this comment.

#### **Issue an SAIB in Lieu of This AD**

Lycoming Engines stated an SAIB alerting operators to the importance of the manufacturer's recommendations would be more appropriate than an AD. One clamp in data analyzed was mis-installed and should not have been included and two service difficulty reports (SDRs), by themselves, used in the FAA's analysis do not represent an increasing trend of failures substantiating the AD.

We do not agree because over the last 11 years there have been 6 exhaust system related incidents that occurred either during cruise, approach, takeoff, or climb. One incident resulted in substantial airplane damage. Risk analysis concluded the risk of an exhaust system related incident resulting in a hazard greater than substantial airplane damage for the future warranted the publication of an AD.

We did not make any changes to this final rule AD action as a result of this comment.

#### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (77 FR 57534, September 18, 2012) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (77 FR 57534, September 18, 2012).

We determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

#### **Costs of Compliance**

We estimate that this AD affects 1,016 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

## ESTIMATED COSTS

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Visual inspection .....	2 work-hours × \$85 per hour = \$170 .....	Not applicable .....	\$170	\$172,720

We have no way of determining how much damage may be found on each airplane during the required inspection. The scope of damage on the exhaust system could vary from airplane to airplane due to the manner and environments airplane may operate.

#### 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 DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and

(4) 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.

#### 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 FAA amends 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 airworthiness directive (AD) AD 82–16–05 R1, Amendment 39–5278 (51 FR 11707, April 7, 1986) and adding the following new AD:

**2013–10–04 Piper Aircraft, Ltd.:**  
Amendment 39–17457; Docket No. FAA–2012–0983; Directorate Identifier 2012–CE–001–AD.

#### (a) Effective Date

This AD is effective July 17, 2013.

#### (b) Affected ADs

This AD supersedes AD 82–16–05 R1, Amendment 39–5278 (51 FR 11707, April 7, 1986).

#### (c) Applicability

This AD applies to turbocharged Piper Aircraft, Inc. Models PA–31, PA–31–325, and PA–31–350 airplanes, all serial numbers, certificated in any category.

#### (d) Subject

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 78, Engine Exhaust.

#### (e) Unsafe Condition

This AD was prompted by the forced landings of aircraft due to exhaust system failures between recurring detailed inspections. We are issuing this AD to prevent the possibility of an in-flight powerplant fire due to an exhaust system failure.

#### (f) Compliance

Comply with this AD within the compliance times specified, unless already done.

#### (g) Visual Inspection

(1) Within the next 60 hours time-in-service (TIS) after July 17, 2013 (the effective date of this AD) or within the next 6 months after July 17, 2013 (the effective date of this AD), whichever occurs first, and repetitively thereafter at intervals not to exceed 60 hours TIS or 6 months, whichever occurs first, perform the inspections listed in table 1 of paragraph (g) of this AD upon the parts listed in the same table.

**Note 1 to paragraph (g)(1) of this AD:** Inspection procedure references can be found in Section 2, Visual Inspection, Chapter 5, Nondestructive Inspection (NDI), FAA Advisory Circular 43.13–1 B, Change 1, dated September 27, 2001, Acceptable Methods, Techniques, And Practices—Aircraft Inspection and Repair ([http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/0/99C827DB9BAAC81B86256B4500596C4E?OpenDocument&Highlight=ac43.13-1b](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/99C827DB9BAAC81B86256B4500596C4E?OpenDocument&Highlight=ac43.13-1b)).

(2) Aircraft equipped with Supplemental Type Certificate (STC) SA240CH heat exchanger will not have all of the parts referenced in table 1 of paragraph (g). (Information on STC SA240CH may be found at [http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgstc.nsf/0/30C512E870BE421D86257297005B6822?OpenDocument&Highlight=sa240ch](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/30C512E870BE421D86257297005B6822?OpenDocument&Highlight=sa240ch).) The heat exchanger replaces some of those parts; therefore, this AD requires the visual inspection on only the remaining parts listed in table 1 of paragraph (g) of this AD after installation of STC SA240CH. Airplanes modified in accordance with STC SA240CH will not require an Alternative Method of Compliance if the corrective actions in this AD are complied with.

TABLE 1 OF PARAGRAPH (g)—RECURRING 60-HOUR INSPECTIONS FOR LYCOMING AND PIPER EXHAUST SYSTEM PARTS

Product/part nomenclature	Make	Model/part number			Inspect with light and mirror or other method capable of achieving an equivalent visual resolution:
Airplane .....	Piper .....	PA-31 .....	PA-31-325 .....	PA-31-350 .....	
Engine .....	Lycoming .....	TIO-540-A1A, -A1B, -A2A, -A2B and -A2C (standard cylinder flange; aka, narrow deck).	TIO-540-A2C (wide cylinder flange; aka, wide deck) and -F2BD, and LTIO-540-F2BD.	TIO-540-J2B and -J2BD and LTIO-540-J2B and -J2BD.	
Pipe, exhaust, right intermediate.	Lycoming .....	LW-15850 .....	LW-15850 .....	LW-15849 .....	bulges, cracks and exhaust leak stains.
Pipe, exhaust, right rear, intermediate.	Lycoming .....	LW-16792 .....	LW-16792 .....	LW-16621 .....	bulges, cracks and exhaust leak stains.
Pipe, exhaust, right rear.	Lycoming .....	LW-16793 .....	LW-16793 .....	LW-16620 .....	bulges, cracks and exhaust leak stains.
Pipe, exhaust, left, intermediate.	Lycoming .....	LW-15849 .....	LW-15849 .....	LW-15849 .....	bulges, cracks and exhaust leak stains.
Pipe, exhaust, left rear, intermediate.	Lycoming .....	LW-16789 .....	LW-16789 .....	LW-16696 .....	bulges, cracks and exhaust leak stains.
Pipe, exhaust, left rear	Lycoming .....	LW-16790 .....	LW-16790 .....	LW-16697 .....	bulges, cracks and exhaust leak stains.
Tail pipe assembly, bottom.	Piper .....	40310-09 .....	40310-09 .....	40310-09 .....	bulges, cracks and exhaust leak stains.
Tail pipe assembly, top.	Piper .....	40310-08 or 40310-10.	40310-08 or 40310-10.	40319-10 .....	bulges, cracks and exhaust leak stains.
v-band coupling .....	Lycoming .....	LW-12093-5 .....	LW-12093-5 .....	LW12093-5 .....	cracks and exhaust leak stains.
v-band coupling .....	Piper .....	555-511 or 557-584	555-511 or 557-584	555-366 or 557-369	cracks and exhaust leak stains.

**(h) Corrective Actions**

(1) If any damage is found as a result of the inspections required in paragraph (g) of this AD, before further flight, do the following corrective actions:

(i) Replace v-band couplings exhibiting cracks and/or exhaust leak stains with airworthy and replacement v-band couplings following the applicable instructions contained in Piper Aircraft Corporation Service Bulletin No. 644E, dated May 9, 2012, and/or Lycoming Service Instruction No. 1238B, dated January 6, 2010.

(ii) Replace exhaust system parts exhibiting bulges, cracks and/or exhaust leak stains with airworthy parts in accordance with Lycoming Service Information 1320, dated March 7, 1975, and Lycoming Service Information 1391, dated October 5, 1979, as applicable.

**Note 2 to paragraph (h) of this AD:** During installation, we recommend not opening the v-band coupling more than the MINIMUM diameter necessary to clear coupled flanges. It is recommended to replace any locknuts and/or mating couplings with airworthy parts when locknuts do not exhibit a prevailing torque when installed.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) 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. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as

appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(j) Related Information**

(1) For more information about this AD, contact Gary Wechsler, Aerospace Engineer, Atlanta ACO, FAA, 1701 Columbia Avenue, College Park, Georgia 30337; telephone: (404) 474-5575; fax: (404) 474-5606; email: [gary.wechsler@faa.gov](mailto:gary.wechsler@faa.gov).

(2) Section 2, Visual Inspection, Chapter 5, Nondestructive Inspection (NDI), FAA Advisory Circular 43.13-1 B, Change 1, dated September 27, 2001, Acceptable Methods, Techniques, And Practices—Aircraft Inspection and Repair may be found at [http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/0/99C827DB9BAAC81B86256B4500596C4E?OpenDocument&Highlight=ac43.13-1b](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/99C827DB9BAAC81B86256B4500596C4E?OpenDocument&Highlight=ac43.13-1b).

**(k) Material Incorporated by Reference**

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

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise:

(i) Piper Aircraft Corporation Service Bulletin No. 644E, dated May 9, 2012;

(ii) Lycoming Service Instruction No. 1238B, dated January 6, 2010;

(iii) Lycoming Service Instruction 1320, dated March 7, 1975; and

(iv) Lycoming Service Instruction 1391, dated October 5, 1979.

(3) For obtaining 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: [www.piper.com/home/pages/Publications.cfm](http://www.piper.com/home/pages/Publications.cfm).

(4) You may view this service information at FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

(5) You may view this service information that is incorporated by reference 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 Kansas City, Missouri, on May 16, 2013.

**Earl Lawrence,**

Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. 2013-13666 Filed 6-11-13; 8:45 am]

**BILLING CODE 4910-13-P**