



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2018-0188; Product Identifier 2018-CE-002-AD; Amendment 39-19285; AD 2018-10-10]**

**RIN 2120-AA64**

**Airworthiness Directives; Diamond Aircraft Industries GmbH Airplanes**

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

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

**SUMMARY:** We are superseding Airworthiness Directive (AD) 2017-01-12, AD 2017-11-08, and AD 2017-15-09 for certain Diamond Aircraft Industries GmbH Model DA 42 airplanes. This AD results from mandatory continuing airworthiness information (MCAI) issued by the aviation authority of another country to identify and address an unsafe condition on an aviation product. The MCAI describes the unsafe condition as uncommanded engine shutdown during flight due to failure of the propeller-regulating valve caused by hot exhaust gases coming from fractured engine exhaust pipes. We are issuing this AD to require actions to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of May 31, 2017 (82 FR 24843, May 31, 2017) and August 1, 2017 (82 FR 35630, August 1, 2017).

We must receive comments on this AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE, Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria, telephone: +43 2622 26700; fax: +43 2622 26780; email: [office@diamond-air.at](mailto:office@diamond-air.at); Internet: <http://www.diamondaircraft.com>. You may review copies of the referenced service information at the FAA, Small Airplane Standards Branch, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148. It is also available on the Internet at <http://www.regulations.gov> by searching for locating Docket No. FAA-2018-0188.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0188; or in person at Docket Operations 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 Docket Operations (telephone (800) 647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Mike Kiesov, Aerospace Engineer, FAA, Small Airplane Standards Branch, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4144; fax: (816) 329-4090; email: [mike.kiesov@faa.gov](mailto:mike.kiesov@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued AD 2017-01-12, Amendment 39-18779 (82 FR 5359, January 18, 2017) (“AD 2017-01-12”); AD 2017-11-08, Amendment 39-18907 (82 FR 24843, May 31, 2017) (“AD 2017-11-08”), and AD 2017-15-09, Amendment 39-18969 (82 FR 35630, August 1, 2017) (“AD 2017-15-09”). Those ADs required actions intended to address an unsafe condition on certain Diamond Aircraft Industries GmbH Model DA 42 airplanes and was based on mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country.

Since we issued AD 2017-01-12, AD 2017-11-08, and AD 2017-15-09, the European Aviation Safety Agency (EASA) has issued a new AD.

The EASA, which is the Technical Agent for the Member States of the European Community, has issued AD No. 2017-0254, dated December 21, 2017 (referred to after this as “the MCAI”), to correct an unsafe condition for the specified products. The MCAI states:

Two cases were reported of uncommanded engine in-flight shutdown (IFSD) on DA 42 aeroplanes. Subsequent investigation identified that these occurrences were due to failure of the propeller regulating valve, caused by hot exhaust gases coming from fractured engine exhaust pipes. The initiating cracks on the exhaust pipes were not detected during previous inspections, since those exhaust pipes are equipped with non-removable heat shields that do not allow inspection for certain sections of the exhaust pipe.

This condition, if not corrected, could lead to further cases of IFSD or overheat damage, possibly resulting in a forced landing, with consequent damage to the aeroplane and injury to occupants.

To address this potential unsafe condition, Diamond Aircraft Industries (DAI) developed an exhaust pipe without a directly attached integral heat shield that allows visual inspection over the entire exhaust pipe length. DAI issued Mandatory Service Bulletin (MSB) 42-120 and relevant Working Instruction (WI) WI-MSB 42-120, providing instructions to install the modified exhaust pipes. As an interim measure, an additional bracket was designed to hold the exhaust pipe in place in case of a pipe fracture. EASA issued AD 2016-0156 (later revised), requiring replacement of the exhaust pipes with pipes having the new design, or installation of the additional brackets.

After EASA AD 2016-0156R1 was issued, cracks were found during inspection on modified exhaust pipes. Further investigation determined that, with the modified exhaust pipe design, vibration leads to cracking. Consequently, DAI published MSB 42-129, providing instructions for inspection of modified exhaust pipes, and EASA issued AD 2017-0090, retaining the requirements of EASA AD 2016-0156R1, which was superseded, and additionally requiring repetitive inspections of modified exhaust pipes and, depending on findings, repair or replacement.

After EASA AD 2017-0090 was issued, cracks were found on additional brackets, as previously installed per DAI WI-MSB 42-120. Prompted by these findings, DAI revised MSB 42-120 and the relevant part of WI-MSB 42-120 (now at Revision 4), providing improved instructions for the installation of brackets, and additional instructions to inspect those brackets. Consequently, EASA issued AD 2017-0120, retaining the requirements of EASA AD 2017-0090, which was superseded, and additionally requiring those actions for the additional brackets. That [EASA] AD also required reinstallation of the additional brackets in accordance with improved instructions.

Since EASA AD 2017-0120 was issued, it has been determined that installation of additional exhaust pipe brackets, combined with additional inspections, is the most adequate solution to address the original unsafe condition, while it was also established that the modified exhaust pipes without directly attached heat shield are not adequate as replacement parts. Durability analysis of the design is still under investigation and further improvements in the exhaust design are expected.

For the reasons described above, this [EASA] AD partially retains the requirements of EASA AD 2017-0120, which is superseded, removing the option to install a modified exhaust pipe without direct heat shield, and adding inspection requirements for aeroplanes modified in accordance with Section III.2 of DAI WI-MSB 42-120 Revision 3 or later (installation of additional brackets), and for aeroplanes on which an exhaust pipe with directly attached heat shield was re-installed in accordance with DAI OSB 42-131.

You may examine the MCAI on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0188.

#### **Relative Service Information under 1 CFR part 51**

Diamond Aircraft Industries GmbH (DAI) has issued Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, Work Instruction WI-MSB 42-120, Revision 4, dated December 20, 2018, Mandatory Service Bulletin MSB-42-129, dated May 17, 2017, and Work Instruction WI-OSB 42-131, dated December 20, 2017. DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, and Work Instruction WI-MSB 42-120, Revision 4, dated December 20, 2018, have identical procedures for installing additional engine exhaust pipe clamps with spring washers on original engine exhaust pipes. DAI Work Instruction WI-MSB 42-120, Revision 4, dated December 20, 2018, also includes procedures for inspecting the original engine exhaust pipe for cracks. DAI Mandatory Service Bulletin MSB-42-129, dated May 17, 2017, describes procedures for inspecting the modified engine exhaust pipe for cracks. DAI Work Instruction WI-OSB 42-131, dated December 20, 2017, describes procedures for replacing either the original or the modified engine exhaust pipe if cracks are found. This service information is reasonably available because the interested parties have access to it

through their normal course of business or by the means identified in the ADDRESSES section of this AD.

#### **FAA’s Determination and Requirements of this AD**

This product has been approved by the aviation authority of another country, and is approved for operation in the United States. Pursuant to our bilateral agreement with this State of Design Authority, they have notified us of the unsafe condition described in the MCAI and service information referenced above. We are issuing this AD because we evaluated all information provided by the State of Design Authority and determined the unsafe condition exists and is likely to exist or develop on other products of the same type design.

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

An unsafe condition exists that requires the immediate adoption of this AD. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because affected engine exhaust pipes could crack and cause hot gases to leak from fractured exhaust pipes and lead to an uncommanded engine in-flight shutdown. Therefore, we find good cause that notice and opportunity for prior public comment are impracticable. In addition, for the reason stated above, we find that good cause exists for making this amendment effective in less than 30 days.

#### **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety, and we did not precede it by notice and opportunity for public comment. We invite you to send any written relevant data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2018-0188; Directorate Identifier 2018-CE-002-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and

energy aspects of this AD. We will consider all comments received by the closing date and may amend this AD because of those comments.

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 we receive about this AD.

**Costs of Compliance**

We estimate that this AD will affect 130 products of U.S. registry.

We estimate the following costs to comply with this AD:

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspect engine exhaust pipe	2 work-hours X \$85 = \$170	N/A	\$170	\$22,100
Install additional engine exhaust pipe clamps with spring washers	4 work-hours X \$85 per hour = \$340 (for both clamps)	\$100 (for both clamps)	\$440	\$57,300
Inspect engine exhaust pipe clamps	2 work-hours X \$85 per hour = \$170	N/A	\$170	\$22,100

We estimate the following costs to do any necessary replacements that will be required based on the results of the inspections. We have no way of determining the number of airplanes that may need these replacements:

**On-condition costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Replace cracked engine exhaust pipe	4 work-hours X \$85 per hour = \$340	\$1,900	
Replace cracked engine exhaust pipe clamps	4 work-hours X \$85 per hour = \$340 (for both clamps)	\$100 (for both clamps)	\$440

We estimate that 20 of the affected airplanes have the “modified exhaust pipes,” Diamond Aircraft Industries P/N D60-9078-06-01\_01 or Technify P/N 52-7810-H0014 01, installed that may be subject to replacement by this AD and 110 of the affected airplanes are subject to the initial installation of additional engine exhaust pipe clamps and spring washers, inspections, and the conditional replacement requirement of this AD.

#### **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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to small airplanes, gliders, balloons, airships, domestic business jet transport airplanes, and associated appliances to the Director of the Policy and Innovation Division.

## **Regulatory Findings**

We 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),
- (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 Amendment 39-18779 (82 FR 5359, January 18, 2017), Amendment 39-18907 (82 FR 24843, May 31, 2017), and Amendment 39-18969 (82 FR 35630, August 1, 2017) and adding the following new AD:

2018-10-10 **Diamond Aircraft Industries GmbH**: Amendment 39-19285; Docket No. FAA-2018-0188; Directorate Identifier 2018-CE-002-AD.

**(a) Effective Date**

This airworthiness directive (AD) becomes effective [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD replaces 2017-01-12, Amendment 39-18779 (82 FR 5359, January 18, 2017) (“AD 2017-01-12”); AD 2017-11-08, Amendment 39-18907 (82 FR 24843, May 31, 2017) (“AD 2017-11-08”), and AD 2017-15-09, Amendment 39-18969 (82 FR 35630, August 1, 2017) (“AD 2017-15-09”).

**(c) Applicability**

This AD applies to Diamond Aircraft Industries GmbH Model DA 42 airplanes, serial numbers 42.004 through 42.427 and 42.AC001 through 42.AC151, certificated in any category, that have either a TAE 125-02-99 or TAE 125-02-114 engine installed, and:

(1) are equipped with an original engine exhaust pipe, Diamond Aircraft Industries (DAI) part number (P/N) D60-9078-06-01 or Technify P/Ns 52-7810-H0001 02, 52-7810-H0001 03, 52-7810-H0001 04; or

(2) are equipped with a modified engine exhaust pipe DAI P/N D60-9078-06-01\_01 or Technify 52-7810-H0014 01.

**(d) Subject**

Air Transport Association of America (ATA) Code 78: Engine Exhaust.

**(e) Reason**

This AD was prompted by mandatory continuing airworthiness information (MCAI) issued by the aviation authority of another country to identify and address an unsafe condition on an aviation product. It has been determined that installation of additional exhaust pipe brackets, combined with additional inspections, is the most adequate solution to address the original unsafe condition, while it was also established that the modified exhaust pipes without directly attached heat shield are not adequate as replacement parts. Durability analysis of the design is still under investigation and further improvements in the exhaust design are expected. For these reasons, this AD removes the option to install a modified exhaust pipe without direct heat shield, adds inspection requirements for airplanes modified in accordance with Section III.2 of Diamond Aircraft Industries (DAI) WI-MSB 42-120 Revision 3, dated July 6, 2017 (installation of additional brackets), and for airplanes on which an exhaust pipe with directly attached heat shield was re-installed in accordance with DAI Work Instruction WI-OSB 42-131, dated December 20, 2017. The MCAI describes the unsafe condition as uncommanded engine shutdown during flight due to failure of the propeller regulating valve caused by hot exhaust gases coming from fractured engine exhaust pipes. We are issuing this AD to prevent failure of the propeller regulating valve, which could result in forced landing, consequent damage and occupant injury.

**(f) Compliance**

Unless already done, do the following actions.

(1) An airplane is only required to have the actions of either (g) or (h) of this AD accomplished depending on the configuration.

(2) For the purpose of this AD, if the flight hours accumulated since first installation of an affected exhaust pipe or additional exhaust pipe clamp is not known, use the total hours time-in-service (TIS) accumulated on the airplane.

**(g) Actions for Airplanes with Installed Original Engine Exhaust Pipes as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the Effective Date of this AD)**

See Appendix 1 to AD 2018-10-10 for a chart of required actions. An original engine exhaust pipe is defined in paragraph (c), Applicability, of this AD.

(1) At the applicable compliance time in paragraphs (g)(1)(i) and (ii) of this AD, and repetitively thereafter at intervals not to exceed 500 hours time-in-service (TIS), inspect the installed engine exhaust pipe. Do this inspection following section III.4 – Inspection of exhaust pipe in the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 4, dated December 20, 2017.

(i) If the engine exhaust pipe has 1,300 hours TIS or less since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Before or upon accumulating 1,500 hours TIS since the engine exhaust pipe was first installed on an airplane, and repetitively thereafter at intervals not to exceed 500 hours TIS.

(ii) If the engine exhaust pipe has more than 1,300 hours TIS since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Within the next 200 hours TIS after [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), and repetitively thereafter at intervals not to exceed 500 hours time-in-service (TIS).

(2) During any inspection required in paragraph (g)(1) of this AD, if the engine exhaust pipe does not pass the inspection criteria, before further flight replace the engine exhaust pipe following section III.1 – Re-installation of Exhaust Pipes with Directly Attached Heat Shield in the INSTRUCTIONS section of DAI Work Instruction WI-OSB 42-131, dated December 20, 2017 (which includes installing additional engine exhaust pipe clamps, an exhaust sheet, and incorporates spring washers). After replacement continue with the 500-hour TIS repetitive inspections.

(i) If only the engine exhaust pipe heat shield is loose, a one-time single weld is allowed following section III.3 – Repair of Heat Shields of DAI P/N D60-9078-06-01 / Technify P/Ns 52-7810-H0001 03 and 52-7810-H0001 04 in the INSTRUCTIONS section of DAI Work Instruction WI-OSB 42-131, dated December 20, 2017. After a repair of the heat shield, if a single weld point is subsequently found cracked, the heat shield is considered to be loose and the exhaust pipe must be replaced. After replacement or repair, continue with the 500-hour TIS repetitive inspections.

(ii) Engine exhaust pipes re-qualified following section III.2– Re-Qualification of Exhaust Pipes DAI P/N D60-9078-06-01/ Technify P/Ns 52-7810-H0001 02, 52-7810-H0001 03, or 52-7810-H0001 04 in the INSTRUCTIONS section of DAI Work Instruction WI-OSB 42-131, dated December 20, 2017, are considered to have accumulated 1,500 hours TIS.

(3) Before further flight after the initial inspection required in paragraph (g)(1) of this AD and if no cracks were found or a repair to the exhaust pipe heat shield was done as required in paragraph (g)(2)(i) of this AD, then install additional engine exhaust pipe clamps, DAI P/Ns D60-7806-00-01 and D60-7806-00-02, and exhaust sheet, P/N D60-7806-00-03, and incorporate spring washers. Do the installations following III.2 Action 2 – installation of additional exhaust clamp in the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, or Revision 4,

dated December 20, 2017. See figure 1 to paragraph (g)(3) of this AD for additional information on the sequence of installation actions as identified in DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017 and Revision 4, dated December 20, 2017.

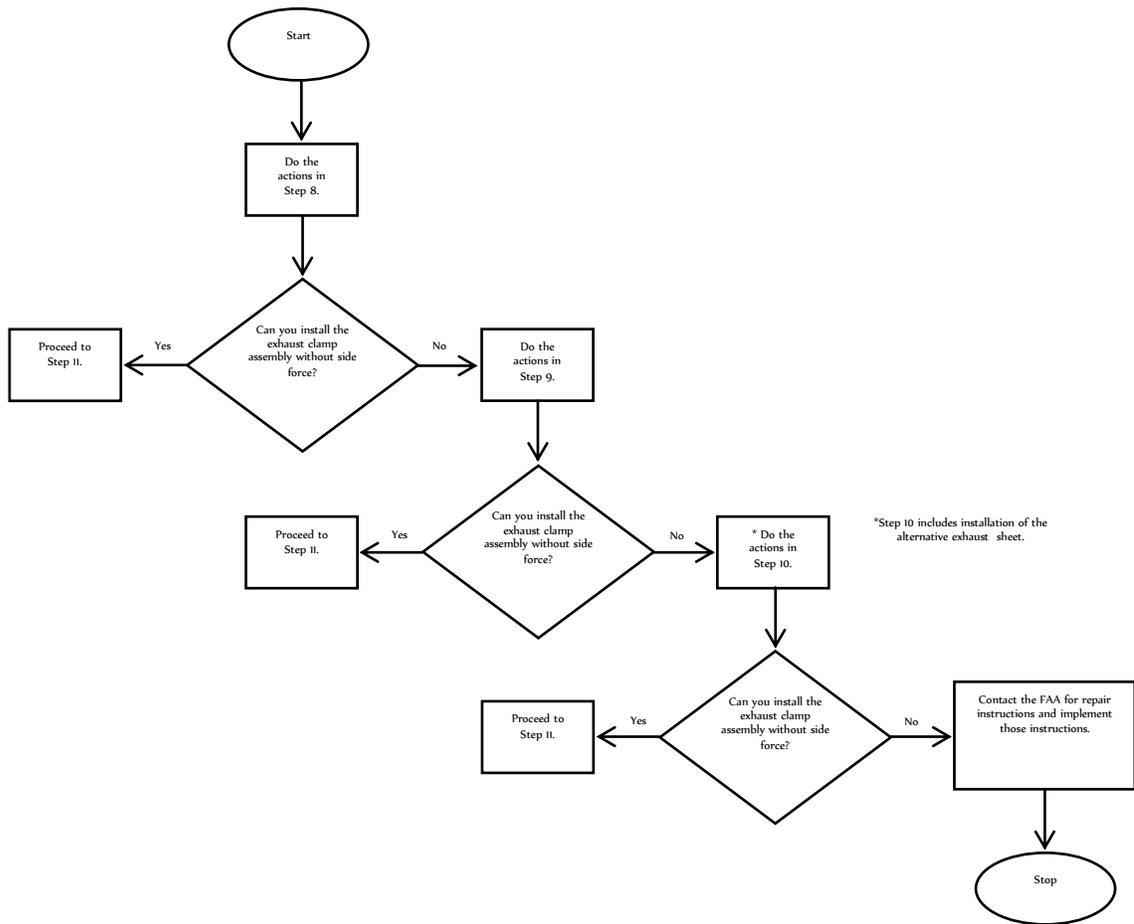


Figure 1 to paragraph (g)(3) of this AD:  
Sequence of Actions for Exhaust Clamp Installation Identified in  
DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, and  
Revision 4, dated December 20, 2017

(4) During any engine exhaust pipe clamp and exhaust sheet with spring washer installation/replacement required in paragraphs (g)(2), (3), (6), and (7) of this AD, if the exhaust clamp assembly cannot be installed without side force using step 10 of III.2 Action 2 – installation of additional exhaust clamp in the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, or Revision 4, dated December 20, 2017, before further flight contact the FAA at the address specified in paragraph (i) of this AD to obtain and incorporate an FAA-approved repair/modification approved specifically for this AD. The FAA will coordinate with the European Aviation Safety Agency (EASA) and DAI for the development of a repair/modification to address the specific problem.

(5) At the applicable compliance time in paragraphs (g)(5)(i) and (ii) of this AD and repetitively thereafter at intervals not to exceed 25 hours TIS, remove and inspect each engine exhaust clamp for cracks. Do this inspection following III.3 Action 3 – Inspection of exhaust clamp for cracks of the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, or Revision 4, dated December 20, 2017.

(i) If the engine exhaust pipe clamp has less than 40 hours TIS since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Before or upon accumulating 50 hours TIS since the engine exhaust pipe clamp was first installed on an airplane.

(ii) If the engine exhaust pipe clamp has 40 hours TIS or more since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Within the next 10 hours TIS after [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD).

(6) Before further flight after any inspection required in paragraph (g)(5) of this AD and no crack is found, reinstall the engine exhaust pipe clamp, and incorporate spring washers following III.2 Action 2 – installation of additional exhaust clamp in the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, or Revision 4, dated December 20, 2017. See figure 1 to paragraph (g)(3) of this AD for additional information on the sequence of installation actions as identified in DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, and or Revision 4, dated December 20, 2017. Continue with the 25-hour TIS repetitive inspection as long as no cracks are found.

(7) Before further flight after any inspection required in paragraph (g)(5) of this AD and a cracked engine exhaust pipe clamp is found, replace the cracked engine exhaust pipe clamp with a new engine exhaust pipe clamp and incorporate spring washers following the service instructions specified in paragraph (g)(6) of this AD. All newly installed engine exhaust pipe clamps are subject to an initial 50-hour TIS and repetitive 25-hour TIS inspections for cracks following the service instructions specified in paragraph (g)(5) of this AD.

**(h) Actions for Airplanes with Installed Modified Engine Exhaust Pipes as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the Effective Date of this AD)**

See Appendix 2 to AD 2018-10-10 for a chart of required actions. A modified engine exhaust pipe is defined in paragraph (c), Applicability, of this AD.

(1) At the applicable compliance time in paragraphs (h)(1)(i) and (ii) of this AD and repetitively thereafter at intervals not to exceed 50 hours TIS, inspect each engine exhaust pipe for cracks. Do this inspection following I.9 Accomplishment/Instructions in DAI Mandatory Service Bulletin MSB-42-129, dated May 17, 2017.

(i) If the engine exhaust pipe has less than 40 hours TIS since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Before or upon accumulating 50 hours TIS since the affected engine exhaust pipe was first installed on an airplane, repetitively thereafter inspect at intervals not to exceed 50 hours TIS.

(ii) If the engine exhaust pipe has 40 hours TIS or more since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Within the next 10 hours TIS after [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), repetitively thereafter inspect at intervals not to exceed 50 hours TIS.

(2) If a crack is found during any inspection required by paragraph (h)(1) of this AD, before further flight replace the engine exhaust pipe with an engine exhaust pipe, DAI P/N D60-9078-06-01 or Technify P/Ns 52-7810-H0001 02, 52-7810-H0001 03, or 52-7810-H0001 04. Do the replacement following section III.1 – Re-installation of Exhaust Pipes with Directly Attached Heat Shield in the INSTRUCTIONS section of DAI Work Instruction WI-OSB 42-131, dated December 20, 2017, which includes installing additional engine exhaust pipe clamps, an exhaust sheet, and incorporates spring washers.

(3) After installing an engine exhaust pipe, DAI P/N D60-9078-06-01 or Technify P/Ns 52-7810-H0001 02, 52-7810-H0001 03, or 52-7810-H0001 04 (which includes installing additional engine exhaust pipe clamps, an exhaust sheet, and incorporates spring washers), repetitively thereafter inspect at intervals not to exceed 500 hours TIS. Do this inspection following section III.4 – Inspection of exhaust pipe in the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 4, dated December 20, 2017.

(4) During any inspection required in paragraph (h)(3) of this AD, if the engine exhaust pipe does not pass the inspection criteria, before further flight replace the engine exhaust pipe following section III.1 – Re-installation of Exhaust Pipes with Directly Attached Heat Shield in the INSTRUCTIONS section of DAI Work Instruction WI-OSB 42-131, dated December 20, 2017 (which includes installing additional engine exhaust pipe clamps, an exhaust sheet, and incorporates spring washers). After replacement, continue with the 500-hour TIS repetitive inspections.

(i) If only the engine exhaust pipe heat shield is loose, a one-time single weld is allowed following section III.3 – Repair of Heat Shields of DAI P/N D60-9078-06-01 / Technify P/Ns 52-7810-H0001 03 and 52-7810-H0001 04 in the INSTRUCTIONS section of DAI Work Instruction WI-OSB 42-131, dated December 20, 2017. After a repair of the heat shield, if a single weld point is subsequently found cracked, the heat shield is considered to be loose and the exhaust pipe must be replaced. After replacement or repair, continue with the 500-hour TIS repetitive inspections.

(ii) Engine exhaust pipes re-qualified following section III.2– Re-Qualification of Exhaust Pipes DAI P/N D60-9078-06-01/ Technify P/Ns 52-7810-H0001 02, 52-7810-H0001 03, or 52-7810-H0001 04 in the INSTRUCTIONS section of DAI Work Instruction WI-OSB 42-131, dated December 20, 2017, are considered to have accumulated 1,500 hours TIS.

(5) During any engine exhaust pipe clamp, exhaust sheet with spring washer installation/replacement required in paragraphs (h)(2), (4), (7), and (8) of this AD, if the exhaust clamp assembly cannot be installed without side force using step 10 of III.2 Action 2 – installation of additional exhaust clamp in the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, or Revision 4, dated December 20, 2017, before further flight contact the FAA at the address specified in paragraph (i) of this AD to obtain and incorporate an FAA-approved repair/modification approved specifically for this AD. The FAA will coordinate with the European Aviation Safety Agency (EASA) and DAI for the development of a repair/modification to address the specific problem.

(6) At the applicable compliance time in paragraphs (h)(6)(i) and (ii) of this AD and repetitively thereafter at intervals not to exceed 25 hours TIS, remove and inspect each engine exhaust clamp for cracks. Do this inspection following III.3 Action 3 – Inspection of exhaust clamp for cracks of the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, or Revision 4, dated December 20, 2017.

(i) If the engine exhaust pipe clamp has less than 40 hours TIS since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Before or upon accumulating 50 hours TIS since the engine exhaust pipe clamp was first installed on an airplane.

(ii) If the engine exhaust pipe clamp has 40 hours TIS or more since first installed on an airplane as of [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD): Within the next 10 hours TIS after [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD).

(7) Before further flight after any inspection required in paragraph (h)(6) of this AD and no crack is found, reinstall the engine exhaust pipe clamp and incorporate spring washers following III.2 Action 2 – installation of additional exhaust clamp in the INSTRUCTIONS section of DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, or Revision 4, dated December 20, 2017. See figure 2 to paragraph (g)(7) of this AD for additional information on the sequence of installation actions as identified in DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, and or Revision 4, dated December 20, 2017. Continue with the 25-hour TIS repetitive inspection as long as no cracks are found.

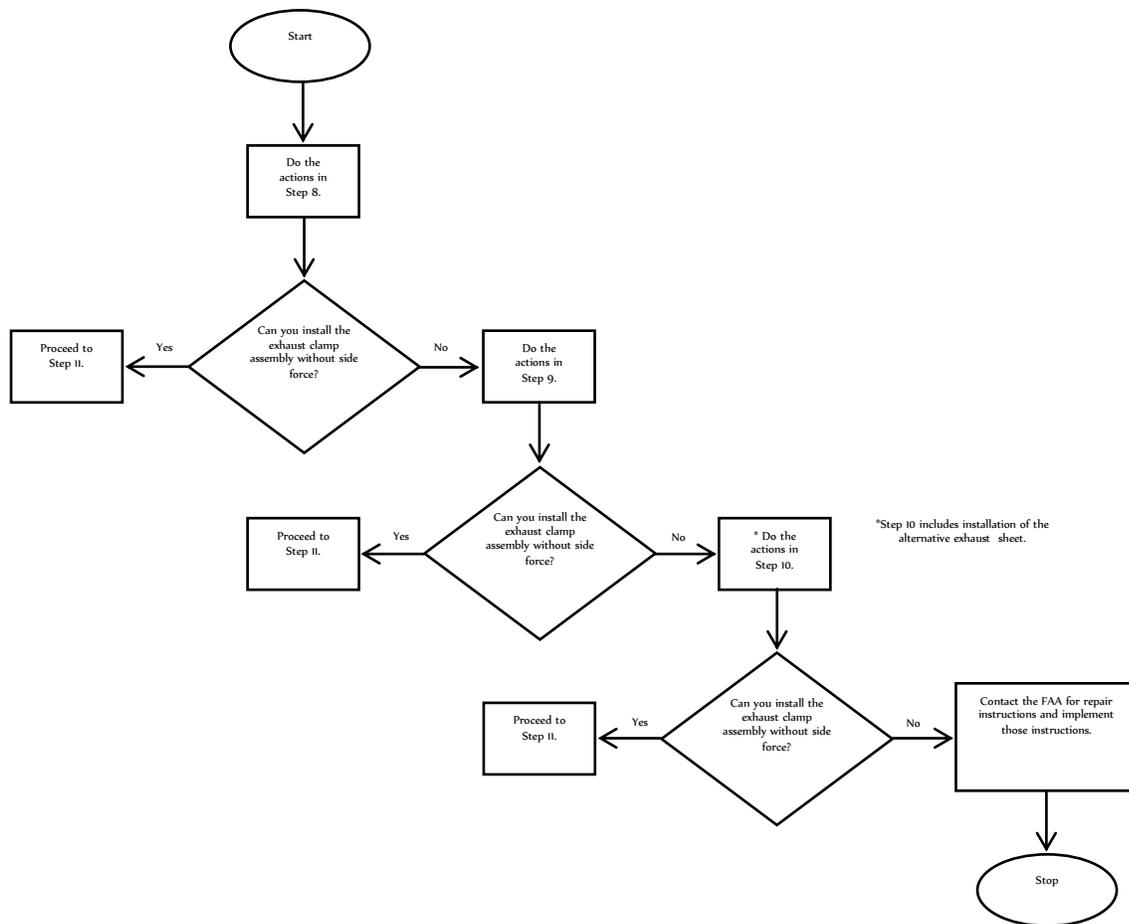


Figure 2 to paragraph (h)(7) of this AD:  
 Sequence of Actions for Exhaust Clamp Installation Identified in  
 DAI Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017, and  
 Revision 4, dated December 20, 2017

(8) Before further flight after any inspection required in paragraph (h)(6) of this AD and a cracked engine exhaust pipe clamp is found, replace the cracked engine exhaust pipe clamp with a new engine exhaust pipe clamp and incorporate spring washers following the service instructions specified in paragraph (h)(7) of this AD. All newly installed engine exhaust pipe clamps are subject to an initial 50-hour TIS and repetitive 25-hour TIS inspections for cracks following the service instructions specified in paragraph (h)(8) of this AD.

**(i) Other FAA AD Provisions**

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, Standards Office, 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: Mike Kiesov, Aerospace Engineer, FAA, Small Airplane Standards Branch, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4144; fax: (816) 329-4090; email: mike.kiesov@faa.gov. 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.

(2) *Airworthy Product*: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

**(j) Related Information**

Refer to MCAI EASA AD No. 2017-0254, dated December 21, 2017, for related information. You may examine the MCAI on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0188.

**(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 this AD specifies otherwise.

(3) The following service information was approved for IBR on [INSERT DATE 20 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(i) Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-120, Revision 4, dated December 20, 2017.

(ii) Diamond Aircraft Industries GmbH Work Instruction WI-OSB 42-131, dated December 20, 2017.

(4) The following service information was approved for IBR on May 31, 2017 (82 FR 24843, May 31, 2017).

(i) Diamond Aircraft Industries GmbH Mandatory Service Bulletin MSB-42-129, dated May 17, 2017.

(ii) Reserved.

(5) The following service information was approved for IBR on August 1, 2017 (82 FR 35630, August 1, 2017).

(i) Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-120, Revision 3, dated July 6, 2017.

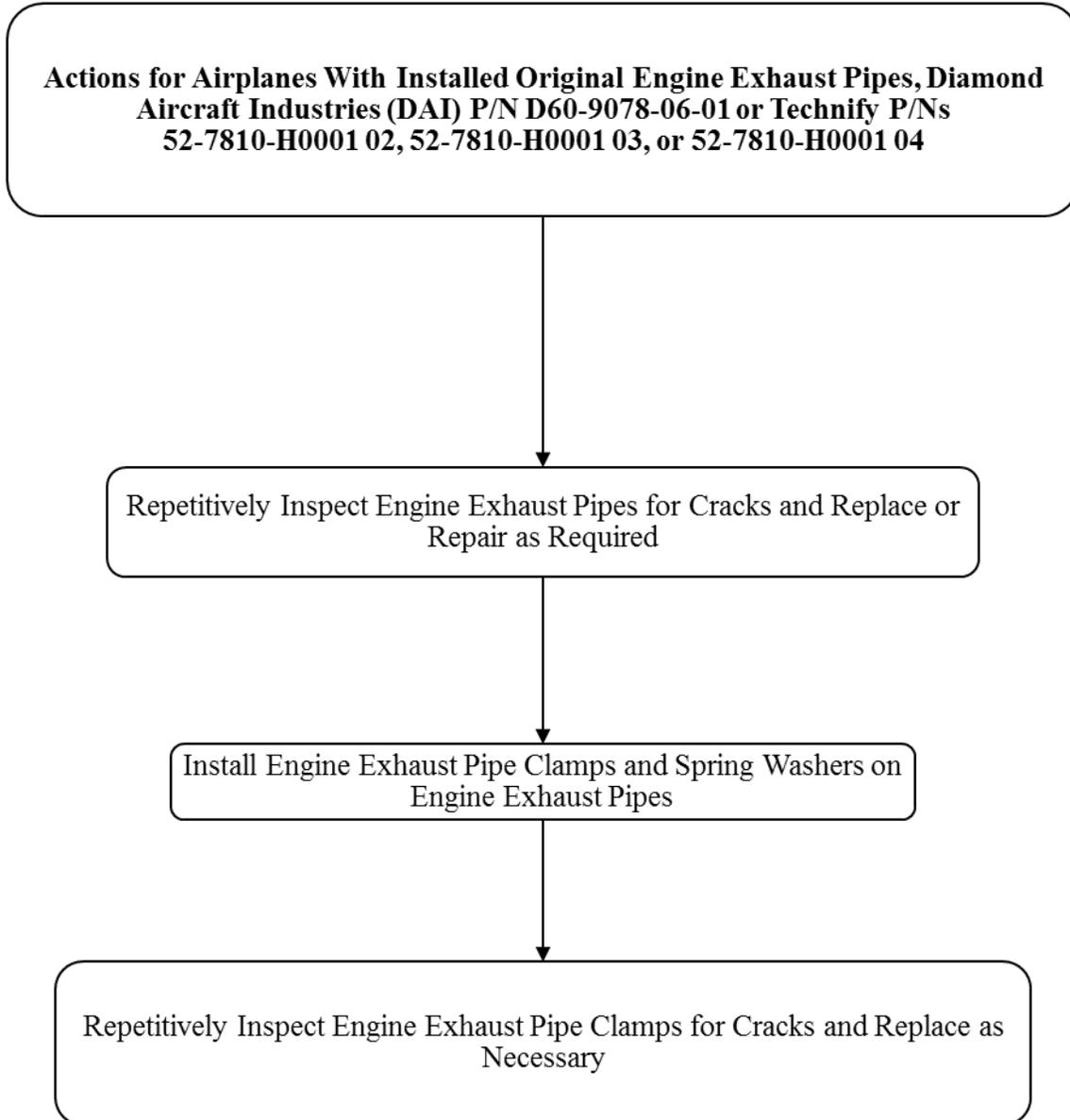
(ii) Reserved.

(6) For Diamond Aircraft Industries GmbH service information identified in this AD, contact Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria, telephone: +43 2622 26700; fax: +43 2622 26780; email: [office@diamond-air.at](mailto:office@diamond-air.at); Internet: <http://www.diamondaircraft.com>.

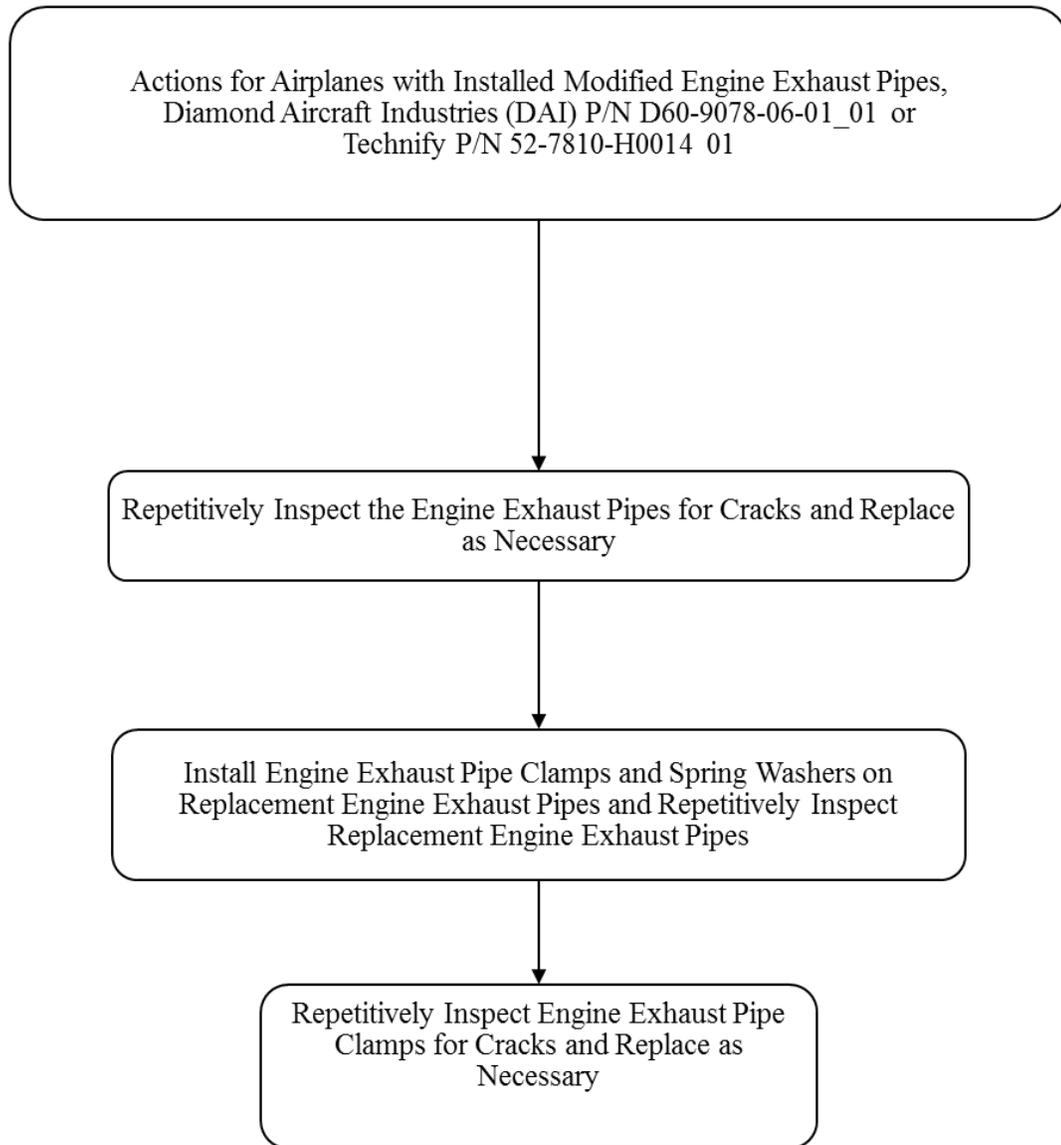
(7) You may view this service information at FAA, Small Airplane Branch, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148. It is also available on the Internet at <http://www.regulations.gov> by searching for locating Docket No. FAA-2018-0188.

(8) You may view the 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>.

Appendix 1 to AD 2018-10-10



Appendix 2 to AD 2018-10-10



Issued in Kansas City, Missouri on May 11, 2018.

Melvin J. Johnson

Aircraft Certification Service

Deputy Director, Policy and Innovation Division, AIR-601

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