

oscillation of an aeroelastic vibration mode that is shown to be a stable limit cycle oscillation (LCO), with the system operative and inoperative. (An LCO is considered "stable" if it maintains the same frequency and amplitude for a given excitation input and flight condition.) In addition, the type of sustained oscillation covered by this special condition must not be a hazard to the airplane nor its occupants with the active system failed. These systems must be shown to reduce the amplitude of the sustained oscillation to acceptable levels and effectively control the aeroelastic instability.

Specifically, the following criteria address the existence of such a sustained oscillation on the Boeing Model 747-8/-8F airplanes and the Outboard Aileron Modal Suppression (OAMS) system that will be used to control it.

2. In lieu of the requirements contained in § 25.629, the existence of a sustained, or limit cycle, oscillation that is controlled by an active flight control system is acceptable, provided that the following requirements are met:

(a) OAMS System Inoperative

(1) The sustained, or limit cycle, oscillation must be shown by test and analysis to be stable throughout the nominal aeroelastic stability envelope specified in § 25.629(b)(1) with the OAMS system inoperative. This should include the consideration of disturbances above the sustained amplitude of oscillation

(b) Nominal Conditions:

(1) With the OAMS system operative it must be shown that the airplane remains safe, stable, and controllable throughout the nominal aeroelastic stability envelope specified in § 25.629(b)(1) by providing adequate suppression of the aeroelastic modes being controlled. All applicable airworthiness and environmental requirements should continue to be complied with. Additionally, loads imposed on the airplane due to any amplitude of oscillation must be shown to have a negligible impact on structure and systems, including wear, fatigue and damage tolerance. The OAMS system must function properly in all environments that may be encountered.

(2) The applicant must establish by test and analysis that the OAMS system can be relied upon to control and limit the sustained amplitude of the oscillation to acceptable levels (per § 25.251) and control the stability of the aeroelastic mode. This should include the consideration of disturbances above the sustained amplitude of oscillation; maneuvering flight, icing conditions; manufacturing variations; Master

Minimum Equipment List (MMEL) items; spare engine carriage; engine removed or inoperative ferry flights; and wear, repairs, and modifications throughout the service life of the airplane by:

(i) Analysis to the nominal aeroelastic stability envelope specified in § 25.629(b)(1), and

(ii) Flight flutter test to the  $V_{DF}/M_{DF}$  boundary. These tests must demonstrate that the airplane has a proper margin of damping for disturbances above the sustained amplitude of oscillation at all speeds up to  $V_{DF}/M_{DF}$ , and that there is no large and rapid reduction in damping as  $V_{DF}/M_{DF}$  is approached.

(iii) The structural modes must have adequate stability margins for any OAMS flight control system feedback loop at speeds up to the fail-safe aeroelastic stability envelope specified in § 25.629(b)(2).

(c) Failures, Malfunctions, and Adverse Conditions:

(1) For the OAMS system operative and failed, for any failure, or combination of failures not shown to be extremely improbable, and addressed by §§ 25.629(d), 25.571, 25.631, 25.671, 25.672, 25.901(c) or 25.1309 that results in LCO, it must be established by test or analysis up to the aeroelastic stability envelope specified in § 25.629(b)(2) that the LCO:

(i) is stable and decays to an acceptable limited amplitude once an external perturbing force is removed;

(ii) does not result in loads that would cause static, dynamic, or fatigue failure of structure during the expected exposure period;

(iii) does not result in repeated loads that would cause an additional failure due to wear during the expected exposure period that precludes safe flight and landing;

(iv) has, if necessary, sufficient indication of OAMS failure(s) and crew procedures to properly address the failure(s);

(v) does not result in a vibration condition on the flight deck that is severe enough to interfere with control of the airplane, ability of the crew to read the flight instruments, perform vital functions like reading and accomplishing checklist procedures, or to cause excessive fatigue to the crew;

(vi) does not result in adverse effects on the flight control system or on airplane stability, controllability, or handling characteristics (including airplane-pilot coupling (APC) per § 25.143) that would prevent safe flight and landing; and

(vii) does not interfere with the flight crew's ability to correctly distinguish vibration from buffeting associated with

the recognition of stalls or high speed buffet.

(2) The applicant must show that particular risks such as engine failure, uncontained engine, or APU rotor burst, or other failures not shown to be extremely improbable, will not adversely or significantly change the aeroelastic stability characteristics of the airplane.

(3) No MMEL dispatch is allowed with the OAMS system inoperative.

Issued in Renton, Washington on March 9, 2011.

Ali Bahrami,

Manager, Transport Airplane Directorate,  
Aircraft Certification Service.

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2011-0231; Directorate Identifier 2011-CE-003-AD]

RIN 2120-AA64

#### Airworthiness Directives; Diamond Aircraft Industries GmbH Model DA 42 Airplanes

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for the products listed above. This proposed AD results from mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

Cracks have been reportedly found on DA 42 Main Landing Gear (MLG) Damper-to-Trailing Arm joints during standard maintenance. Depending on environmental, operating- and runway conditions, the affected MLG joint, Part Number (P/N) D60-3217-23-5x (4 different lengths are available), which is made of aluminum, is susceptible to cracking.

This condition, if not detected and corrected, may lead to failure of the joint and subsequent damage or malfunction of the MLG, possibly resulting in damage to the aeroplane during landing and injury to occupants.

The proposed AD would require actions that are intended to address the unsafe condition described in the MCAI.

**DATES:** We must receive comments on this proposed AD by May 2, 2011.

**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 proposed AD, contact Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria, *telephone:* +43 2622 26700; *fax:* +43 2622 26780; *e-mail:* [office@diamond-air.at](mailto:office@diamond-air.at); *Internet:* <http://www.diamond-air.at>. You may review copies of the referenced service information at the 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 proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (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 Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; *telephone:* (816) 329-4144; *fax:* (816) 329-4090; *e-mail:* [mike.kiesov@faa.gov](mailto:mike.kiesov@faa.gov).

#### SUPPLEMENTARY INFORMATION:

##### Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the

**ADDRESSES** section. Include “Docket No. FAA-2011-0231; Directorate Identifier 2011-CE-003-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory,

economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed 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 proposed AD.

#### Discussion

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD No.: 2011-0020, dated February 7, 2011 (referred to after this as “the MCAI”), to correct an unsafe condition for the specified products. The MCAI states:

Cracks have been reportedly found on DA 42 Main Landing Gear (MLG) Damper-to-Trailing Arm joints during standard maintenance. Depending on environmental-, operating- and runway conditions, the affected MLG joint, Part Number (P/N) D60-3217-23-5x (4 different lengths are available), which is made of aluminum, is susceptible to cracking.

This condition, if not detected and corrected, may lead to failure of the joint and subsequent damage or malfunction of the MLG, possibly resulting in damage to the aeroplane during landing and injury to occupants.

To address this unsafe condition, EASA issued AD 2010-0155 to require repetitive inspections of the MLG joint and, depending on findings, replacement with a serviceable part. Since that AD was issued, DAI developed an improved design MLG joint, P/N D64-3217-23-0x (also 4 different lengths available), which is made of steel and less susceptible to cracking.

For the reasons described above, this new AD retains the requirements of EASA AD 2010-0155R1, which is superseded, and adds the terminating action requirement to modify the aeroplane by installing the improved steel part. This new AD also prohibits re-installation of the aluminum part.

You may obtain further information by examining the MCAI in the AD docket.

#### Relevant Service Information

Diamond Aircraft Industries GmbH has issued Mandatory Service Bulletin No. MSB 42-088/2, dated February 3, 2011, and Work Instruction WI-MSB 42-088, dated February 3, 2011. The actions described in this service information are intended to correct the unsafe condition identified in the MCAI.

#### FAA’s Determination and Requirements of the Proposed 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 proposing this AD because we evaluated all information and determined the unsafe condition exists and is likely to exist or develop on other products of the same type design.

#### Differences Between This Proposed AD and the MCAI or Service Information

We have reviewed the MCAI and related service information and, in general, agree with their substance. But we might have found it necessary to use different words from those in the MCAI to ensure the AD is clear for U.S. operators and is enforceable. In making these changes, we do not intend to differ substantively from the information provided in the MCAI and related service information.

We might also have proposed different actions in this AD from those in the MCAI in order to follow FAA policies. Any such differences are highlighted in a NOTE within the proposed AD.

#### Costs of Compliance

We estimate that this proposed AD will affect 162 products of U.S. registry. We also estimate that it would take about 1 work-hour per product to comply with the basic requirements of this proposed AD. The average labor rate is \$85 per work-hour. Required parts would cost about \$729 per product.

Based on these figures, we estimate the cost of the proposed AD on U.S. operators to be \$131,868, or \$814 per product.

#### 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 determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed regulation:*

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 regulatory evaluation of the estimated costs to comply with this proposed AD and placed it in the AD docket.

### List of Subjects in 14 CFR Part 39

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

### The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 adding the following new AD:

**Diamond Aircraft Industries GmbH:** Docket No. FAA-2011-0231; Directorate Identifier 2011-CE-003-AD.

#### Comments Due Date

- (a) We must receive comments by May 2, 2011.

#### Affected ADs

- (b) None.

### Applicability

(c) This AD applies to Diamond Aircraft Industries GmbH Model DA 42 airplanes, all serial numbers, certificated in any category.

### Subject

(d) Air Transport Association of America (ATA) Code 32: Landing Gear.

### Reason

(e) The mandatory continuing airworthiness information (MCAI) states: Cracks have been reportedly found on DA 42 Main Landing Gear (MLG) Damper-to-Trailing Arm joints during standard maintenance. Depending on environmental, operating- and runway conditions, the affected MLG joint, Part Number (P/N) D60-3217-23-5x (4 different lengths are available), which is made of aluminum, is susceptible to cracking.

This condition, if not detected and corrected, may lead to failure of the joint and subsequent damage or malfunction of the MLG, possibly resulting in damage to the aeroplane during landing and injury to occupants.

To address this unsafe condition, EASA issued AD 2010-0155 to require repetitive inspections of the MLG joint and, depending on findings, replacement with a serviceable part. Since that AD was issued, DAI developed an improved design MLG joint, P/N D64-3217-23-0x (also 4 different lengths available), which is made of steel and less susceptible to cracking.

For the reasons described above, this new AD retains the requirements of EASA AD 2010-0155R1, which is superseded, and adds the terminating action requirement to modify the aeroplane by installing the improved steel part. This new AD also prohibits re-installation of the aluminum part.

### Actions and Compliance

(f) Unless already done, do the following actions following Diamond Aircraft Industries GmbH Mandatory Service Bulletin No. MSB 42-088/2, dated February 3, 2011; and Work Instruction WI-MSB 42-088, dated February 3, 2011:

(1) Within 100 hours time-in-service (TIS) after the effective date of this AD, replace each main landing gear (MLG) joint P/N D60-3217-23-5x with a MLG joint P/N D64-3217-23-0x.

(2) After the effective date of this AD, all replacements of MLG joint P/N D60-3217-23-5x must be done with MLG joint P/N D64-3217-23-0x.

### FAA AD Differences

**Note:** This AD differs from the MCAI and/or service information as follows: EASA originally established an initial and repetitive inspection of the MLG joint part. We are not establishing an initial or repetitive inspection, and instead we are just requiring a mandatory one-time replacement of the part within 100 hours TIS after the effective date of this AD.

### Other FAA AD Provisions

(g) 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 Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; *telephone:* (816) 329-4144; *fax:* (816) 329-4090. 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.

(3) *Reporting Requirements:* For any reporting requirement in this AD, a Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW., Washington, DC 20591. *Attn:* Information Collection Clearance Officer, AES-200.

### Related Information

(h) Refer to MCAI EASA AD No.: 2011-0020, dated February 7, 2011; Diamond Aircraft Industries GmbH Mandatory Service Bulletin No. MSB 42-088/2, dated February 3, 2011; and Work Instruction WI-MSB 42-088, dated February 3, 2011, for related information. For service information related to 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; *e-mail:* [office@diamond-air.at](mailto:office@diamond-air.at); *Internet:* <http://www.diamond-air.at>. You may review copies of the referenced service information at the 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.

Issued in Kansas City, Missouri on March 10, 2011.

### Earl Lawrence,

*Manager, Small Airplane Directorate, Aircraft Certification Service.*

[FR Doc. 2011-6096 Filed 3-15-11; 8:45 am]

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