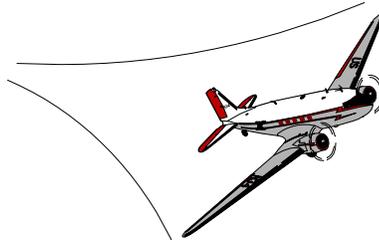


SPECIAL AIRWORTHINESS INFORMATION BULLETIN

Aircraft Certification Service
Washington, DC



U.S. Department
of Transportation

**Federal Aviation
Administration**

CE-04-85
September 10, 2004

www.faa.gov/certification/aircraft

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) provides you, owners and operators of **Diamond Aircraft Model DA 40** airplanes, with safety information regarding inspection/replacement of the fuel selector/fuel valve universal joints.

Background

Diamond Aircraft has determined a potential safety issue that pertains to abnormal manufacturing in combination with mechanical wear of the universal joint between the fuel selector and the fuel valve, and has developed a Mandatory Service Bulletin, MSB 40-030/1, requiring inspection of the universal joints. If the pins within the universal joint come loose during aircraft operation, the capability of selecting the other fuel tank may not be possible.

We are currently considering Airworthiness Directive (AD) action for this safety issue. In the interim, we are sending you copies of Diamond's MSB and Austria's AD A-2004-003.

Recommendation

We highly recommend that you comply with Mandatory Service Bulletin.

For Technical Information Concerning These Safety Issues Contact

Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria; phone: 43.2622-26700; fax: 43 2622-26780.

For Further Information Contact

Mike Kiesov, Aerospace Engineer/Pilot, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri, 64106; phone: (816) 329-4144; fax: (816) 329-4090, email: mike.kiesov@faa.gov

MANDATORY SERVICE BULLETIN

NO. MSB 40-030/1

SUPERSEDES MANDATORY SERVICE BULLETIN NO. MSB 40-030

I. TECHNICAL DETAILS

1.1 Category

Mandatory.

1.2 Airplanes affected

DA 40 Serial numbers 40.006 up to and incl. 40.079, 40.081 up to and incl. 40.083 and 40.201 and subsequent.

- a): above 200 hours of operation
- b): up to 200 hours of operation

1.3 Time of Compliance

- for a): within the next 15 hours of operation and each further inspection thereafter, not exceeding 50 hours of operation
- for b): at the next scheduled inspection and each further inspection thereafter, not exceeding 50 hours of operation
- for a) & b): not later than 31-Jul-2004

1.4 Subject

Inspection of the universal joints between fuel selector handle and fuel selector valve.

ATA-Code: 28-23, Fuel System

1.5 Reason

It has been found that the pins of the universal joints may come loose during operation. This can result in loss of capability to select the fuel tank to supply fuel.

1.6 Concurrent documents

None.

1.7 Approval

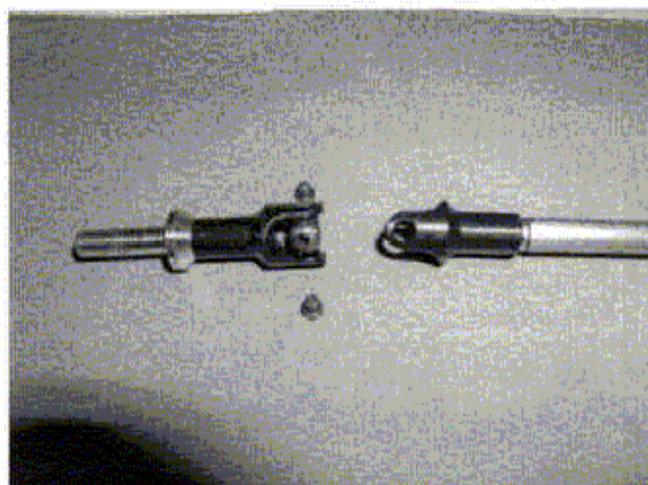
The technical information or instructions contained in this document relate to the Basic Type Certification.

The technical information contained in this document has been approved under the authority of MOT Design Organization Approval No. MOT JA-01.

1.8 Measures

1. All works must be done in accordance with the instructions given in the AMM.
2. Remove front seat LH (AMM, Chapter 25-10-00).
3. Inspect universal joints (upper and lower) very carefully for:
 - * any sign of wear,
 - * uneven movement
 - * pins not completely pressed in
 - * loose pins

The picture below shows two of the pins separated from the joint.
Inspection can be done in assembled condition. For better view rotate fuel selector in steps at least for 360 °.



Picture 1: Universal joint with two pins separated

4. In case of one or more of the under 1.8.3 listed defects have been found, replace complete universal joint kit as follows:
 - 4.1 Remove front seat RH (AMM, Chapter 25-10-00)
 - 4.2 Remove handle of fuel selector switch
 - 4.3 Loosen screws of upper center panel (at brake lever)
 - 4.4 Remove lower center panel (at power lever)
 - 4.5 Remove center tunnel cover (between seats), mark forward cable (+) of Hobbs meter
 - 4.6 Remove forward bolts of fuel selector switch plate
 - 4.7 Lift fuel selector switch and pull out bottom of universal joint kit at fuel selector valve
 - 4.8 Pull out top of universal joint kit at fuel selector switch.
 - 4.9 If top universal joint shaft is not already assembled:
 - Set fuel selector valve to OFF position (spline pin in top of valve pointing forward)
 - Set fuel selector switch to OFF position
 - Insert top universal joint into selector shaft with cylindrical retaining compound (Loctite 638, 648 or 680). Do not allow retaining compound to cure at this time!
 - Insert top of selector shaft into selector switch
 - Insert bottom of selector shaft into selector valve
 - Allow retaining compound to cure in place
 - Remove selector shaft
 - Mark and drill $\varnothing 2\text{mm}$ (0.079") hole through shaft and upper universal joint, 6mm from top of shaft
 - Install roll pin DIN 1481-2x10-A2 with Loctite (as above)
 - 4.10 Install new universal joint kit by doing items 4.2 to 4.8 in reversed order
5. Perform check for foreign objects
6. Reinstall seat(s)
7. Perform functional check of all three positions of fuel selector with engine running.
8. Inform DAI about result of inspection via e-mail or fax (using enclosed report sheet)

1.9 Mass (Weight) and CG

Not affected.

II. PLANNING INFORMATION

2.1 Material & Availability

All necessary parts with specific part numbers can be ordered from Diamond Aircraft Industries GmbH or from your local General Distributor or Diamond Service Center. All other parts shall be procured locally.

<u>Qty</u>	<u>Description</u>	<u>Part Number</u>
1	Universal Joint Kit	42.5141 (D41-2823-20-00)

2.2 Special Tools

No special tools are required.

2.3 Labor effort

Inspection only: appr. 1.5 hours.
Replacement of Universal joint kit: appr. 2.5 hours

2.4 Credit

The new universal joint kit can be ordered at Diamond Aircraft or its local distributors free of charge in return of the old ones.

2.4 Reference documents

DA 40 Series Airplane Maintenance Manual, Doc. No. 6.02.01.

III. REMARKS

1. All measures must be carried out by the manufacturer, a certified aircraft service station or a certified aircraft maintenance mechanic.
2. Accomplishment of the measures must be confirmed in the log book.
3. In case of doubt, contact Diamond Aircraft.

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AIRWORTHINESS DIRECTIVE

No. A-2004-003

June 22, 2004

Aeroplane DA40

Inspection/Replacement of the fuel selector/fuel valve universal joints

1. **Applicability:**

DA40, Diamond Aircraft Industries GmbH, Austria (design holder and manufacturer)
S/N affected:
40.006 up to 40.079, 40.081 up to 40.083

DA40, Diamond Aircraft Industries Inc, Canada (manufacturer)
S/N affected:
40.201 and subsequent
2. **Subject:** Inspection and replacement of the universal joints between fuel selector handle and fuel selector valve.
3. **Reason:** Abnormal manufacturing variations of the universal joints in combination with mechanical wear can lead to universal joint failures and subsequent disconnection between the fuel selector and the fuel valve. This condition might remain unrecognized by the pilot and can result in fuel starvation during flight and/or the unavailability of the emergency fuel shut-off function.
4. **Action:**
 - a) Inspection of the universal joints of the fuel selector/fuel valve assembly in accordance with Diamond Aircraft Industries GmbH Mandatory Service Bulletin No. MSB 40-030/1 (available under <http://www.austrocontrol.at/austro/ita.html>)
 - b) Replacement of complete drive assembly in accordance with Diamond Aircraft Industries GmbH Mandatory Service Bulletin No. MSB 40-030/1
5. **Compliance:**
 - a) For aeroplanes with a time-since-new (TSN) of more than 200 flight hrs:
 - i) Within 15 flight hours after the effective date of this AD but not later than September 30, 2004, perform Action 4a).
 - ii) If defects are found, prior further flight, perform Action 4b).
 - iii) Repeat Action 4a) at intervals not to exceed 50 hrs of time-in-service (TIS).
 - b) For aeroplanes with a TSN of 200 flight hours or less:
 - i) At next scheduled inspection but not to exceed 50 hours TIS after the effective date of this AD and not later than September 30, 2004, perform Action 4a).
 - ii) If defects are found, prior further flight, perform Action 4b).
 - iii) Repeat Action 4a) at intervals not to exceed 50 hrs TIS.
- Accomplishment:** The required actions have to be accomplished either by the manufacturer, or a licensed/qualified person/organisation, and confirmed in the aircraft log in accordance with national regulations.
6. **Effective Date:** June 30, 2004.

EASA-Approval

This Airworthiness Directive has been issued in accordance with Article 10, paragraph 1, of the EU-Regulation No. 1592/2002.