Bristell B23 - Aileron AP system improvement

SERVICE BULLETIN

Office of Airworthiness release
Date:
Name: [Released by]
Signature: B. Koelmel 2022.10.14

Verification Engineer
I hereby declare that the technical content of this document is correct and can be used to fulfil the obligations of the type design holder per 21.A.265(h)
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Signature: 2022.10.14 von Pinkowski

Amendments

Issue	Reason	Date
A	Initial issue	14.10.2022

Bristell B23 - Aileron AP system improvement

Improvement of the bracket connection (also called “sleeve”) connecting the aileron AP push rod with the aileron control system.

STANDARD

0 General

0.1 ATA Code

ATA 22 AUTO FLIGHT – AP system

ATA 27 FLIGHT CONTROLS – Elevator control systems

0.2 Effectivity

All BRM Aero B23 models and serial numbers with installed auto pilot system.

TCDS: EASA.A.642

1 Planning information

1.1 Reason

Improvement of the strength and durability of the rivet attachment of the bracket connecting AP push rod with aileron control rod.

Improvement of the strength and durability of the rivet attachment of the dual control reinforcement rod.

1.2 Safety Intent

The safety intent is N/A.

The improvement of the rivet attachment avoids becoming loosened. An unsafe condition is not expected to occur as the aileron control is not impaired if the considered rivet attachment fails partially or completely. A malfunctioning aileron AP control is avoided.

1.3 Configuration Description

If criteria in Section 0 met, modify the bracket part and the corresponding aileron rod by drilling four new holes and rivet them as defined in drawings:

- 22B210010N_B (assembly AP system)
- 22B210009N_B or C (part), defined in section 3.

Replace rivet of the dual control reinforcement rod as defined in drawing:

- 27B220000N_D (elevator control assembly)

Follow instructions of section 3. The modification is suggested to be done in (partially) installed state of the considered parts.

1.4 Compliance

If criteria in Section 0 is met

Service bulletin must be accomplished

☐ ☐ This SB could be made mandatory by an EASA AD.

☐ ☐ This SB is mandatory as per EASA AD no. …

☒ Service bulletin recommended to be accomplished to prevent significant operational disruptions

☐ Service bulletin to introduce improvements

☐ Service bulletin for convenience or option

1.5 Approval statement

The technical content of this document is approved under the authority of the DOA ref. EASA. 21J.411.

1.6 Concurrent publications

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1.7 Manpower

Approx. 1 hour is required to accomplish this SB.

1.8 Weight and Balance N/A

1.9 Electrical load data N/A

1.10 Software modification N/A

1.11 Referenced documentation

- 22B210010N_B
- 22B210009N_D for referencing 3 of 4 rivet holes, see section 3 in this SB.
- 27B220000N_D

1.12 Other publications effected

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2 Material information

2.1 Material- cost – availability N/A

Marginal cost and good availability of required fasteners

2.2 Company support information N/A

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Phone: + 420 773 984 338
E-mail 1: info@brmaero.com
E-mail 2: aero.brm@gmail.com
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2.3 Material requirements per aircraft

1. 4 pcs of stainless steel rivets OBE61-0408 (3.2 x 6.6 mm)
2. 2 pcs of stainless steel rivets OBE61-0516 (4.1 x 12 mm)
3. 1 pc Self locking nut MS 21083N4 AN 364-428A

The parts above are supplied by BRM Aero and are free of charge

2.4 Rework parts

1. 22B210009N_C (bracket, “sleeve”), or revision B, if installed.
2. 22B210010N_B (autopilot system assembly)
3. 27B230100N_B (inner push rod assembly)
4. 27B220000N_D (elevator control assembly)

2.5 Special tooling N/A

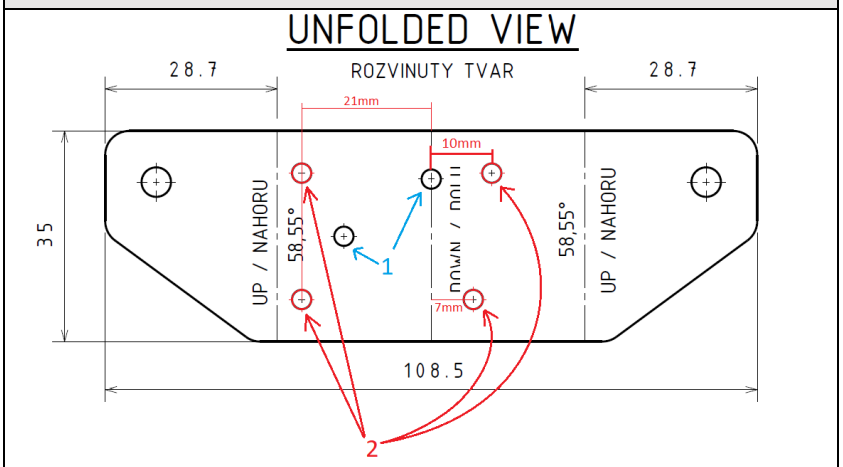
1. Nut wrench size 11 (7/16”)
2. Hand drill. The corner drill is preferred.
3. Drill bit diam 3.2 mm
4. Drill bit diam 4.1 mm
5. Riveting nippers
6. Red paint to remark nut position
7. Steel rule (flexible)
8. Marker
9. Center punch
10. Small hammer
11. Flexible magnetic extractor to remove debris

3 Accomplishment/Instructions

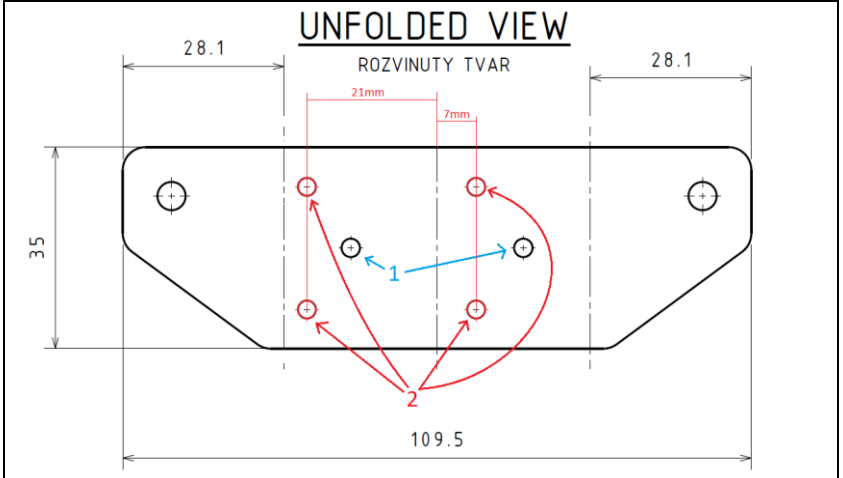
Modification of the aileron servo bracket

1) The modification is suggested to be done in (partially) installed state of the considered parts. Accordingly, the following instructions are specified.
2) Remove seat and backrest of the co-pilot side from the cockpit to have access to the hand control system installation under the seats. The aileron AP system parts are located below the co-pilot seat.
3) De-attach the bolt connection of the aileron control rod to the right control stick and discard the self-locking nut. This will allow limited movement of the control rod to provide space for tools during the next steps. The braid for electric bonding does not need to be de-attached.
4) Mark the centers of 4 holes. The centers of all new holes are 7 mm from the bracket's edges. See other dimensions in the figure below. Use the flexible rule for measuring on the curved surface. Then, punch hole centers by use of a center punch.

22B210009N_C (DC-018)



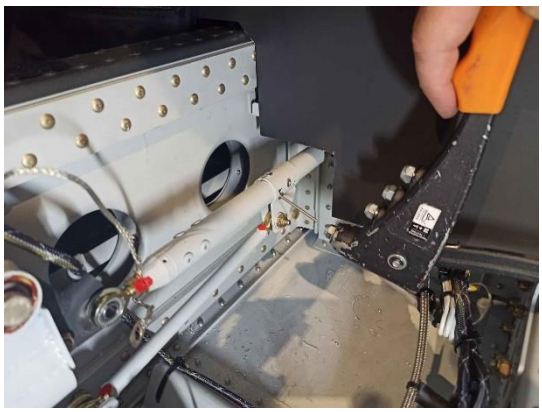
22B210009N_B (Initial design, DC-001)



1 – Original rivet holes
2 – New rivet holes

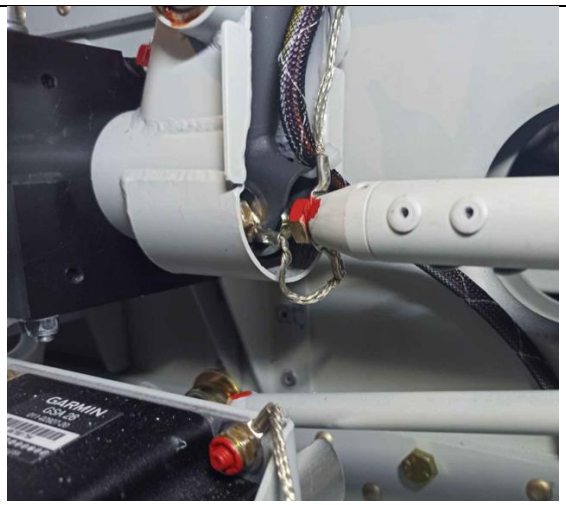
Drill the 4 holes (Drill bit diameter 3.2 mm) into bracket and aileron push rod. If the two original rivets are loosen, replace them with new ones. Thus, bracket and aileron push rod must be in in assembled position to each other before drilling the new holes.

5) install 4 rivets OBE61-0408 (3.2 x 6.6 mm)



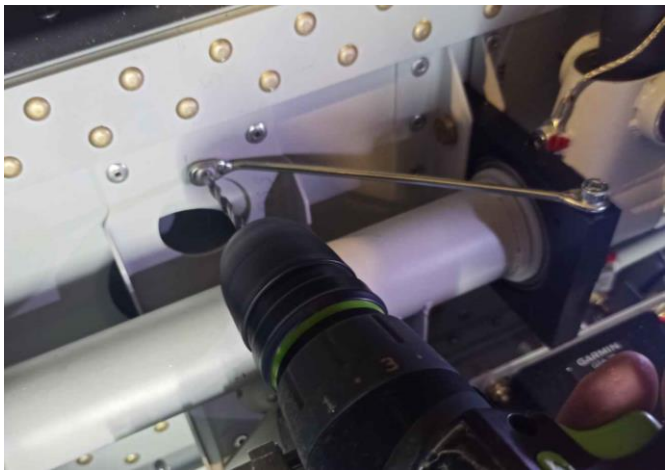
6) Re-install the aileron control rod. Hold Bonding connection when fastening the new self-locking nut.

7) Mark the new nut position against the bolt by use of red paint.
8) Move the aileron rod from stop to stop and check for freedom of movement.



Modification of the attachment of the dual control reinforcement rod

1) Undrill the front rivet of the dual control reinforcement rod (drill bit of dia. 4.1 mm) of pilot and co-pilot side.



2) Install both stainless steel rivets OBE61-0516 (4.1 x 12 mm).

General

1) Remove debris and clean area.
2) Make a log book entry and add note to aircraft CAW documentation that this Service bulletin has been incorporated.

4 Appendix

(PDF attachment)