



## REVISION TRANSMITTAL SHEET

### INSPECTION – WING REAR SPAR AND FLAP/AILERON HINGE BRACKETS

<b>Service Bulletin No.: V2/0009</b>	<b>Date of Original Issue: 26 Jul 2016</b>
<b>Revision No: Revision A</b>	<b>Date of Issue: February 10, 2017</b>

This Service Bulletin revision adds inspections for cracks on flap/aileron hinge brackets and on the wing rear spar web where the flap outboard hinge is attached. This Service Bulletin gives detailed visual inspections for cracks, buckles, broken or missing fasteners, or other damage on the wing rear spar web and flap/aileron hinge bracket.

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NOTE 1: A NEW INSPECTION OF FLAP/AILERON HINGE BRACKETS IS ADDED IN THIS REVISION. THIS NEW INSPECTION IS REQUIRED ON ALL AIRCRAFT, INCLUDING AIRCRAFT INSPECTED TO THE PREVIOUS ISSUE OF THIS SERVICE BULLETIN.

NOTE 2: This revision supersedes the previous revision of this Service Bulletin.

NOTE 3: Revision bars in the left margin of this Service Bulletin indicate changes from the previous revision.

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This page transmits Revision 'A' of Service Bulletin V2/0009, pages 1 thru 10, dated February 10, 2017.

This Service Bulletin is re-issued to

1. Include inspections of the flap/aileron hinge brackets.
2. Align with the content in a forthcoming Airworthiness Directive.

Remove Service Bulletin V2/0009 Revision 'NC' dated 26 July 2016 and replace with attached.

Previous issues of Service Bulletin V2/0009:

Initial Issue – Pages 1 thru 10 dated 26 July 2016

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**SERVICE BULLETIN**

ATA SYSTEM: 57-11

NUMBER: V2/0009

**SUBJECT: INSPECTION – WING REAR SPAR AND FLAP/AILERON HINGE BRACKETS****I. PLANNING INFORMATION****A. Effectivity**

Aircraft Affected: All DHC-2 MK I, MK II, and MK III Beaver Aircraft.

**B. Reason**

It was reported that a horizontal crack of 1.6" long was found on the wing rear spar web (C2W1007) at wing station (WS) 123.5 where the flap outboard hinge is attached. Similar cracks may develop on the wing rear spar web at the other flap/aileron hinge attachment locations WS 1.25, 56.0, 137.0, 191.0 and 246.0. The cracking may be the result of loose or damaged fasteners at these locations.

There has also been one report that the aileron middle hinge bracket cracked at the lower attachment hole at WS 191.0. Similar cracks may develop on the hinge flap/aileron bracket at the other attachment locations WS 1.25, 56.0, 123.5, 137.0 and 246.0 (including the exterior store support arm bracket at WS 101.24 if it is installed).

**C. Description**

Visual inspection of the wing rear spar web is required at the flap/aileron hinge attachment locations at WS 1.25, 56.0, 123.5, 137.0, 191.0 and 246.0, including the hinge arm support brackets.

A flexible borescope will be necessary to carry out this inspection through the existing access holes or openings.

Inspections detailed in this Service Bulletin will be added to PSM 1-2-2 and PSM 1-2T-2 Maintenance Manuals for the recurring inspection requirements.

**D. Compliance**

**NOTE: If Service Bulletin V2/0009 Revision NC has already been accomplished, requirement I.D.1.a. is considered to be complied with. However, I.D.1.b. is still a requirement.**

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Compliance contains 3 requirements:

1. On or before the next scheduled 400 Flying Hours Periodic Inspection, or within 6 months from the effective date of this Service Bulletin Revision 'A', whichever comes first, operators shall inspect:
  - a. the left hand and right hand wing rear spar, in accordance with Section II (Accomplishment Instructions) of this Service Bulletin.
  - b. the left hand and right hand wing flap/aileron hinge brackets, in accordance with Section II (Accomplishment Instructions) of this Service Bulletin.
2. If any part is found cracked, damaged or discrepant, it shall be repaired or replaced before next flight.
3. Within 5 days from the completion of the inspection, complete the attached Operator Reply Form on page 7 of this Service Bulletin, and return to Viking Technical Support.

### **E. Approval**

The technical content of this Service Bulletin has been approved under the authority of the Transport Canada Civil Aviation (TCCA) Design Approval Organization (DAO) 04-V-02.

### **F. Manpower**

Approximately 1 man-hour, per wing, will be required to remove and install the access panels. An additional 10 man-hours, per wing, will be required for the inspections.

### **G. Weight and Balance**

Not applicable.

### **H. Electrical Load Data**

Not applicable.

### **I. Publications Affected**

PSM 1-2-2, Maintenance Manual  
PSM 1-2T-2, Supplementary Maintenance Manual

### **J. References**

PSM 1-2-2, Maintenance Manual  
PSM 1-2T-2, Supplementary Maintenance Manual

Note: This Service Bulletin is self-contained. No drawings are supplied. For more information, please contact:

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## II. ACCOMPLISHMENT INSTRUCTIONS

- Note:** (a) The borescope camera head may need to be attached to an aid tool to reach the inspection area.
- (b) In addition to the access openings indicated in Paragraph II.A.1 to II.A.3, access may be required through the lightening holes on the webs of ribs, front spar, and rear spar.

### Left Hand (LH) Wing:

#### A. Inspection of the Rear Spar and Flap/Aileron Hinge Brackets

1. Remove access panels on the wing lower surface between the front spar and rear spar centered approximately at Wing Station (WS) 22.25, 35.75, 116.75 and 197.75.
2. Remove access panels on the wing trailing edge shroud skin (aft of the rear spar) approximately centered at Wing Station (WS) 8.38, 96.50 and 237.63.
3. Remove the wing tip.
4. Using a borescope with a flexible cable hooked to the camera head (and aid tools as required to maneuver the borescope camera head) through the access openings indicated in Paragraph II.A.1 to II.A.3, visually inspect the rear spar for cracks, buckles, wrinkles, ripples, or other damage at WS 1.25, 56.0, 123.5, 137.0, 191.0 and 246.0 where the aileron and flap hinges are attached. Pay particular attention for typical crack location and orientation, as shown in Figure 1.
5. Inspect all aileron/flap hinge bracket/arm attachment hardware for loose, corroded, missing, smoking, working, deformed or broken fasteners at WS 1.25, 56.0, 123.5, 137.0, 191.0 and 246.0.
6. With the aid of strong light and minimum 10X magnifier glass, visually inspect all aileron/flap hinge arm support brackets for cracking at lower attachment fastener hole (on both flanges) at WS 1.25, 56.0, 123.5, 137.0, 191.0 and 246.0:  
**NOTE 1:** The following steps are recommended:
  - (1) Support the flap or aileron as applicable.
  - (2) Remove the cotter pin, nut, and washers (as applicable) from the lower bolt. Note the number and orientation of washers. Reference PSM 1-2-4, Figure 3:
    - Detail B, Item 12
    - Detail C, Item 61 (lower only)
    - Detail D, Item 65 (lower only)
    - Detail E, Item 27
  - (3) Inspect the flange under the nut for cracks at the fastener hole.
  - (4) Move the lower bolt approximately ¼" away from the bracket, or remove as required to fully inspect the support brackets.
  - (5) Inspect the flange under the bolt head for cracks at the fastener hole.
  - (6) Re-install the lower bolt, washers, nut, and a new cotter pin.
7. If installed, inspect the exterior store support arm bracket at WS 101.24. Reference PSM 1-2-4, Figure 128, Item 15.
8. Repair or replace discrepant parts as required before further flight.
9. Re-install removed parts in Section II.A.1 to II.A.3

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### Right Hand (RH) Wing:

**B.** Repeat Section II.A for the RH wing.

**C. Close-out**

1. Complete the attached Operator Reply Form on page 7, and return to Viking Technical Support.

**D. Recording**

1. On completion of this Service Bulletin, make the following entry in the aircraft log book:  
“Service Bulletin No. V2/0009 Revision A – INSPECTION – WING REAR SPAR AND FLAP/AILERON HINGE BRACKETS, has been incorporated on L/H WING SN xxxx and R/H WING SN xxxx”.
2. Or if SB V2/0009 NC has already been accomplished make the following entry in the aircraft log book:  
“Service Bulletin No. V2/0009 Revision A – INSPECTION – WING FLAP/AILERON HINGE BRACKETS, has been incorporated on L/H WING SN xxxx and R/H WING SN xxxx”.

## III. MATERIAL INFORMATION AND TOOLING

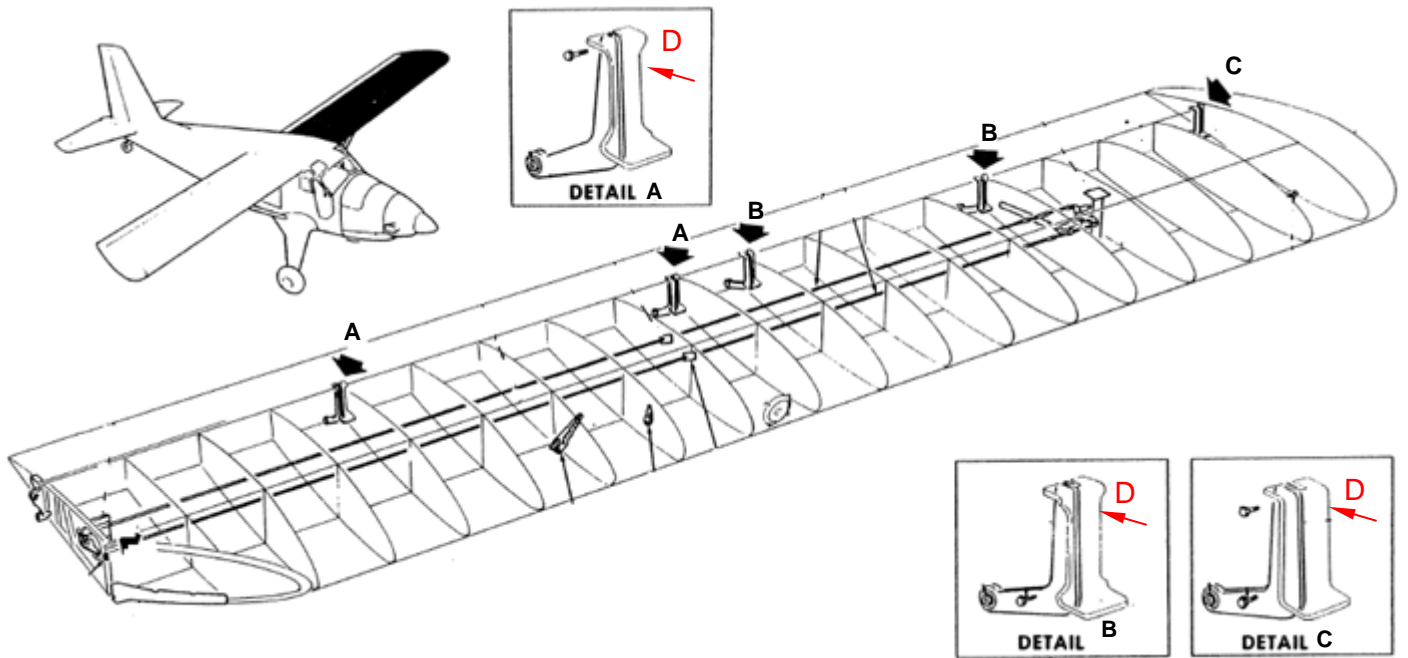
**A. Material Information (Parts Required Per Aircraft).**

N/A

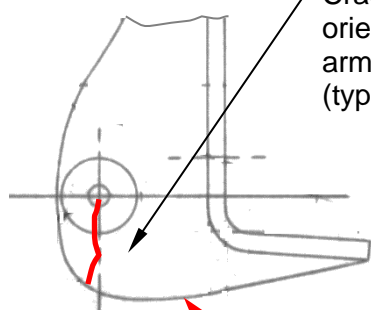
**B. Tooling**

- Wing Support Stand
- Flexible Borescope Kit with light
- Flashlight and mirror
- Minimum 10X magnifier glass
- Standard AME hand tools

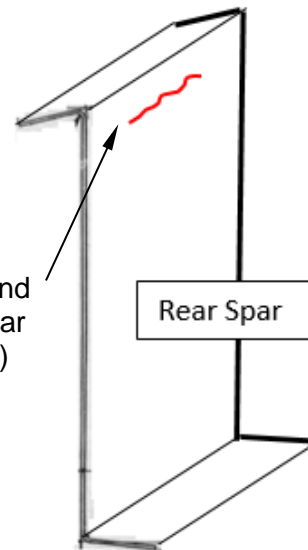
IV. TABLES AND FIGURES



Crack location and orientation on hinge arm support bracket (typical)



Crack location and orientation on rear spar web (typical)



VIEW ON ARROW D (TYPICAL)

FIGURE 1

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## Service Bulletin V2/0009 – Operator Reply Form

Operator Name: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Contact Phone/Email: \_\_\_\_\_

A/C Serial Number: \_\_\_\_\_ Aircraft TAFT: \_\_\_\_\_

LH Wing S/N: \_\_\_\_\_ LH Wing P/N \_\_\_\_\_ Total Time on Wing (in hrs): \_\_\_\_\_

RH Wing S/N: \_\_\_\_\_ RH Wing P/N \_\_\_\_\_ Total Time on Wing (in hrs): \_\_\_\_\_

### Inspection Findings:

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### Additional Comments:

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Please return form via email to [technical.support@vikingair.com](mailto:technical.support@vikingair.com) or via fax to 250-656-0673

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