



SERVICE BULLETIN TRANSMITTAL SHEET

Service Bulletin No.: V2/0005	Date of Original Issue: 26-March-2012
Revision No.: Revision C	Date of Issue: 17-July-2015

CORROSION INSPECTION – ELEVATOR CONTROL ROD AND ELEVATOR ACTUATING LEVER ON THE CONTROL COLUMN

Reports have been made that corrosion was found at the elevator actuating lever on the control column and in the elevator control rod assembly (C2CF619A). Also, an instance of rod end plug corrosion has been reported.

Access is obtained to the area below the floor and a detailed visual inspection is done of the elevator control rod and elevator actuating lever on the control column. Control rod assembly is removed for a detail inspection. Control rods 15 years and older are replaced.

NOTE 1: ALL AIRCRAFT MUST INCORPORATE APPLICABLE INSPECTIONS IN ACCORDANCE WITH SB V2/0005 REVISION 'C'.

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

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

This page transmits Revision 'C' of Service Bulletin V2/0005, pages 1 thru 14, dated 17-July-2015.

Service Bulletin re-issued to make changes to the Compliance Section I.D.

Remove Service Bulletin V2/0005 Revision 'B' dated 04 March 2015 and replace with attached.

Previous issues of Service Bulletin V2/0005:

Initial Issue – 26-March-2012) – effectivity – All DHC-2 aircraft

Rev A – (07-Nov-2014) – effectivity – All DHC-2 aircraft

Rev B – (04-March-2015) – effectivity – All DHC-2 aircraft

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DHC-2 Beaver

SERVICE BULLETIN

ATA SYSTEM: 27-30 NUMBER: V2/0005

SUBJECT: ELEVATOR CONTROL ROD AND ELEVATOR ACTUATING LEVER ON THE CONTROL COLUMN
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I. PLANNING INFORMATION

A. Effectivity

Aircraft Affected: All DHC-2.

B. Reason

There have been a number of reports of corrosion at the elevator actuating lever on the control column, in the elevator control rod(s) assembly (C2CF619A, Mk I, Mk II and Mk III and CT2CF1021-1 for Mk III). An instance of rod plug end corrosion has been reported. Also, potential cracks may have developed on the elevator control rods.

C. Description

Control rods P/N C2CF619A and P/N CT2CF1021-1 assemblies are removed for a one time detailed inspection, and the associated controls parts are inspected in situ. An inspection every 400 hrs is added for P/N C2CF619A, P/N C2CF619A-9, P/N C2CF619A-11 and P/N CT2CF1021-1. This Service Bulletin includes a 15 years and older replacement requirement on P/N C2CF619A control rod assembly only.

D. Compliance

1. Initial Detailed Visual Inspection of Control Rod Assembly P/Ns C2CF619A and CT2CF1021-1, the Elevator Actuating Lever on the Control Column, and the Control Column Torque Tube:
 - (a) Perform an initial detailed visual inspection for corrosion, cracking, and/or other damages of the exterior of the elevator control rod assemblies, the elevator actuating lever on the control column, and the control column torque tube, In Accordance With (IAW) Accomplishment Instructions Section II.A through II.F, within the time limits specified per the schedule in Table 1.

Note: Damaged parts shall be repaired or replaced before next flight as per Paragraph I.D.1.(b).

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Table 1 – Initial Inspection Schedule

Component	Age of Assembly	Previously Inspected IAW SB V2/0005 revision NC, A or B	Action Required
Control Rod Assembly P/N C2CF619A	15 years or greater since new or of unknown age	Yes	Paragraph I.D.1 of this SB is satisfied. Continue with Paragraph I.D.2 and I.D.3 of this SB.
		No	Within 120 days or 100 air time hours, whichever occurs first, from the effective date of this SB. a) Inspect IAW Paragraph I.D.1 and continue with Paragraph I.D.2 and I.D.3 or b) Optionally replace control rod assembly with P/N C2CF619A-11 rod assembly. Continue with Paragraph I.D.2.
	Less than 15 years since new	Yes	Paragraph I.D.1 of this SB is satisfied. Continue with Paragraph I.D.2 and I.D.3 of this SB.
		No	Within 120 days or 100 air time hours, whichever occurs first from the effective date of this SB, inspect IAW Paragraph I.D.1. Continue with Paragraph I.D.2 and I.D.3.
Control Rod Assembly P/N CT2CF1021-1	N/A	Yes	Paragraph I.D.1 of this SB is satisfied. Continue with Paragraph I.D.2.
		No	Within 120 days or 100 air time hours, whichever occurs first from the effective date of this SB, inspect IAW Paragraph I.D.1 and continue with Paragraph I.D.2.
Elevator Actuating Lever on the Control Column Control Column Torque Tube	N/A	Yes	Paragraph I.D.1 of this SB is satisfied. Continue with Paragraph I.D.2.
		No	Within 120 days or 100 air time hours, whichever occurs first from the effective date of this SB, inspect IAW Paragraph I.D.1 and continue with Paragraph I.D.2.

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- (b) If corrosion, cracking or other damage is found on:
 - i. P/N C2CF619A control rod assembly, replace the rod assembly with P/N C2CF619A-11 rod assembly prior to next flight or contact Viking Air Ltd. for an approved repair and incorporate the repair prior to next flight.
 - ii. P/N CT2CF1021-1 control rod assembly, replace the rod assembly with new CT2CF1021-1 rod assembly prior to next flight or contact Viking Air Ltd. for an approved repair and incorporate the repair prior to next flight.
 - iii. the elevator actuating lever, contact Viking Air Ltd. for an approved repair and incorporate the repair prior to next flight.

Note: All findings shall be reported to Viking Technical Support utilizing the Inspection Report form at the end of this Service Bulletin.

- 2. Repetitive Inspection (applicable to rod assembly P/Ns C2CF619A, C2CF619A-9, C2CF619A-11 and CT2CF1021-1):

Within 30 days from the effective date of this Service Bulletin, Operators shall incorporate the applicable repetitive Inspection task into the applicable maintenance program as follows:

- (a) For DHC-2 MK I, MK II and MK III: DHC-2 Beaver Maintenance Manual, PSM 1-2-2, Appendix 2, Part 3 Item 20A. (Refer to TR 2-38)
- (b) For DHC-2 MK III: DHC-2 Turbo Beaver Supplementary Maintenance Manual, PSM 1-2T-2, Part 4 Item 20 A. (Refer to TR-2T-14)

- 3. Service Life Limit of Rod Assemblies P/N C2CF619A:

- (a) P/N C2CF619A rod assemblies are life limited to 15 years and must be replaced with P/N C2CF619A-11 rod assembly prior to exceeding the life limit except as authorized by Paragraph I.D.3.(b) of this Service Bulletin.
- (b) Replace all P/N C2CF619A rod assemblies 15 years or greater since new or of unknown age with P/N C2CF619A-11 rod assembly within one year from the effective date of this Service Bulletin.
- (c) From the effective date of this Service Bulletin, no person shall install P/N C2CF619A or P/N C2CF619A-9 control rod assemblies as a replacement.

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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 8 man-hours for MK I and MK II (12 man-hours for MK III) will be required to remove and re-install the elevator control rod(s) assembly.

An additional 3.5 man-hours will be required for the inspections.

This estimate is for direct labor performed by an experienced crew and does not include setup, planning or other such activities.

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

A. Preparation

1. DHC-2 MK I and MK II Access:

- (a) Gain access to the elevator actuating lever (11, Figure 1) on the control column, the elevator control rod assembly (14, Figure 1) and bell crank (18, Figure 1) as follows:
 - i. Remove circular panel (PSM 1-2-2 Part 1, Figure 1-3, Item 16) below the mid part of fuselage.
 - ii. Remove the lower LH oil cooler duct assembly (PSM 1-2-4 Part 2, Figure 24, Item 1).
 - iii. Remove the left hand bottom panel (PSM 1-2-2 Part 1, Figure 1-3, Item 20).
 - iv. Remove the LH floor boards in the cabin.
 - v. Apply duct tape or a suitable anti-chafe tape to each lightning hole on the floor bulkheads to protect the finish on the rod during removal and installation.
 - vi. Before loosening the control column, the aileron control chain needs to be clamped to avoid skipping a tooth inside the control column.
 - vii. Loosen the control column and move it out of the way to provide clearance.
 - (b) Remove the elevator control rod assembly (14, Figure 1) from the attaching plate (8, Figure 1) and the elevator actuating lever (11, Figure 1) on the control column.
- Note: Measure and note the length between the centers of the two rod ends, this will help for final rigging (refer to Figure 2).

2. DHC-2 MK III Access:

- (a) Remove circular panel (PSM 1-2T-2 Supplement 6, Figure 6-3, Item 15) beneath mid part of the fuselage.
- (b) Remove the left hand bottom panel (PSM 1-2T-2 Supplement 6, Figure 6-3, Item 9).
- (c) Remove the LH (Pilot) seat and LH Cockpit floor board (PSM 1-2T-4 Part 2, Figure 36, Item 1)
- (d) Apply duct tape or a suitable anti-chafe tape to each lightning hole on the floor bulkheads to protect the finish on the rod during removal and installation.
- (e) The OUTBD control column bearing attach bolt has to be removed and the outboard end of the control column torque tube has to be raised up so the pushrod can be removed.
- (f) Remove the elevator control rod assemblies (14 and 15, Figure 3) in accordance with (IAW) Aircraft Maintenance Manual, PSM 1-2T-2, Supplement 6, and Section 6.18.1.

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Note: Measure and note the length between the centers of the two rod ends, this will help for final rigging (refer to Figure 2).

B. Detailed Visual Inspection

1. With a strong light and a 10x magnifying glass, inspect the exterior of the elevator control rod C2CF619A (14, Figure 1) for MK I and MK II and the elevator control rods C2CF619A and CT2CF1021-1 (14 & 15, Figure 3) for MK III as follows:
 - (a) Thoroughly clean the entire control rod (including the Plug End (C2CF1189, Figure 2).
 - (b) Inspect the C2CF1189 Plug End closely for signs of corrosion, cracking and/or other damage, particularly in the area where the diameter changes, at the mating surface with the steel nut and at the edge of the rod tube (see Figure 2).
 - (c) Inspect the rod tube closely for signs of corrosion, cracking and/or other damage, particularly at the rivet attach points and in the area where the tube diameter changes at both tube ends (see Figure 2).
 - (d) Inspect for signs of paint bubbling along the remaining rod tube. If bubbling is found, remove the paint for further inspection.

Note: Damaged parts shall be repaired or replaced before next flight.

2. Visually inspect the elevator actuating lever and the control column torque tube (Item 11 & 12 in Figure 1 or Item 16 & 17 in Figure 3) in situ as follows:
 - (a) Thoroughly clean the inside and outside of the fork area on the elevator actuating lever in situ.
 - (b) With a strong light and a 10x magnifying glass (and/or a mirror as required), inspect the elevator actuating lever and the control column torque tube for cracking, distortion, corrosion and/or other damage.

Note: Damaged parts shall be repaired or replaced before next flight.

3. Visually inspect the idle bracket and spring (2 & 3, Figure 3), bellcrank, cable turnbuckle and attachment plate (8, 18 & 19 in Figure 1,; 4, 5 & 13 in Figure 3) as follows:
 - (a) Thoroughly clean the parts listed in Paragraph 3 above in situ.
 - (b) With a light and a 10x magnifying glass (and/or a mirror as required), inspect the parts listed in Paragraph 3 above and associated attachment hardware for cracking, distortion, corrosion and/or other damage.

Note: Damaged parts shall be repaired or replaced before next flight.

C. Installation of Serviceable Elevator Control Rod Assembly

1. DHC-2 MK I and MK II Installation:

- (a) Install the elevator control rod assembly (14, Figure 1) IAW PSM 1-2-2, Part 2, Section 2.43.

Note: Adjust the length (between the center of the two rod end fittings) as required to the previously measured length noted in Para II.A.1.(b). Note that this is a preliminary adjustment only, and the system still requires to be re-rigged.

- (b) Touchup surface finish as required (on bare metal surface, if any). Apply corrosion preventive compound LPS3 (or equivalent) to the inside and outside of the fork area on the elevator actuating lever (11, Figure 1), and to the control rod (14, Figure 1) exterior surface to cover approximately 12" from the rod forward end.

2. DHC-2 MK III Installation:

- (a) Install the elevator control rod assemblies (14 and 15, Figure 3) IAW with Aircraft Supplementary Maintenance Manual, PSM 1-2T-2, Supplement 6, Section 6.18.2.

Note: Adjust the length (between the center of the two rod end fittings) as required to the previously measured length noted in Para II.A.1.(c).that this is a preliminary adjustment only, and the system still requires to be re-rigged).

- (b) Touchup surface finish as required (on bare metal surface, if any). Apply corrosion preventive compound LPS3 (or equivalent) to the inside and outside of the fork area on the elevator actuating lever (16, Figure 3), and to the entire exterior surface of the control rod (15, Figure 3), as well as 12" (from the rod forward end) of the exterior surface of the control rod (14, Figure 3).

D. Rigging of the Elevator System

1. DHC-2 MK I and MK II Elevator Rigging Instructions:

- (a) Check the function of the elevator control system, and re-rig the system as required, IAW Aircraft Maintenance Manual, PSM 1-2-2, Part 2, 2.43.5.

2. DHC-2 MK III Elevator Rigging Instructions:

- (a) Check the function of the elevator control system, and re-rig the system as required IAW Aircraft Supplementary Maintenance Manual, PSM 1-2T-2, Supplement 6, Section 6.19.

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E. Close-out

1. DHC-2 MK I and MK II close-out:
 - (a) Remove duct tape or suitable anti-chafe tape from each lightning hole.
 - (b) Install LH floor boards in the cabin.
 - (c) Re-install and safety the control column, and remove chain block.
 - (d) Install the left hand bottom panel (Item 20, Figure 1-3 in PSM 1-2-2 Part 1).
 - (e) Install the lower LH oil cooler duct assembly (PSM 1-2-4 Part 2, Figure 24, Item 1).
 - (f) Install the circular panel (Item 16, Figure 1-3 in PSM 1-2-2 Part 1) below mid part of the fuselage.
2. DHC-2 MK III close-out:
 - (a) Remove duct tape or suitable anti-chafe tape from each lightning hole.
 - (b) Re-install OUTBD control column bearing attach bolt and safety
 - (c) Reinstall the circular panel (PSM 1-2T-2 Supplement 6, Figure 6-6, Item 15) beneath mid part of the fuselage
 - (d) Reinstall the left hand bottom panel (PSM 1-2T-2 Supplement 6, Figure 6-6, Item 9).
 - (e) Reinstall the LH (Pilot) seat and RH Cockpit floor board (PSM 1-2T-4 Part 2 Figure 36, Item 1).

F. Recording

On completion of this Service Bulletin, make the following entry in the aircraft log book:

1. For Aircraft inspected in accordance with paragraph I.D.1 of Service Bulletin V2/0005 Revision C, make the following entry:

“Service Bulletin No. V2/0005 Revision C - ELEVATOR CONTROL ROD AND ELEVATOR ACTUATING LEVER ON THE CONTROL COLUMN – Inspection in accordance with paragraph I.D.1. has been accomplished”.
2. If existing elevator control rod assembly was replaced with C2CF619A-11, make the following entry:

“Service Bulletin No. V2/0005 Revision C - ELEVATOR CONTROL ROD AND ELEVATOR ACTUATING LEVER ON THE CONTROL COLUMN – Elevator control rod assembly C2CF619A has been replaced with C2CF619A-11”.
3. If existing elevator control rod extension assembly CT2CF1021-1 was replaced by a new rod extension assembly CT2CF1021-1, make the following entry:

“Service Bulletin No. V2/0005 Revision C - ELEVATOR CONTROL ROD AND ELEVATOR ACTUATING LEVER ON THE CONTROL COLUMN – Elevator control rod extension assembly CT2CF1021-1 has been replaced with new CT2CF1021-1”.

III. MATERIAL INFORMATION AND TOOLING

A. Material Information (Parts Required Per Aircraft).

TABLE 1

PART	CURRENT PART NUMBER	REPLACEMENT PART
Control Rod Assembly	C2CF619A (Pre Mod 2/1604 & 2/1606), or C2CF619A-9 (Post Mod 2/1604, 2/1606 & Pre Mod 2/1608)	C2CF619A-11 (Post Mod 2/1608)
Connecting Rod Extension	CT2CF1021-1 (for MKIII)	CT2CF1021-1

- LPS3 (or equivalent).

B. Tooling – Price and Availability

- Standard aircraft mechanic's hand tools.

IV. TABLES AND FIGURES

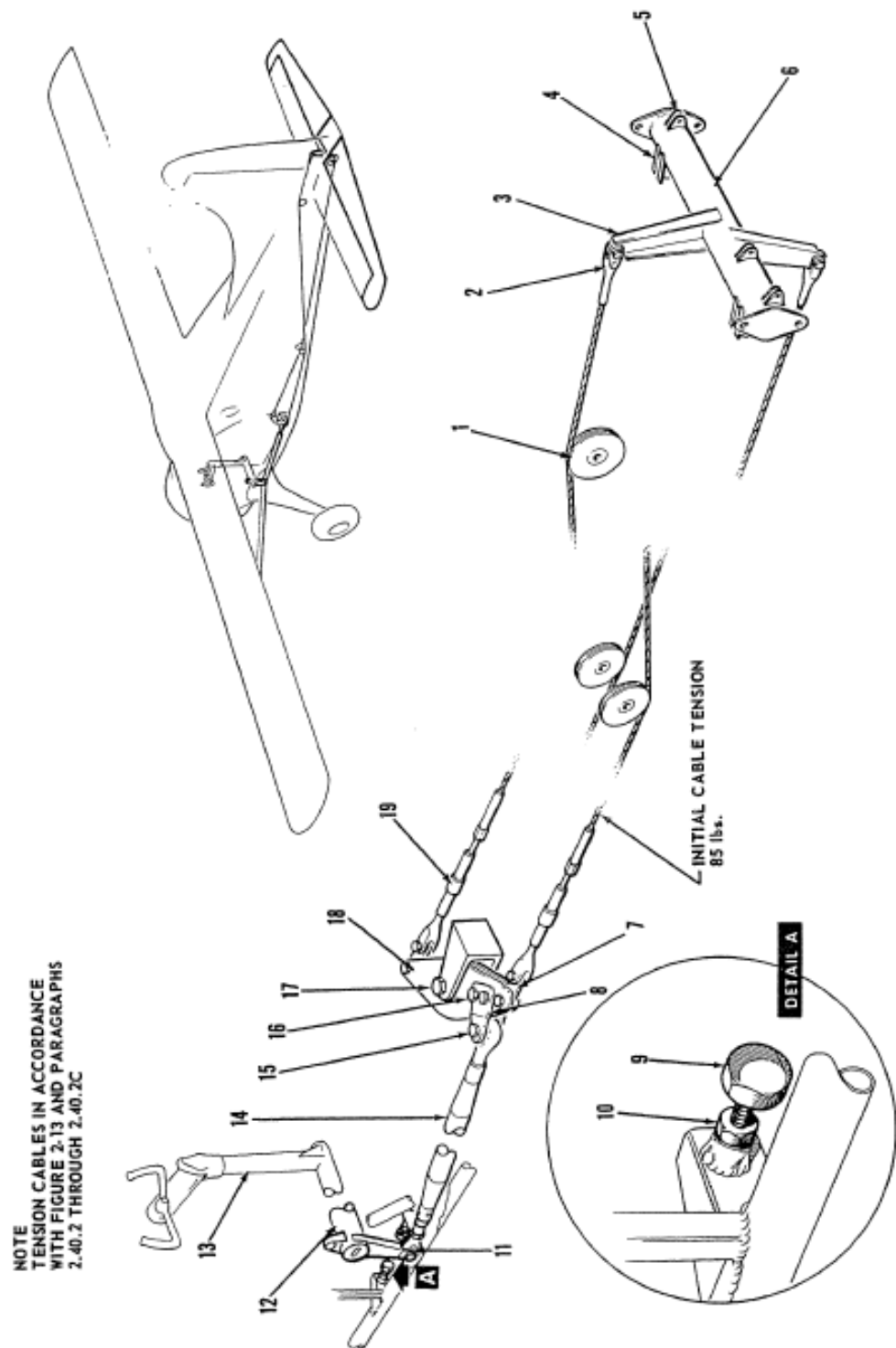


FIGURE 1

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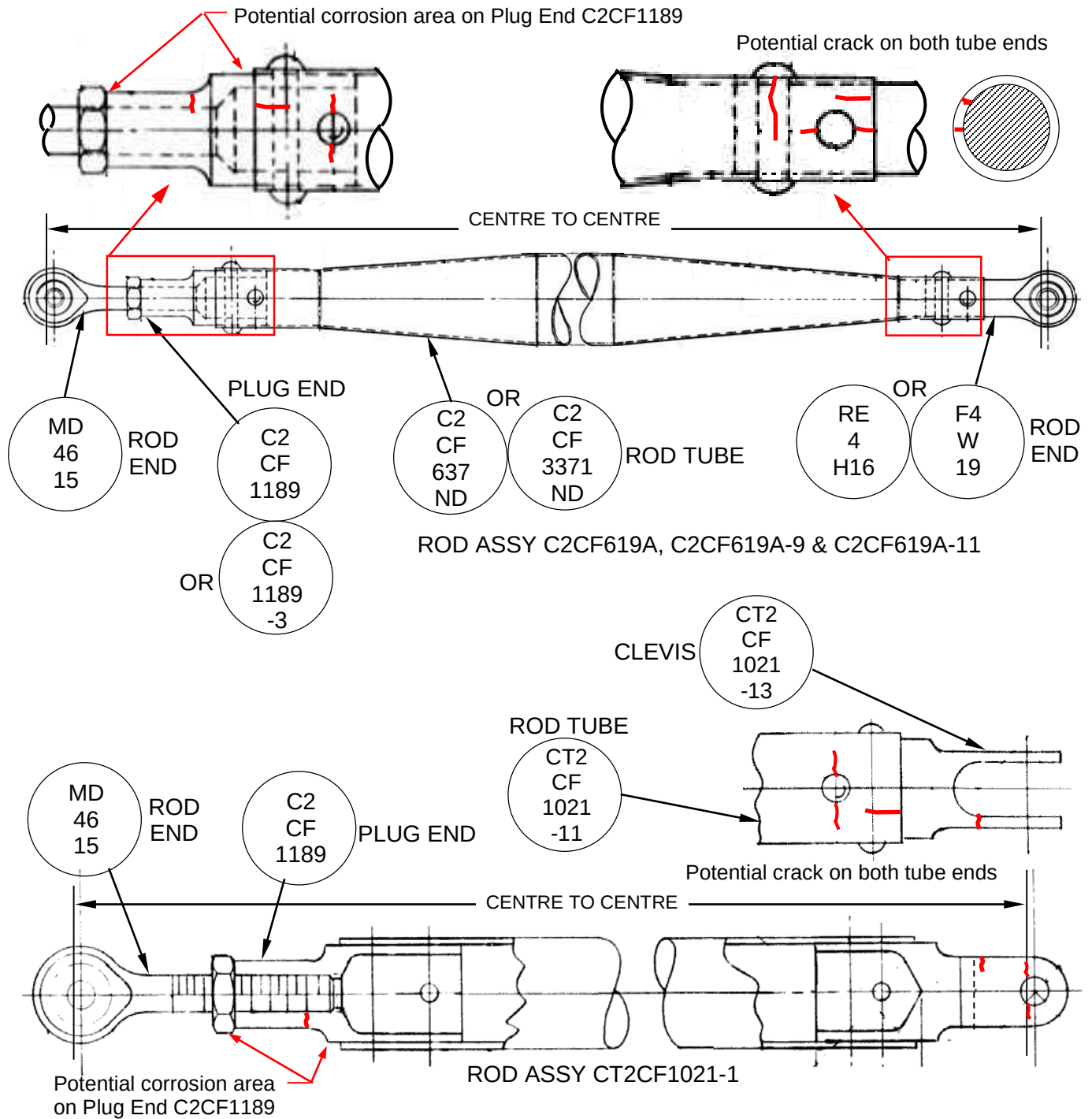


FIGURE 2

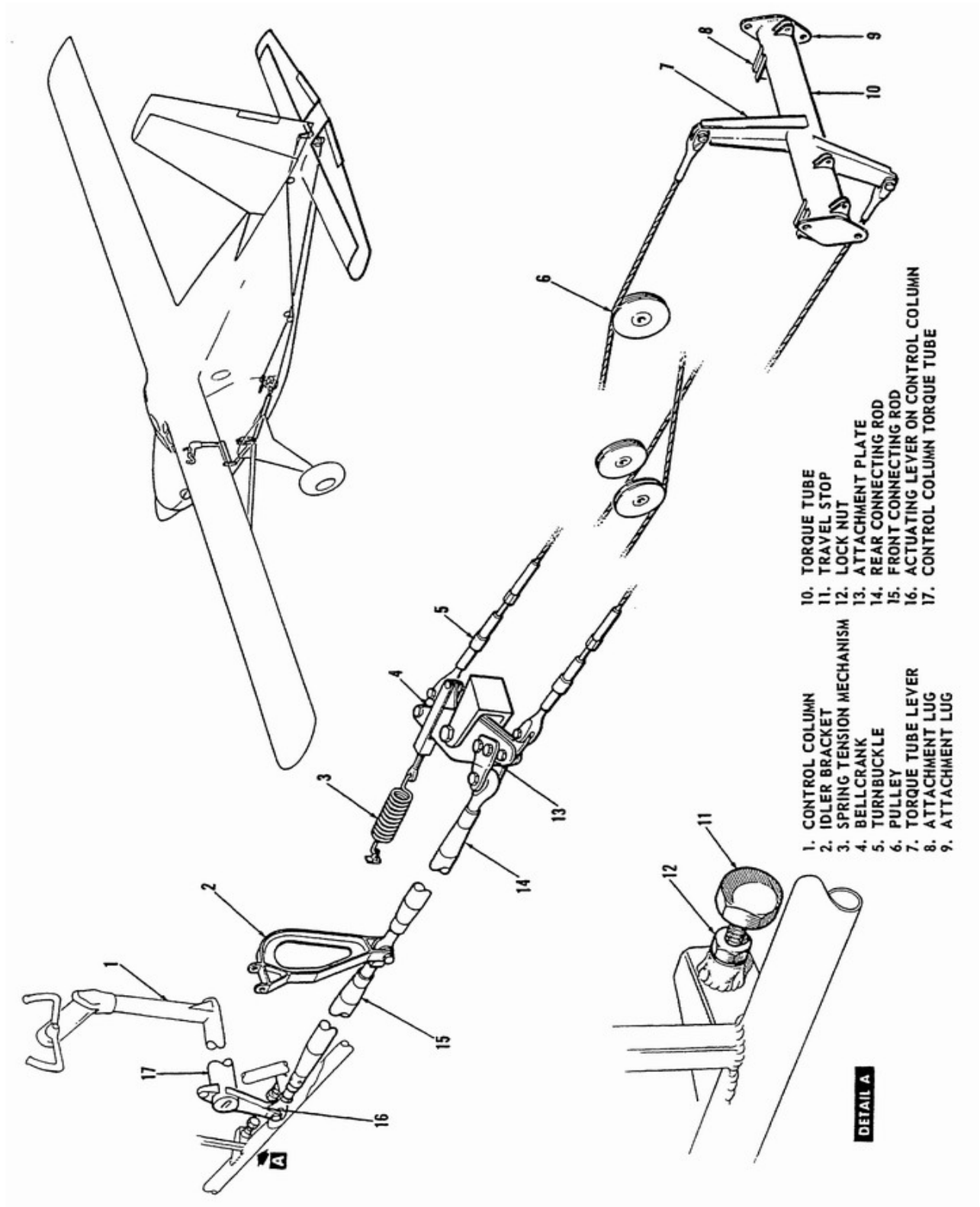


FIGURE 3

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Service Bulletin V2/0005 - Inspection Report

Operator: _____

Contact Person: _____

Contact Phone/Email: _____

A/C Registration # _____ A/C Serial # _____

A/C TTSN _____ A/C TCSN _____

Elevator Control Rod P/N _____ TTSN _____ TCSN _____

Inspection Findings:

Please return form via email to technical.support@vikingair.com or via fax to 250-656-0673



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