

RECOMMENDED SERVICE BULLETIN**SUBJECT:** SB16-02**REVISION:** 00**DATE:** 02/17/2016**EFFECTIVITY:** KODIAK 100 Series Airplane Serial Numbers 100-0086 thru 100-0110 or airplanes subsequently equipped with the Flap Gearbox Controller (also referred to as "Gearbox/Controller") and/or Aileron Trim Actuators listed in FSI-129.**SUMMARY**

The manufacturer of the Flap Gearbox Controller and Aileron Trim Actuator received and utilized over-hardened metal from a sub-tier supplier to make the gears contained in said parts. Quest recommends review of the serial numbers for the Gearbox Controller and Aileron Trim Actuator. The following field service instruction (FSI) provides procedures for checking the affected part data tags, removing affected part(s), and installing replacement part(s).

Document Number	Document Title
FSI-129	Flap Gearbox Controller and Aileron Trim Actuator Replacement

COMPLIANCE

This Recommended Service Bulletin should be complied with at the next convenient inspection.

FAA APPROVAL STATUS

The resultant alteration (or repair) to the affected airplane described above has been shown to comply with the applicable FAA regulations and is FAA approved.

SPECIAL INSTRUCTIONS

There are a limited number of rotatable units available. Customer must coordinate with Quest Customer Service to ensure part(s) availability and warranty coverage.

CREDIT AND WARRANTY INFORMATION

Quest will supply one replacement Gearbox/Controller and/or one Aileron Trim Actuator at no charge for the part serial numbers listed in FSI-129. Quest will reimburse up to 2.5 hours of labor costs for each item replaced as required. Reimbursement invoices must be received by Quest on or before February 17, 2017. Invoices received after February 17, 2017 will not be reimbursed. Contact Quest Customer Service to obtain a Return Material Authorization (RMA) prior to returning the unit(s). Refer to www.questaircraft.com for reimbursement instructions.

Quest Customer Service**Phone:** (208) 263-1111 **Toll Free:** 1 (866) 263-1112**Email:** customerservice@questaircraft.com

Quest Aircraft Company LLC, 1200 Turbine Drive, Sandpoint, ID 83864



FIELD SERVICE INSTRUCTION

TITLE: Flap Gearbox Controller and Aileron Trim Actuator Replacement

SERIAL RANGE: 100-0086 thru 100-0110

JASC CODE: 2750, 2711

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SUBJECT

This Field Service Instruction (FSI) for the KODIAK[®] 100 provides procedures for identifying and replacing the Flap Gearbox Controller (referred to as the “Gearbox/Controller”) and the Aileron Trim Actuator due to suspect over-hard gears within the units.

WEIGHT AND BALANCE

No Change

MANPOWER

Estimated Man-Hours

Gearbox/Controller Replacement: 2.5 hours

Aileron Trim Actuator Replacement: 2.5 hours

Minimum Persons

1 person

Man-hour estimates are based on the minimum personnel required. As appropriate, Quest encourages the use of additional personnel, which may reduce the actual man-hours.

“Minimum Persons” refers only to maintenance personnel or installers, and unless otherwise specified within this instruction, does not include additional personnel who may be needed solely to comply with safety requirements (for example, safety observers who are not performing tasks within this instruction). It is the responsibility of maintenance personnel to comply with safety requirements, including having a safety observer available as needed.

Quest Aircraft Company LLC
1200 Turbine Drive
Sandpoint, Idaho 83864

▲ DISCLAIMER ▲

The instructions/procedures presented herein are based upon the systems and components of the aircraft when it was delivered from the factory, or as modified by Quest Service Bulletins. Third-party modifications that have affected any component, system, or operating characteristic discussed by this document may invalidate the instructions/procedures provided. Before performing the instructions/procedures herein, examine all Supplemental Type Certificate (STC) or equivalently authorized modifications to verify that the instructions/procedures presented in this document can be properly completed. If an aircraft has an STC or equivalently authorized modification that affects any component, system, or operating characteristic also affected by this document, the operator is responsible for obtaining appropriate regulatory approval before performing the instructions/procedures herein. Quest Aircraft Company cannot be responsible for the quality of work performed in accomplishing the requirements of this document.

If you have any questions as to the applicability of this document to your specific aircraft, contact Quest Customer Service by telephone at (208) 263-1111, toll-free at (866) 263-1112, or via email at CustomerService@QuestAircraft.com



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REVISION RECORD

REV	PAGE	CHANGE DESCRIPTION
00	All	Initial Release



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1. Special Safety Instructions

1.1 Warnings

Failure to comply with “Warnings” contained in this instruction may result in financial loss, significant delay in the completion time, and/or serious injury to personnel.

1.2 Cautions

Failure to comply with “Cautions” contained in this instruction may result in the destruction of components, unnecessary complications, the need to reverse completed work, and/or delays in the completion time.

1.3 Reference Materials

This document may refer to reference manuals or documents. Any reference to these manuals or documents assumes the latest revision, which should be employed when performing the work described within this document, unless otherwise specified.

2. Parts, Tools, and Equipment

The following tables describe the parts, tools, and equipment necessary to successfully complete this instruction. Where applicable, reference to drawings provided with this instruction is provided.

Table 2-1: Parts and Tools Included in the Service Kit

Item #	Part No.	Qty	Description
2-1-1	N/A	-	N/A

Table 2-2: Consumables Included in the Service Kit

Item #	Part No.	Qty	Description
2-2-1	N/A	-	N/A

Table 2-3: Serial-Number-Specific Parts Included in the Service Kit

Item #	Part No.	Qty	Description
2-3-1	N/A	-	N/A

Table 2-4: Parts and Tools NOT Included in the Service Kit

Item #	Part No.	Qty	Description
2-4-1	100-621-0113	1	Gearbox/Controller
2-4-2	100-624-0100	1	Aileron Trim Actuator



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3. General

Quest has discovered that some actuators and flap systems have gears produced to an over-hardened condition. The condition was found in a fielded actuator whose reported discrepancy was excessive vibration and clicking. Teardown investigation found a cracked gear in the unit.

All of the units returned for gear replacements that did have a cracked gear were able to operate and actuate as intended; the most noticeable symptom was noisy operation.

Gears that are too hard may crack over time. If a crack were to occur, the following effects might be exhibited:

- Noisy operation initially.
- Minor vibration initially.
- Actuator may become inoperable over time.
 - Load could not be driven.
 - Motor could fail.

Suspect gears were installed in the Gearbox/Controller (P/N 100-621-0113) and Aileron Trim Actuator (P/N 100-624-0100). The over-hard gears installed in the Gearbox/Controller are used in a location of low torque, and no functional issue is expected to occur. The over-hard gears installed in the Aileron Trim Actuator might eventually cause the actuator to exhibit one of the symptom listed above. Quest recommends that suspect Gearbox/Controllers or Aileron Trim Actuators be sent back to Quest.

The Gearbox/Controller is located between the wings, in the passenger cabin, and above the headliner. See **Figure 3-1, Detail A**.

The aileron trim actuator is located in the left wing. See **Figure 3-1, Detail B**.



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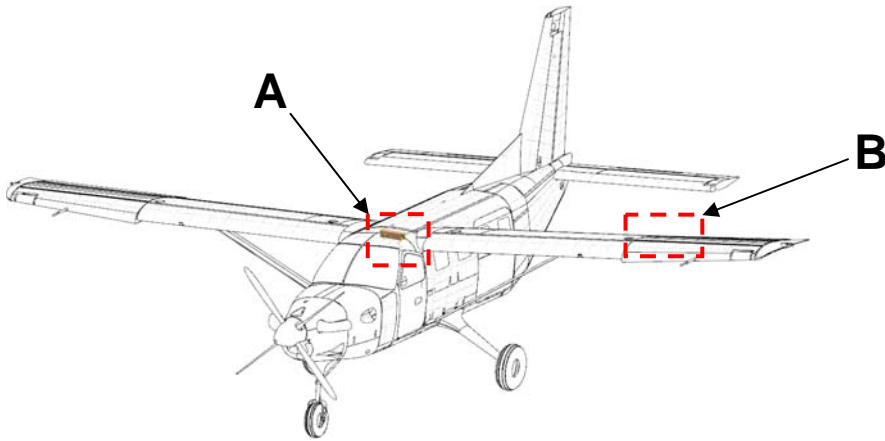
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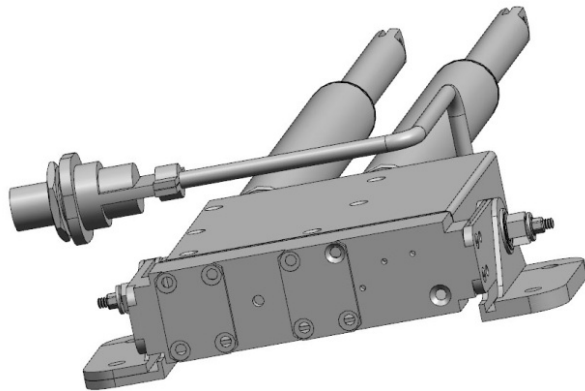
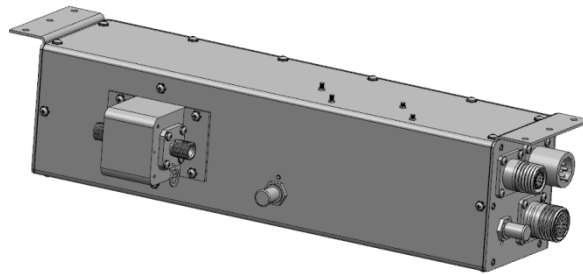
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DETAIL A
Gearbox/Controller



DETAIL B
Aileron Trim Actuator

Figure 3-1: Overview



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3.1 Limitations

See **Table 3-1** for aircraft serial numbers with corresponding suspect Gearbox/Controllers.
See **Table 3-2** for aircraft serial numbers with corresponding suspect Aileron Trim Actuators.

▲ NOTE ▲

Table 3-1 and **Table 3-2** reflect serial numbers that were installed on the airplane at time of delivery. Use only serial numbers currently installed on the airplane when checking the tables for applicability.

Table 3-1: Suspect Gearbox/Controller (P/N 100-621-0113)

Airplane Serial Number (as delivered from the factory)	Item Serial Number
100-0086	95
100-0087	94
100-0088	97
100-0089	96
100-0090	99
100-0091	98
100-0092	100
100-0093	101
100-0095	105
100-0096	102
100-0097	106
100-0098	103
100-0099	107
100-0100	108
100-0101	109
100-0102	110
100-0103	111
100-0104	112
100-0105	113
100-0106	114
100-0107	115
100-0108	116
100-0109	118
100-0110	117



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Table 3-2: Suspect Aileron Trim Actuator (P/N 100-624-0100)

Airplane Serial Number (as delivered from the factory)	Item Serial Number
100-0086	0097H
100-0087	0096H
100-0088	0098H
100-0089	0099H
100-0090	0100H
100-0091	0101H
100-0092	0102H
100-0093	0103H
100-0094	0104H
100-0095	0110H
100-0096	0095H
100-0097	0106H
100-0098	0105H
100-0099	0107H
100-0100	0108H
100-0101	0109H
100-0102	0120H
100-0103	0112H
100-0104	0094H
100-0105	0123H
100-0106	0121H
100-0107	0114H
100-0108	0124H
100-0109	0125G
100-0110	0126H

3.2 Tolerances

N/A



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4. Preparation

▲ NOTE ▲

For Gearbox/Controllers or Aileron Trim Actuators that have been repaired or updated, check the date on the part. If the date shown is later than November 25, 2013, the part is compliant and no further action is required, except to record the information in the airplane log book.

4.1 Confirm Serial Numbers: Gearbox/Controller

If the airplane's serial number is listed in **Table 3-1**, confirm that the installed Gearbox/Controller has the corresponding serial number noted on the part's data tag and a date prior to November 25, 2013. To access the data tag, remove the passenger cabin headliner in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 25.

If the airplane contains the affected part, contact Quest Customer Service to:

1. Obtain a Return Material Authorization (RMA) prior to returning the unit.
2. Confirm replacement part availability.

4.2 Confirm Serial Numbers: Aileron Trim Actuator

If the airplane's serial number is listed in **Table 3-2**, confirm that the installed Aileron Trim Actuator has the corresponding serial number noted on the part's data tag and a date prior to November 25, 2013. Remove the aileron access hole cover (P/N 100-345-4003) located over the aileron trim actuator to view the data tag.

If the airplane contains the affected part, contact Quest Customer Service to:

1. Obtain a Return Material Authorization (RMA) prior to returning the unit.
2. Confirm replacement part availability.

5. Instructions

5.1 Replace Gearbox/Controller

Upon receiving the replacement Gearbox/Controller, proceed with the following:

1. Remove the Gearbox/Controller in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 27.
2. Install the replacement Gearbox/Controller unit in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 27.

▲ NOTE ▲

Do not install interior until a successful operational check has been performed.

3. Return the affected part to Quest Customer Service.



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5.2 Replace Aileron Trim Actuator

Upon receiving the replacement Aileron Trim Actuator, proceed with the following:

1. Remove the Aileron Trim Actuator in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 27.
2. Install the replacement Aileron Trim Actuator unit in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 27.
3. Return the affected part to Quest Customer Service.

6. Completion

6.1 Perform Functional Check

6.1.1 Gearbox/Controller

1. Restore power to the airplane.
2. Conduct an operational check of the flaps by running flaps to full up and full down position using the handle (stopping at every detent).
3. Ensure no FLAP FAIL Annunciation appears on the G1000 Alerts window and flaps operate normally.
4. Verify that position output on the G1000 correlates with flap positions.
 - Perform indicator calibration in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 27, if required.

▲ NOTE ▲

Reference AM902.0, *KODIAK 100 Airplane Maintenance Manual* as required.

6.1.2 Aileron Trim Tab Actuator

1. When the aileron is trimmed to the full left with the cockpit switch, the aileron trim tab must deflect downward.
2. When the switch is activated fully to the right, the trim tab must deflect upward.
3. Perform aileron trim rigging check in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 27.

6.2 Restore Airplane to Airworthy Condition

6.2.1 Gearbox/Controller

Install the passenger cabin headliner in accordance with AM902.0, *KODIAK 100 Airplane Maintenance Manual*, Chapter 27.

6.2.2 Aileron Trim Actuator

1. Install aileron cover plate fairing over actuator pushrods.
2. Install aileron access hole cover.



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6.3 Records of Completion

Update the appropriate KODIAK 100 maintenance records.

6.4 Applicable Manual Revisions/Updates

None

▲ NOTE ▲

Quest Aircraft Company recommends updating the approved *KODIAK 100 Pilot's Operating Handbook and Airplane Flight Manual* (AM901.0) and any applicable supplements to the latest revisions, and maintaining the airplane in accordance with the latest approved *KODIAK 100 Airplane Maintenance Manual* (AM902.0). Contact Quest Aircraft Customer Service with any questions related to maintenance material.

---END---