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Service Bulletin

Subject:

Replacement of the alternate air door microswitch with a contactless proximity switch.

Applicability:

GA8 aircraft S/N GA8-00-004 to GA8-05-065.

Background:

The current alternate air door is fitted with a microswitch which is connected to a warning light in the cockpit. The purpose of this switch is to indicate position of the alternate air door to the pilot, whether by manual or automatic actuation.

Some aircraft operators have reported the failure of the microswitch at relatively small time intervals due to vibration associated with the aircraft induction system.

Gippsland Aeronautics has developed a replacement to the existing microswitch with a non-contact proximity switch. The proximity switch is impervious to vibration, temperature and dirt.

This Service Bulletin documents the replacement of the existing microswitch with a contactless proximity switch for the alternate air door.

Compliance:

The proximity switch is required to be fitted to aircraft during the next periodic inspection after the 1st November 2005.

The proximity switch installation must be carried out in accordance with the instructions outlined in this Service Bulletin.

Weight and Balance:

Negligible effect on weight and balance.

Approval:

This Service Bulletin has been approved pursuant to Regulation 35 of CAR1988.

Parts:

Item	Part Number	Description	Qty
1	GA8-315012-13	Proximity Switch Assembly	1
2	GA8-315012-15	Proximity Switch Wiring Harness - Retrofit	1

Tools Required:

Sockets & ratchet or spanners

Assorted screwdrivers

Lockwire & Lockwire tools

Pin removal tool

PR1422 (B2 preferred)

Parts Availability:

New parts can be obtained directly from Gippsland Aeronautics.

Tel.:   +61 03 5172 1200

Fax.:   +61 03 5172 1201

Email: support@gippsaero.com

Labour:

It is envisaged that this task will require 1 person for 2 hours to prepare, install, and test the proximity switch (The time quoted is not inclusive of the cure time required by the PR).

Instructions:

Please refer to the relevant sections of the GA8 Service Manual for further clarification.

Wiring Changes

1. The existing microswitch utilizes two wires to function, whilst the new proximity switch requires 3 wires to function. The additional wire is routed to the stall warning breaker.

2. The existing 2 pin socket (J26) must be replaced with a 3 pin socket (also labeled J26) This is accomplished by removing the existing pins from the 2 pin socket and placing them in the 3 pin socket as shown below. Ensure that each wire is inserted into the correct position on the socket as indicated in the figure below.

WK1E22 PIN 3
WK1A22 PIN 2
WK1D22 PIN 1

J26

Wire routed to Stall warning breaker

Wires from existing engine bay loom take note of wire positions on socket
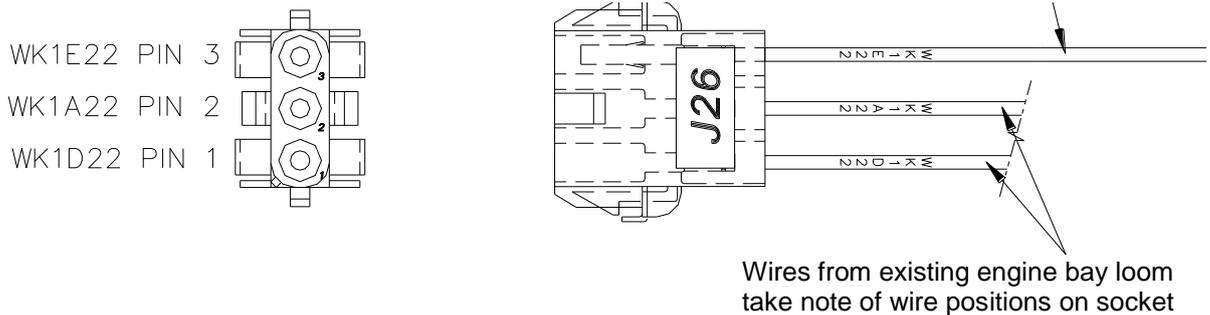
Figure 1: Socket wiring detail.
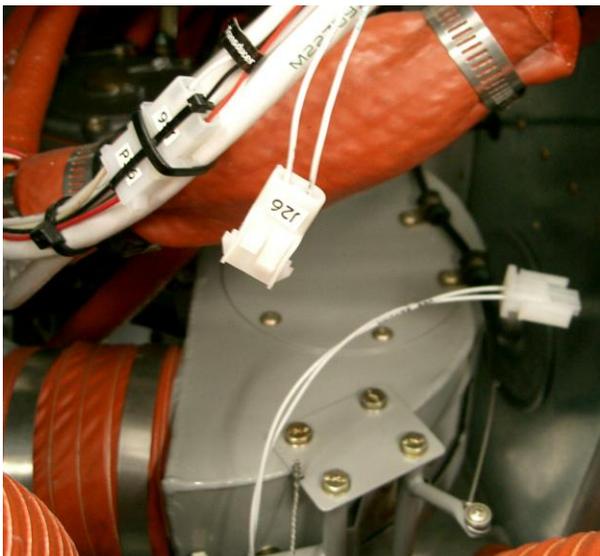
Figure 2: Original factory installation
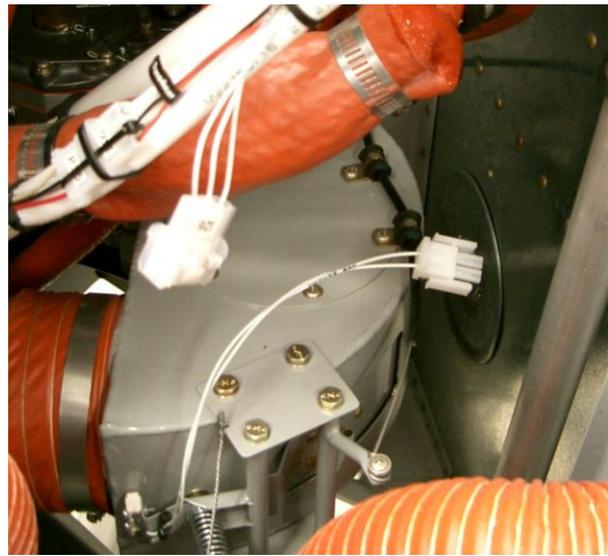
Figure 3: Revised loom with 3 pin socket

3. Remove LH crew seat, and floor covering to expose the under floor circuit breaker panel.

4. Remove the required panels to route wire WK1E22 through the firewall and alongside the existing wire loom, to the under floor circuit breaker panel.

5. Ensure that all wiring is secured with cable ties, and that the wire bundle that protrudes through the firewall is sealed using PR.

6. Attach wire WK1C22 to the stall warning breaker load terminal. Wire WK1E22 is supplied longer than required, trim off excess wire, allowing sufficient length to join to wire WK1F22 using the supplied crimp connector.


CRIMP WIRE AFTER IT HAS BEEN ROUTED AND TRIMMED.

ATTACH WIRE TO STALL WARNING BREAKER.
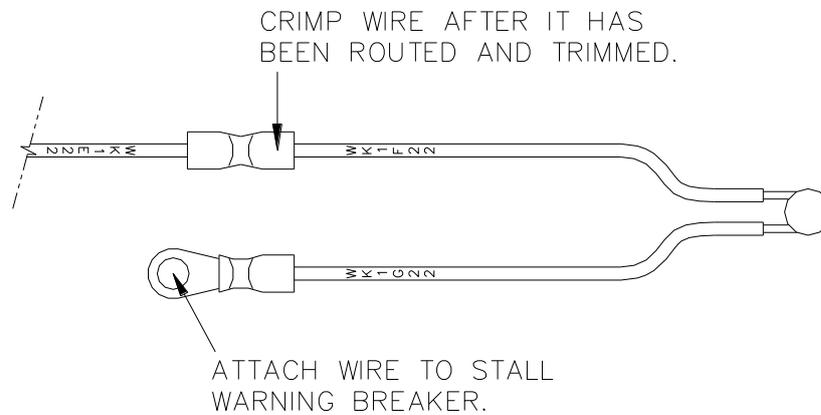
Figure 4 – Final wire installation.

Micro Switch Removal

1. Remove door return spring assembly.

2. Remove and discard existing microswitch and bracket.

3. Ensure that there is at least a 0.25" gap as illustrated in the photograph below.
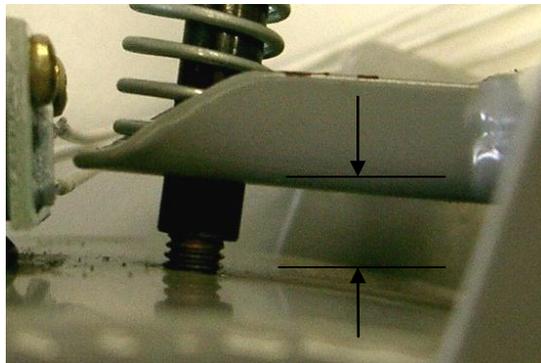
Figure 4: Door return spring bracket clearance.

4. Replace door return spring assembly & lockwire in place.
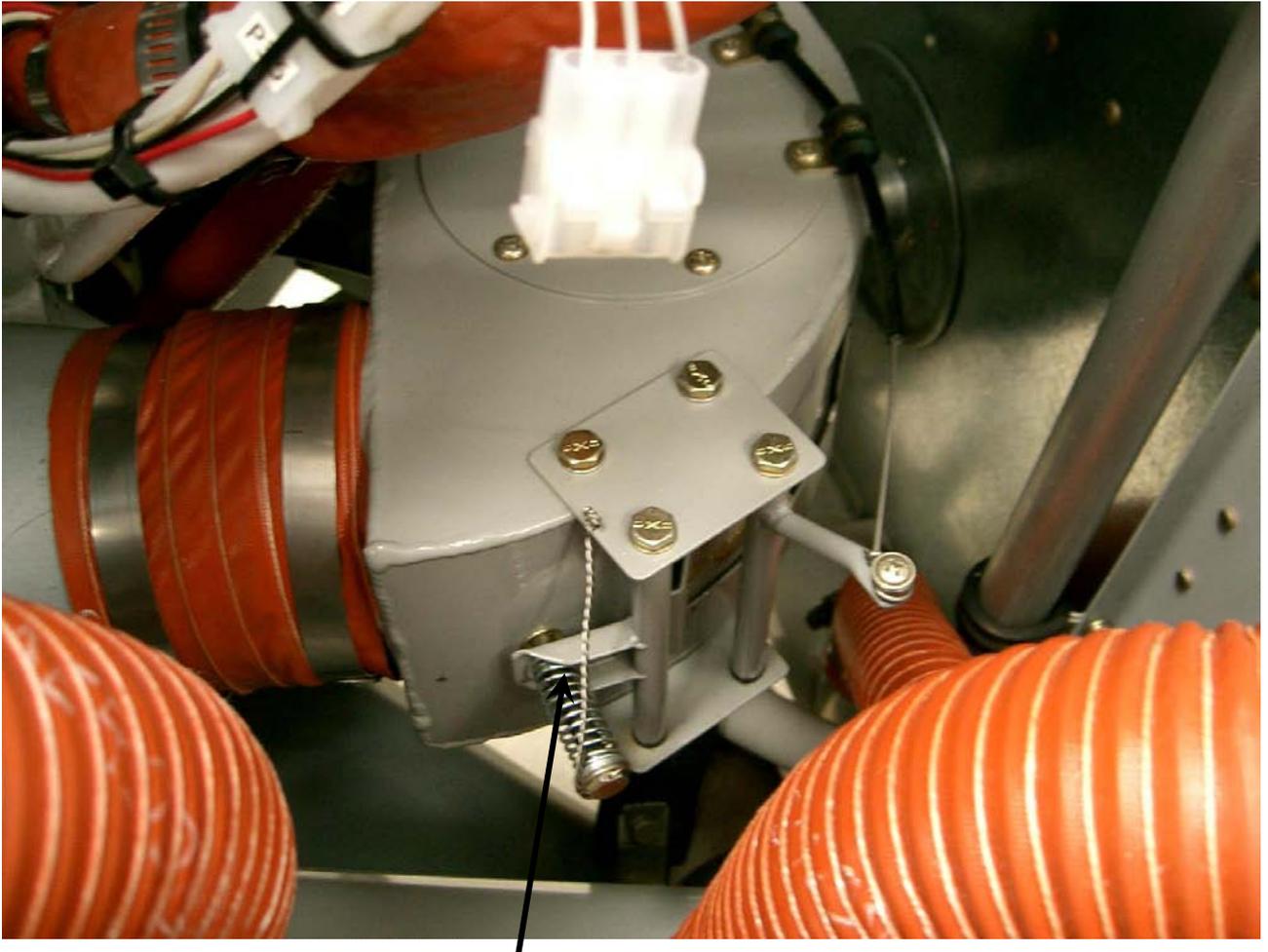
Figure 5: Door return spring bracket, with microswitch assembly removed.

Proximity Switch Installation

1. Using the photographs as a guide (figures 6 & 7), locate the proximity switch as close to the door return spring bracket as possible ensuring that the operation of the door does not bind on the proximity switch.

2. Typically most installations can utilize a gap of 0.050" (1.27mm) gap between the proximity switch sensor and the door return spring bracket.

3. Using sandpaper, roughen surfaces to be bonded. Apply PR to the proximity switch bracket and position in place on the airbox. Ensure that operation of the air box door maintains a minimum clearance between the door return spring bracket and the proximity switch.

4. Clamp the switch in place and check operation of the ALT AIR warning light with actuation of the alternate air door.
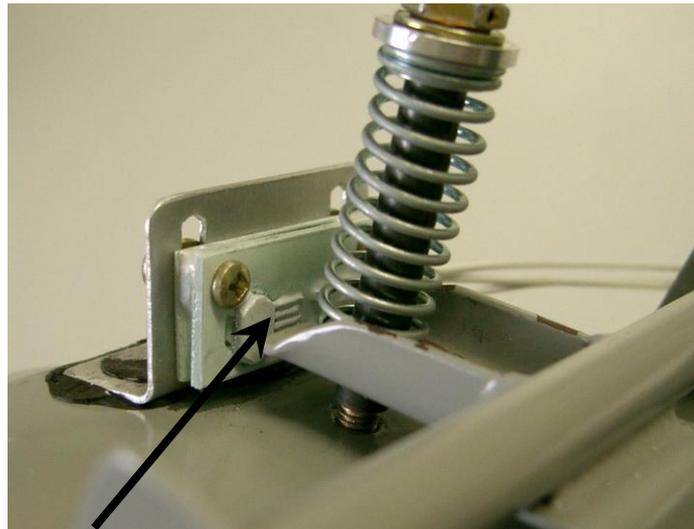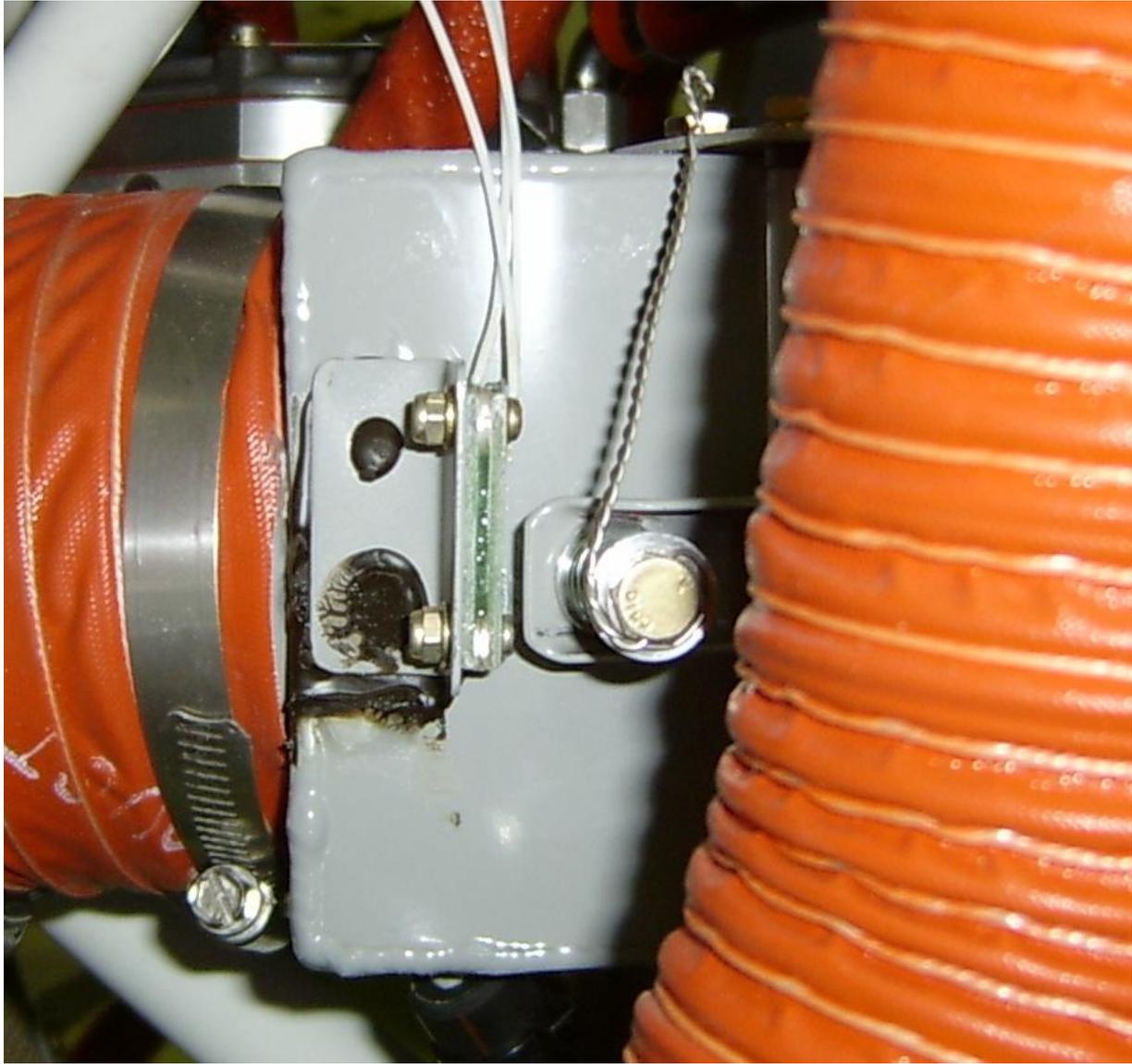
Ensure sensor element is placed in front of metal portion of the door return spring bracket

**Figure 6: Switch bracket installation.**
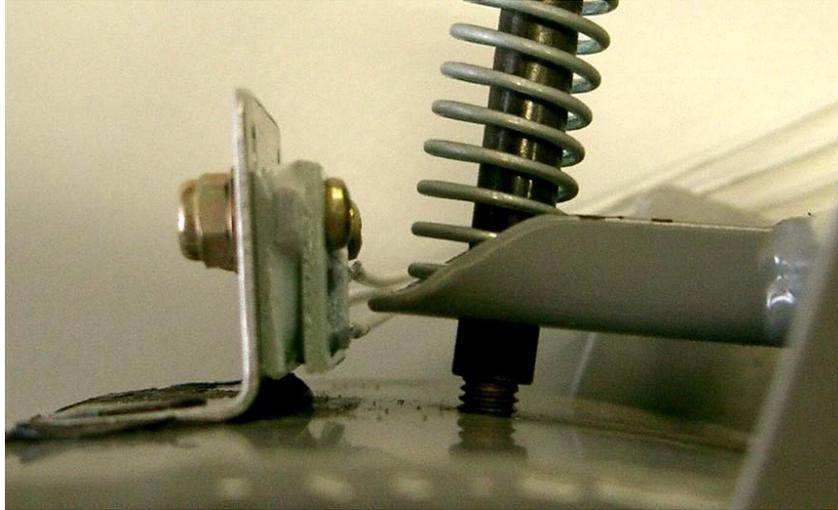
Figure 7: Switch bracket installation.

5. After the PR has cured, the sensor position on the bracket can be adjusted such that the ALT AIR warning light illuminates when the alternate air door is open approximately no more than 0.12" (3mm) when measured at the far end of the door from the proximity switch. Tighten adjustment screws, and recheck the operation of the warning light.

Final Checks

1. Check that a minimum gap exists between the proximity switch and the door return spring bracket, throughout all positions of the door.

2. Check that the ALT AIR warning light illuminates when the alternate air control is actuated.

3. The ALT AIR light maybe illuminated when the battery is first connected. The system can be reset by cycling the alternate air control open, then closed.

Documentation:

Update aircraft log book to reflect incorporation of this Service Bulletin.

Compliance Notice:

Complete the Document Compliance Notice and return to Gippsland Aeronautics by fax or mail.

Aircraft Serial Number: GA8-_____

Service Bulletin SB-GA8-2004-15 has been incorporated for the above aircraft.

Dated:

_____
Signed

Print Name _____

Please post or fax this compliance notice to:

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