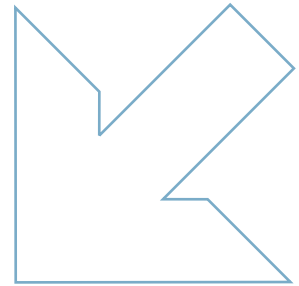




# FCTL check after EFCS reset on ground



**By: Kristjof TRITSCHLER**  
*Flight Safety Manager*  
Germanwings



**Albert URDIROZ**  
*Flight Safety Director*  
Airbus

## 1 | Introduction

Recently, an A320 operated by Germanwings experienced an uncommanded spoiler extension in flight.

On review of this event, the authors felt it was worth writing an article to describe the sequence of events that led to this occurrence, and to highlight the

need to repeat the Flight Control Check after resetting of an EFCS system computer.

Readers interested in the subject may wish to read the paper titled “The importance of the pre-flight Flight Control Check” published in issue #01, dated January 2005, of this magazine.



## 2 | Spoiler fault capture

The aircraft was dispatched with a LH spoiler actuator #5 in faulty condition.

When the crew taxied the airplane, the spoiler anomaly was captured during the pre-flight control checks.

The crew performed roll inputs with the sidesticks and the SEC detected the lack of response of LH spoiler 5 by monitoring the difference between the

order given and the position of the spoiler. The EFCS computer SEC2, that controls spoilers 5, disabled the two spoilers 5 as a pair.

**F/CTL SPOILER FAULT** was triggered, and spoiler shown as FAULT RETRACTED (5) on the ECAM F/CTL page.

Figure 1 illustrates the messages displayed on the F/CTL page of their ECAM.

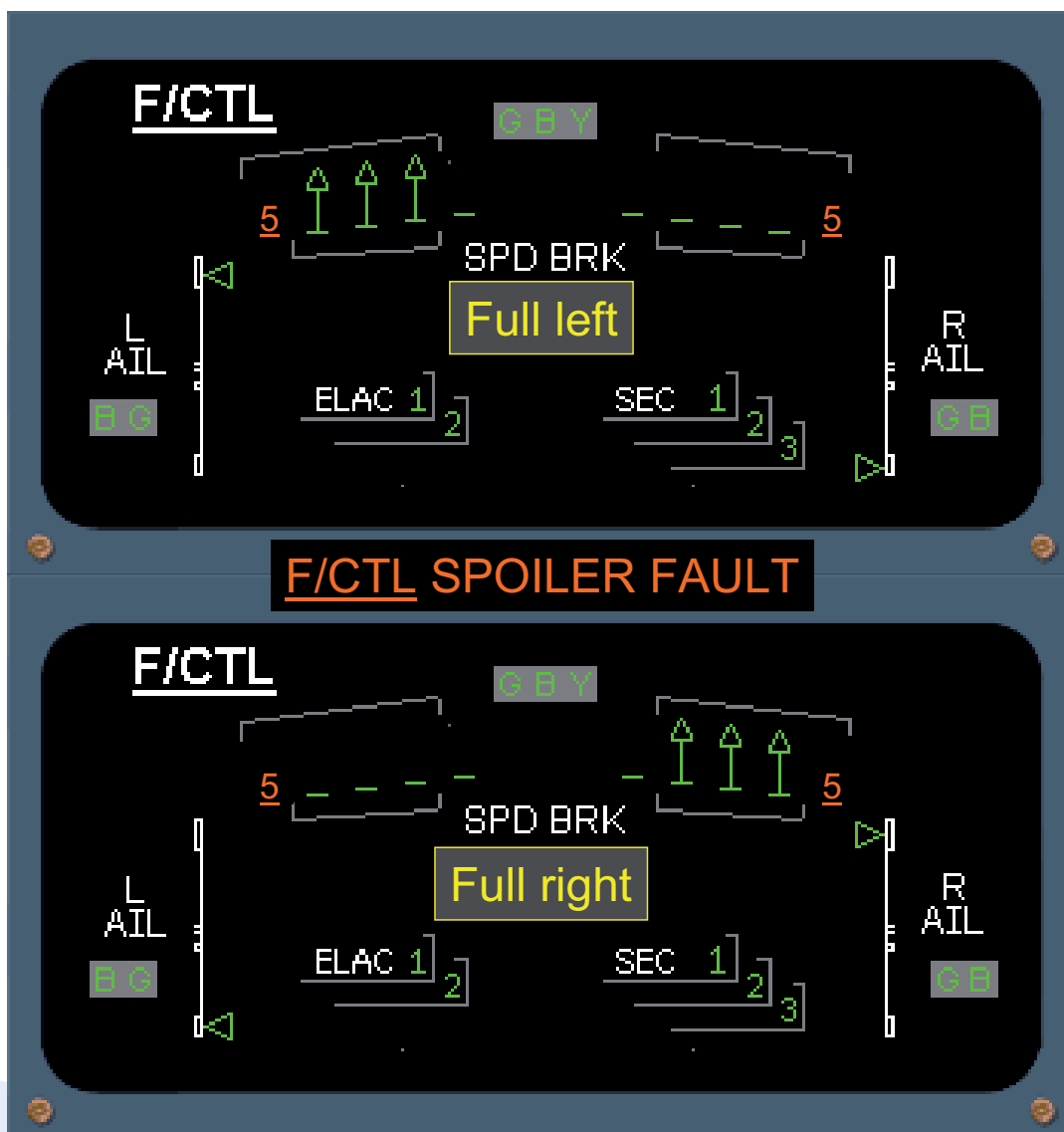
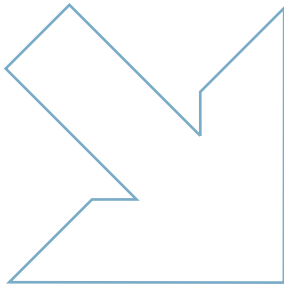


Figure 1: Spoiler 5 fault during F/CTL check





### 3 | SEC reset

The crew reset the SEC in an attempt to recover control of spoilers 5. As a result, ECAM indications went back to normal,

i.e. F/CTL SPOILER FAULT cleared and spoilers 5 were displayed back to GREEN on the F/CTL page (fig.2).

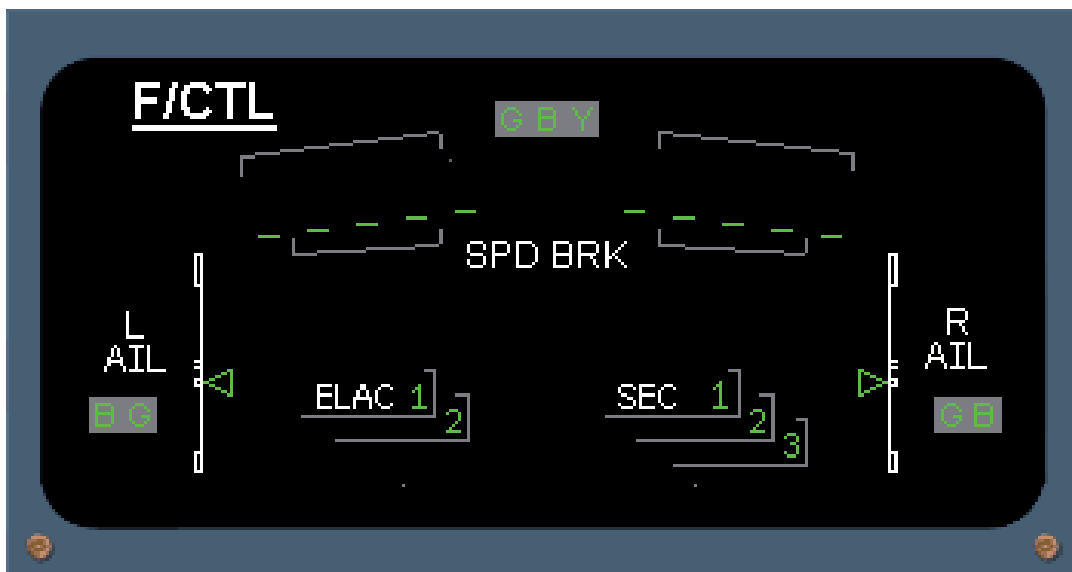


Figure 2: All GREEN after SEC reset

Considering that the systems status was back to normal, the crew then resumed the flight sequence.

### 4 | Consequence of the SEC reset

Through the SEC reset, the monitoring system of the spoilers was reinitialized and this cleared the fault message. The faulty condition, however, remained.

The capture by the monitoring system, based on the difference between given order and position of the flight control, would have required a second flight control check.

Had the crew performed a new flight controls check after the SEC reset, the same spoiler fault ECAM warning would have popped up again.

As the flight resumed, aerodynamic forces extended the faulty LH spoiler, forcing the flight crew to counteract the LH roll tendency.

The ECAM warning SPOILER FAULT did not appear during the take-off run, nor during the early climb, as it is inhibited in phases 3 to 5 (from take-off thrust application to 1 500 feet).

Once in level flight, recordings indicate that about 4° of RH rudder trim was necessary to compensate for the uncommanded spoiler extension. The crew was able to fly to its original destination.

## 5 | FCOM improvement

In order to stress the need to perform a Flight Control Check **after** the resetting on ground of the EFCS, it was decided to add a note in the “ELAC or SEC malfunction” part of the 3.04.24 Computer Reset Table (P5).

On the A320 family program, TR reference 105-1 was issued in June 2007 (fig. 3).

A similar TR reference 568-1 was issued for the QRH 2.38.

These TR have been incorporated in the June 2008 revisions (REV 42) of the A320 family FCOM and QRH.

On the A310/A300-600 and A330/340 programs the note had already been incorporated in their respective FCOM and QRH.

On the A310/300-600, the note concerns the EFCU reset, which controls the spoilers electrically.

*Note: The A380 is, as of today, not concerned by this issue, as FCTL system resets are not authorized.*

|    |                         |             |  |
|----|-------------------------|-------------|--|
| 27 | ELAC or SEC malfunction | ELAC or SEC | <p><b>WARNING :</b><br/>Do not reset more than one computer at a time.</p> <ul style="list-style-type: none"> <li>· It is possible to reset flight control computers in flight, event if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, it is not recommended to reset the ELAC.</li> </ul> <p><b>Note :</b></p> <ul style="list-style-type: none"> <li>· <i>When an ELAC reset is performed on ground the crew must check the pitch trim position.</i></li> <li>· <i>If a reset is performed on ground, the flight crew must then perform a flight control check, as per SOP.</i></li> </ul> |
|----|-------------------------|-------------|--|

Figure 3:  
Extract of TR 105-1

## 6 | Conclusions

This incident, fortunately, did not have any major operational consequence.

It illustrates, however, the message that the authors wish to highlight:

***If a reset of an EFCS or EFCU computer is performed on ground, it must be followed by a flight control check***

Airbus wishes to thank Kristjof Tritschler and Germanwings for their contribution to this article.



# Safety First

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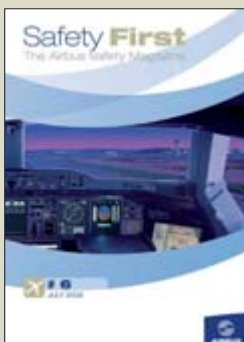
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**Airbus**  
Product Safety department (GS)  
1, rond point Maurice Bellonte  
31707 Blagnac Cedex - France  
Fax: +33(0)5 61 93 44 29  
[safetycommunication@airbus.com](mailto:safetycommunication@airbus.com)



Safety First  
# 06 July 2008

**Safety First is published  
by Airbus S.A.S**  
1, rond point Maurice Bellonte  
31707 Blagnac Cedex / France

**Editor:**  
Yannick Malinge,  
**Vice President Flight Safety**

**Concept Design by**  
MUTI MEDIA SUPPORT 20080635

**Computer Graphic by** Quat'coul

**Copyright:** GSE 420 0279/08

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**Printed in France** by GWLNSD

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