	Safety Alert	
	Flight Design GmbH Zum Tower 4, D-01917 Kamenz Tel.: +49 (0)3578 37335 0 Fax: +49 (0)3578 37335 69 airworthiness@flightdesign.com	SA-LTUL-CTLS-04 Revision 00
	Date of Initial Publication: 19-Dec-2013 Publication Date of this Revision: 19-Dec-2013	

Safety Alert

CTLSi Rotax Redundancy Diagnosis SA-LTUL-CTLS-04

Repeating Symbols:

Please pay attention to the following symbols throughout this document emphasizing particular information.

- ▲ **Warning:** Identifies an instruction, which if not followed may cause serious injury or even death.
- **Caution:** Denotes an instruction which if not followed, may severely damage the aircraft or could lead to suspension of warranty.
- **Note:** Information useful for better handling.

1 Planning Information

1.1 Affected Aircraft

Type: CT
 Model: CTLS
 Series: CTLSi
 Serial Number: All aircrafts with Rotax 912iS installation
 Applicable Countries: Not limited

1.2 Concurrent Documents

- none -

1.3 Reason


The connector systematic used by the Rotax 912 iS engine and Rotax wiring harness allows for a wiring mistake when connecting the regulator boards Lane A and B. The mistake connects regulator board A with engine and the aircraft ground bus. This mistake invalidates the internal redundancy feature of the 912iS engine. It does not lead to a direct malfunction of the engine, and cannot be detected by regular checking routines. It is nevertheless safety critical in case of a single failure on the engine, and therefore requires immediate checking.

1.4 Subject

Diagnosis of the Regulator board A and B connection on the engine Rotax 912iS.

1.5 Compliance

Compliance must be shown prior to next flight.

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▲ Warning: Non-compliance with these instructions could result in further damages, personal injuries or death.

1.6 Approval

Not applicable

1.7 Type of Maintenance

Line

1.8 Personnel Qualifications

Owner/Operator

1.9 Release to Service

Conduct of this SA must be logged in the aircraft log book with date and signature of the responsible person according to the national regulations.

1.10 Weight and Balance

-none-

1.11 References

1. Documents:

- [1] AF 0430 0030_00 – Supplement S1 to the Flight and Maintenance Manual (FMM) CTLSi with ROTAX 912 iS

1.12 Superseded Documents

- none -

1.13 Contact Details

For further information on conduct of this SA, or to report any Safety of Flight or Service Difficulty issues contact your Distributor responsible for your country. Your Distributor can be located via the Flight Design website: www.flightdesign.com under “Dealer Location”.


In cases where the local distributor is not known or available contact Flight Design GmbH directly: airworthiness@flightdesign.com.

1.14 Disclaimer

This Safety Alert has been generated with utmost care. Nevertheless errors and misunderstandings can never be fully excluded. In case of any doubts the applicant of this Safety Alert is requested to contact Flight Design immediately to clarify the issue.

2 Resources

- none -

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2.1 Workshop Conditions

- none -

2.2 Parts

- none -

2.3 Materials

Wire straps for electrical wires fixation

2.4 Tools

Electrical Continuity Tester (e.g. Multimeter)

2.5 Special tools

- none -

2.6 Manpower

The described task can be performed within approximately 1 hours (working time).

2.7 Cost

Not applicable

3 Instructions

3.1 General

This chapter provides extended explanations for the sequential checking steps.

3.2 Detailed Procedure

3.2.1 Verify

- Backup Power Switch OFF
- Ignition set to OFF, Key removed
- Master BAT + Master GEN Circuit Breaker OFF

3.2.2 Remove Upper and Lower Engine Cowlings

Refer [1].

3.2.3 Perform Electrical Continuity Test

Identify the fuse box on the right side of the firewall (in flight direction). See Fig.1.

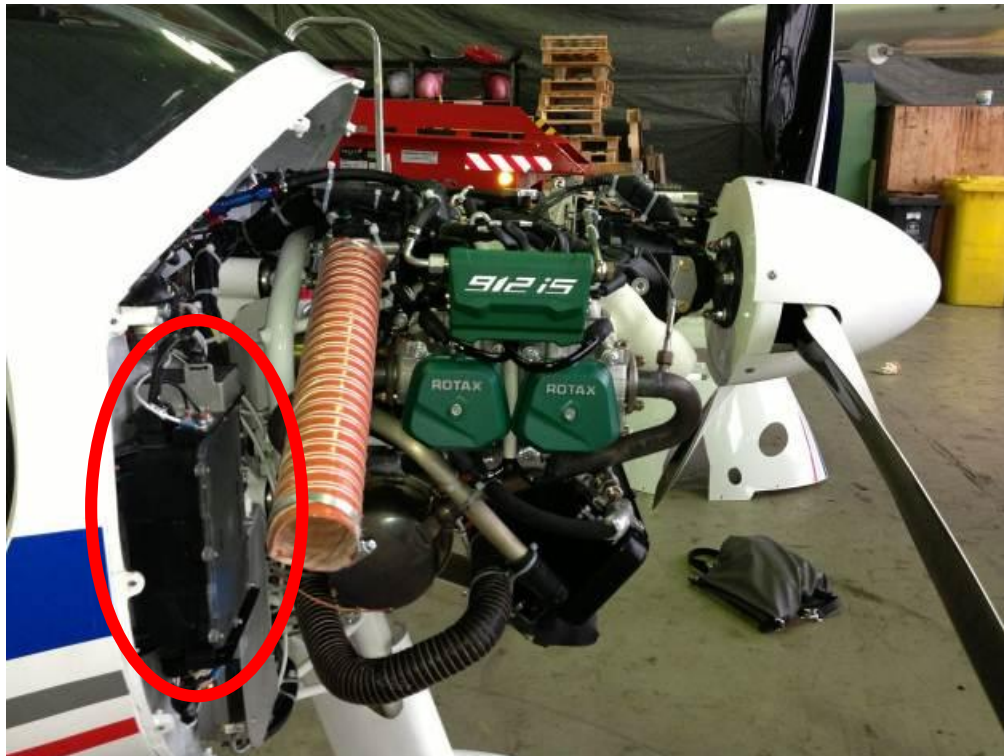
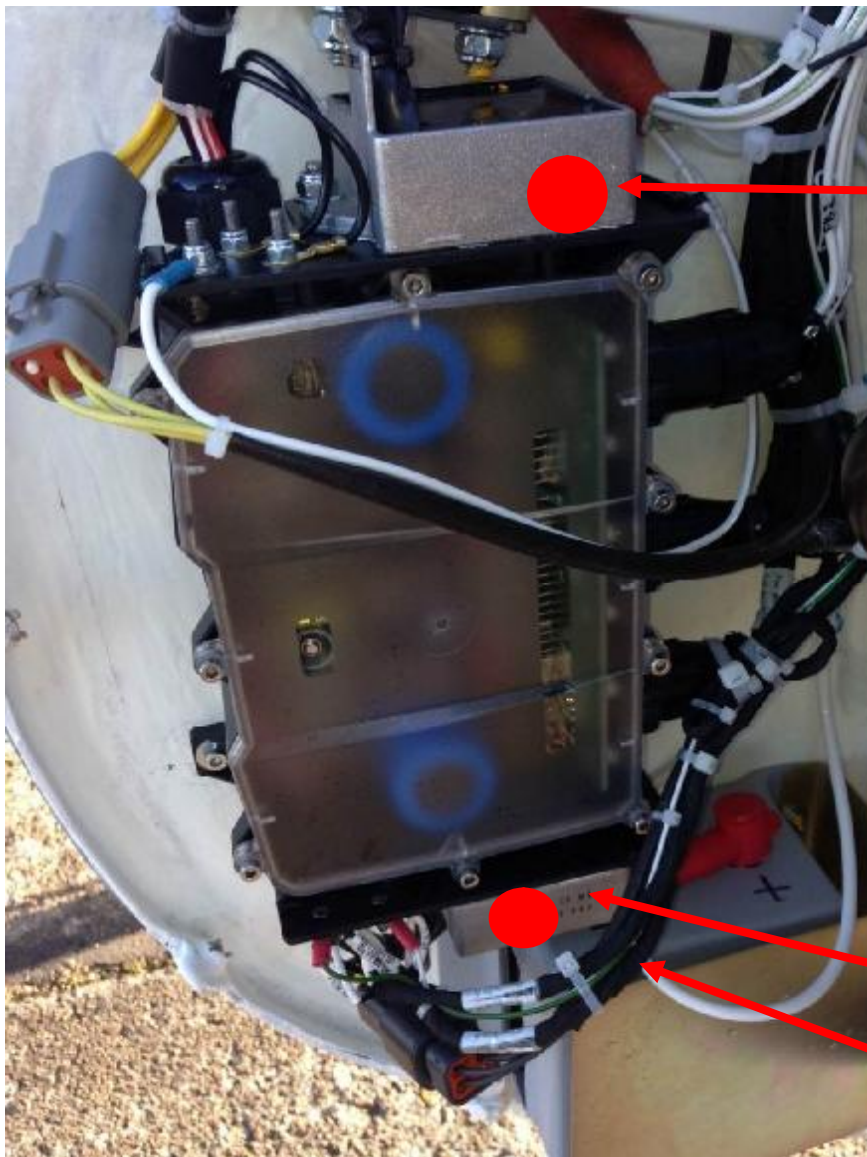


Fig.1

Use a Multimeter to verify electrical ground connection between the regulator Board A and B (red marked points on the Fig.2).



Regulator Board B
electrical Ground

Regulator Board A
electrical Ground


Regulator Board A
Ground Wires

Fig.2

There **must not** be an electrical connection between Regulator Board A electrical ground and Regulator Board B electrical ground.

▲ Warning: Do not operate the aircraft if there is an electrical ground connection between Regulator Board A and B.

If there is ground contact, the reason may be that the Lane A harness ground wires are wrongly connected with Lane B regulator board (upper regulator, above the fuse box). In this case, remove the Lane A wiring harness end (also marked with a label as "Lane A") from the Lane B regulator board. Connect this wiring harness end to the Lane A regulator board, which is the one below the fuse box. Fig. 2 shows the correct step. Re-do the test with the multimeter as above. The aircraft may be operated again, when there is no more ground contact between the two regulator boards. If the problem persists, please contact Flight Design for further instruction.

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3.2.4 Additional Harness Fixation

To avoid the possibility for a re-occurrence of this mistake, add an additional harness fixation to the questionable harness end that makes connection to the wrong board physically impossible.

Check Lane A ground wires length: it has to be short enough so that it cannot be connected inadvertently to Regulator Board B during maintenance. If the wires are too long, additionally fix Lane A ground wires to existing engine/battery ground wires using wire strap following Fig.3.

Check that all wires are secured properly and protected from unintentional damages. Cut extra length of wire strap. Make sure it is removed from the engine compartment.

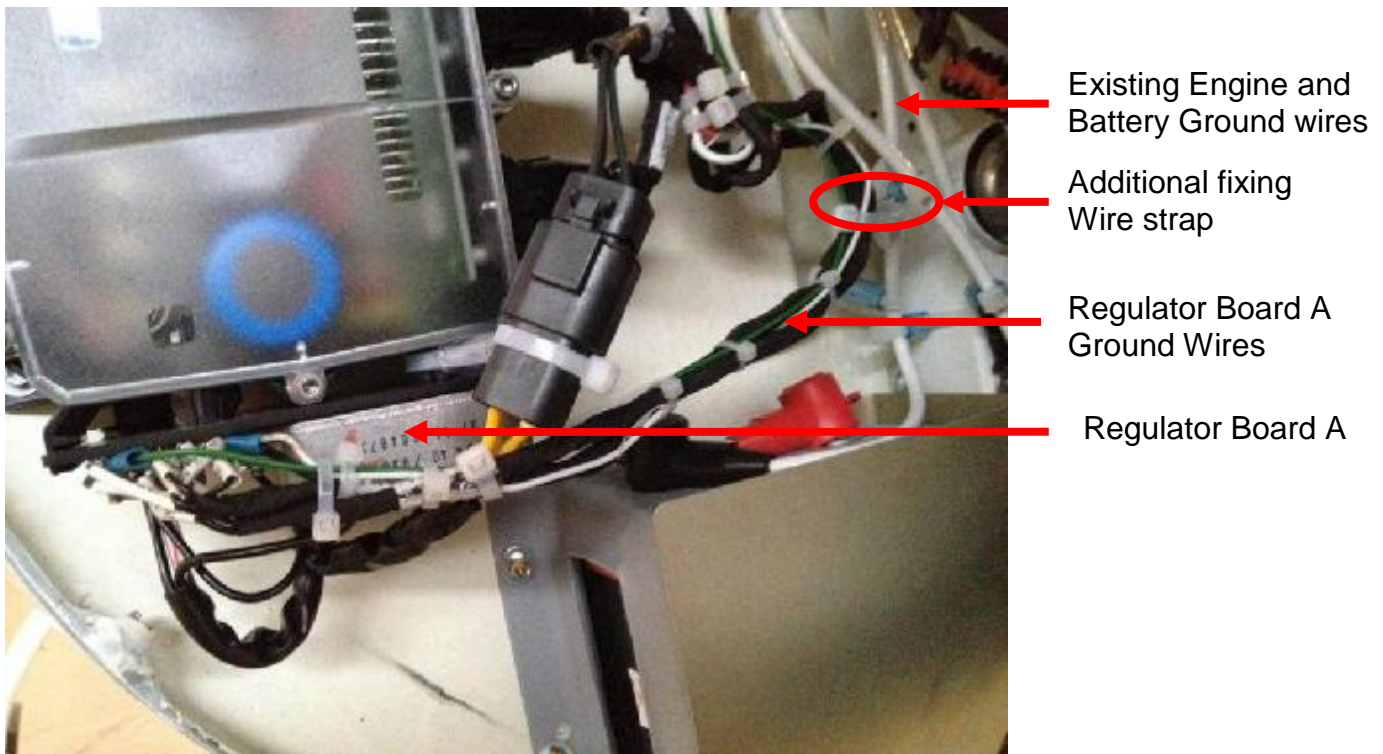


Fig.3

3.2.5 Reinstall Cowlings

Refer [1].


3.3 Documentation

Conduct of this SA must be logged in the aircraft log book with date and signature of the responsible Person conducting the SA. National regulations have to be considered.

4 Appendix

4.1 Changes to Previous Revision

Original Issue – no changes

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4.2 Feedback Template

No specific feedback template required.