

## ALERT SERVICE BULLETIN

# The use of lithium-ion batteries in combination with the ROTAX® Engine Type 912 i Series

ATA System: 24-00-00 Electric System

### MANDATORY

#### 1) Planning information

To obtain satisfactory results, procedures specified in this publication must be accomplished with accepted methods and prevailing legal regulations.

BRP-Powertrain GmbH & Co KG. cannot accept any responsibility for the quality of work performed in accomplishing the requirements of this publication.

##### 1.1) Applicability

All engines of the 912 i Series are affected, which are operated with a lithium-ion battery without a suitable battery management system and to which at least one of the following criteria applies:

##### Criterion A) engine serial number:

| Engine type           | Serial number  |
|-----------------------|--|
| 912 iS / 912 iS Sport | from S/N 4 417 001 up to S/N 4 417 400 inclusive<br>from S/N 7 703 001 up to S/N 7 703 366 inclusive |

These engines have been delivered with the Installation Manual 912 i Series Edition 1 / Rev. 0 or Rev. 1, which did not contain a reference to the mandatory use of a battery management system in case of lithium-ion batteries.

##### Criterion B):

Engines of the 912 i Series which are not included in the serial number range of criterion A and will be installed in an aircraft the type approval of which is based on the Installation Manual 912 i Series Edition 1 / Rev. 0 or Rev. 1.

This serves only as an information as the demand for a battery management system when using lithium-ion batteries is already included in the Installation Manual 912 i Series Edition 1 / Rev. 2 or newer delivered with these engines.

##### 1.2) Concurrent ASB/SB/SI and SL

In addition to this Alert Service Bulletin the following Service Bulletins must be observed and complied with:

Service Bulletin-SB-912 i-000, title „Publication index“, latest edition.

Service Bulletin-SB-912 i-004iS, title „Replacement of regulator A and regulator B“, latest edition.

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## 1.3) Reason

In general, it is observed that more and more lithium-ion batteries are used instead of lead-acid batteries in aircraft. Batteries based on Lithium technology must be operated within a tightly specified range (no over-voltage, high temperatures, short circuits...). Additionally there are important specifications and safety notices of each battery manufacturer that must be observed.

All ROTAX aircraft engines can only be operated with Lithium-ion batteries if a suitable battery management system qualified by the aircraft manufacturer is used in the aircraft.

This is necessary to protect the electrical system of the aircraft against any occurring current and/or voltage anomalies from the engine side.

### **WARNING**

Non-compliance with these instructions could result in engine damages, personal injuries or death.

The safety instructions of the battery manufacturer indicates that operation of lithium-ion batteries outside of the specified operating range may lead to heavy smoke, leakage of dangerous chemicals, fire or explosion.

## 1.4) Subject

The use of lithium-ion batteries in combination with the ROTAX® Engine Type 912 i Series.

## 1.5) Compliance

- Before next flight check and confirm whether a suitable battery management system is used when using lithium-ion batteries. If necessary contact the aircraft manufacturer.

NOTE: Ensure compliance with the requirements of the Installation Manual, if using lithium-ion batteries in the aircraft: in each case it must be clarified with the aircraft manufacturer.

### **WARNING**

Non-compliance with these instructions could result in engine damages, personal injuries or death.

## 1.6) Approval

not necessary.

## 1.7) Labor time

Estimated labor time:

engine installed in the aircraft - - - labor time will depend on installation and therefore no estimate is available from the engine manufacturer.

## 1.8) Mass data

change of weight - - - none

moment of inertia - - - unaffected

## 1.9) Electrical load data

no change

## 1.10) Software modifications

no change

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## 1.11) References

In addition to this technical information refer to current issue of

- Operators Manual (OM)
- Installation Manual (IM)

NOTE: The status of the Manuals can be determined by checking the table of amendments. The 1<sup>st</sup> column of this table shows the revision status. Compare this number to that listed on the ROTAX WebSite: [www.FLYROTAX.com](http://www.FLYROTAX.com). Updates and current revisions can be downloaded for free.

## 1.12) Other Publications affected

none

## 1.13) Interchangeability of parts

- not affected

## 2) Material Information

### 2.1) Material- cost and availability

Price and availability will be provided on request by ROTAX® Authorized Distributors or their Service Centers.

### 2.2) Company support information

- Any possible support by BRP-Powertrain will be provided on request by ROTAX® Authorized Distributors or their Service Centers.
- Shipping costs, downtime costs, loss of income, telephone costs etc. or costs of conversion to other engine versions or additional work, as for instance simultaneous engine overhauls are not covered in this scope and will not be borne or reimbursed by ROTAX®.

### 2.3) Material requirement per engine

not affected

### 2.4) Material requirement per spare part

not affected

### 2.5) Rework of parts

none

### 2.6) Special tooling/lubricant-/adhesives-/sealing compound/price and availability

none

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## 3) Accomplishment/Instructions

NOTE: Before maintenance, review the entire documentation to make sure you have a complete understanding of the procedure and requirements.

**Accomplishment** All measures must be implemented and confirmed by at least one of the following persons or organizations:

- Aircraft manufacturer or respective service organization

### 3.1) Instructions

| Step | Procedure   |
|------|---|
| 1    | Check the criteria given in section 1.1, if the aircraft is affected by this Alert Service Bulletin.                  |
| 2    | Check the engine logbook and maintenance documentation, if this Alert Service Bulletin has already been accomplished. |

### 3.2) Clarification

It has to be clarified in consultation with the appropriate aircraft manufacturer if the aircraft, when using lithium-ion batteries, meets the requirements of the Installation Manual 912 i Series Edition 1 Rev. 2 or newer.

### 3.3) Correction of possible deviations

The measures taken to correct any possible deviations are the responsibility of the aircraft manufacturer and shall be determined by them.

### 3.4) Finishing work

Determined by the aircraft manufacturer.

### 3.5) Test run

Determined by the aircraft manufacturer.

### 3.6) Summary

These instructions (section 3) have to be followed in accordance with the deadlines specified in section 1.5.

The execution of the mandatory Alert Service Bulletin must be confirmed in the logbook.

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### 3.7) Enquiries

Enquiries regarding this Alert Service Bulletin should be sent to the ROTAX® authorized distributor of your area.

A list of all distributors is provided on [www.FLYROTAX.com](http://www.FLYROTAX.com).