

SERVICE INSTRUCTION

Engine operation in case of crank bias indication for ROTAX® 912 i Sport (Series) Aircraft Engines

ATA System: 76-10-00 Engine Control Unit

1) Planning information

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

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

1.1) Applicability

Criterion A) Engine S/N:

All versions of certified ROTAX® engine types:

Engine type	Serial number
912 iSc Sport	from S/N 10000476 included

All versions of ASTM compliant ROTAX® engine types:

Engine type	Serial number
912 iS Sport	from S/N 10000349 included

Criterion B) Spare parts:

Further, all engines are affected which have been equipped with the following part no.:

- 881252 ENGINE CONTROL UNIT ASSY. PACKAGED
- 665568 ENGINE CONTROL UNIT

during engine repair, maintenance or general overhaul, delivered as spare parts from S/N 23.0084 included.

1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Instruction the following documents must be observed:

- SI-912 i-002, SI-915 i-002, SI-916 i-002, SI-914-038, B.U.D.S. Aircraft Installation Instructions and Update for ROTAX Engine Types 916 i, 915 i, 912 i and 914 (Series).
- in general all relevant Alert Service Bulletins (ASB), Service Bulletins (SB), Service Instructions (SI), Service Letters (SL), Service Instruction - Parts and Accessories (SI-PAC) with relevance to perform this maintenance, repair or overhaul task.

1.3) Reason

In isolated cases a crank bias error leading to a warning light permanently ON during the starting procedure (engine not running) can appear.

1.4) Subject

Engine operation in case of crank bias indication for ROTAX® 912 i Sport (Series) Aircraft Engines

1.5) Compliance

If a documented Crank Bias Fault is identified, perform a power cycle of the ECU (disconnect + re-connect power supply) in accordance with the following instructions in section 3.3.

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SERVICE INSTRUCTION

1.6) Approval

For certified engines the technical content of this document is approved under the authority of the DOA ref. EASA.21J.048.

For ASTM compliant engines the technical content of this document is approved under the relevant processes of the effective BRP-Rotax quality management system.

Content concerning certified engine types also applies to ASTM compliant engine types.

1.7) Labor time

Estimated labor hours:

Engine installed in the aircraft - - - labor time will depend on airframe 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.

1.11) References

In addition to this technical information refer to current issue of

- in general Illustrated Parts Catalog (IPC) and in particular:
Chapter 76-10-00
- in general Operators Manual (OM)
- in general Installation Manual (IM) and in particular:
Chapter 76-00-00
- in general Maintenance Manual Line (MML) and in particular:
Chapters 05-00-00 and 12-20-00
- in general Maintenance Manual Heavy (MMH) and in particular:
Chapter 76-10-00

NOTE: The status of the Manuals can be determined by checking the table of amendments. The 1st column of this table shows the revision status. Compare this number to the one listed on the ROTAX website:

www.flyrotax.com. Updates and current revisions can be downloaded for free.

1.12) Other Publications affected

None.

1.13) Interchangeability of parts

- all used parts are unserviceable and must be returned FCA (Free Carrier) to ROTAX® authorized distributors or their independent Service Centers

SERVICE INSTRUCTION

2) Material Information

2.1) Material

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

2.2) Company support information

- Any possible support by BRP-Rotax will be provided on request by ROTAX® Authorized Distributors or their independent Service Centers.

2.3) Material requirement per engine

None

2.4) Material requirement per spare part

None

2.5) Rework of parts

None.

2.6) Special tooling/lubricants- /adhesives- /sealing compounds

New part no.	Qty/engine	Description	Application
864023	(1)	B.U.D.S. SET LEVEL 3	ECU configuration
864022	(1)	B.U.D.S. SET LEVEL 2	ECU configuration
SW-009	A.R.	BRP Utility and Diagnostic Software B.U.D.S. Aircraft 4.1.0	ECU configuration

NOTE: Special tooling is only required in case of further maintenance according to the Maintenance Manual Line (MML) or Maintenance Manual Heavy (MMH).

SERVICE INSTRUCTION

3) Accomplishment/Instructions

ROTAX® reserves the right to make any amendments to existing documents, which might become necessary due to this standardization, at the time of next revision or issue.

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:

- ROTAX® - Airworthiness representatives
- ROTAX® - Authorized Distributors or their independent Service Centers
- Persons approved by the respective Aviation Authorities
- Persons with approved qualifications for the corresponding engine types. Only authorized persons (iRMT, Level Heavy Maintenance) are entitled to carry out this work
- Persons with type-specific training

NOTE: Indicates supplementary information which may be needed to fully complete or understand an instruction.



All work has to be performed in accordance with the relevant ROTAX® Instructions for Continued Airworthiness (ICA) of the respective engine type.

General

Further material on general inspection, maintenance and repair can also be found in relevant Advisory Circular AC 43.13 from FAA.

Advisory Circular

The Advisory Circular (AC) contains maintenance methods, techniques and practices.

Procedure

3.1) Illustrated Parts Catalog - related information



See current Illustrated Parts Catalog (IPC) of the respective engine type, Chapter 76-10-00.

3.2) Installation - related information



See current Installation Manual (IM) of the respective engine type, Chapter 76-00-00.

SERVICE INSTRUCTION

3.3) Operation - related information

- A diagnostic function to check all the engine systems is supplied within the ROTAX® engine.
- When the voltage supply is switched ON (engine not running), both lamps are automatically subject to a functional test. Both lamps illuminate for around 3 seconds and then extinguish. If one of the two warning lamps start to flash, fail to illuminate, or still illuminates after a few seconds, then this indicates an anomaly operation.
- A power cycle of the ECU (Disconnect + Re-connect power supply) is required. If the problem disappears, than no further action is required. If the problem remains, than contact your local ROTAX® Authorized Distributor or their independent Service Centers.



See current Operators Manual (OM) of the respective engine type.
See also Aircraft Flight Manual (AFM) / Pilot Operating Handbook (POH).

3.4) Maintenance (Line) - related information

In particular cases, depending on the grounding system of the aircraft and the time when the engine was not powered before, the warning lamps are lighting continuously and do not disappear.

If the Display shows one of the following faults description:

- Crank Bias Negative Fault
- Crank Bias Positive Fault

A power cycle of the ECU (Disconnect + Re-connect power supply) is required. If the problem disappears, than no further action is required. If the problem remains, than contact your local ROTAX® Authorized Distributor or their independent Service Centers



See current Maintenance Manual Line (MML) of the respective engine type, Chapter 12-20-00.

3.5) Maintenance (Heavy) - related information

If the troubleshooting does require to change the ECU please contact your local ROTAX® Authorized Distributor or their independent Service Centers.



See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 76-10-00.

3.6) Finishing work

- Restore aircraft to original operating configuration.
- Connect negative terminal of aircraft battery.

SERVICE INSTRUCTION

3.7) Test run

Conduct test run.



See Chapter 12-20-00 of the latest Maintenance Manual Line (MML) for the respective engine type.

3.8) Summary

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

NOTE: Work on EASA certified parts might affect the EASA Form 1 and does require appropriate documentation by authorized persons. Repairs must be entered into the engine logbook and also do apply for the EASA Form 1.

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A revision bar outside of the page margin indicates a change to text or graphic.

Translation into other languages might be performed in the course of language localization but does not lie within ROTAX® scope of responsibility.

In any case the original text in English language and the metric units are authoritative.

3.9) Inquiries

Inquiries regarding this Service Instruction should be sent to the ROTAX® Authorized Distributor of your area.

A list of all ROTAX® Authorized Distributors or their independent Service Centers is provided on <https://dealerlocator.flyrotax.com>.

NOTE:

The illustrations in this document show the typical construction. They may not represent full detail or the exact shape of the parts which have the same or similar function.

Exploded views are not technical drawings and are for reference only. For specific detail, refer to the current documents of the respective engine type.