

SERVICE INSTRUCTION - PAC

Electric starter relay assy. for ROTAX® Aircraft Engines

ATA System: 80-00-00 Electric starter

1) Planning information

“PAC” Service Instruction Documents provide detailed information on ROTAX® Aircraft Engine Parts and Accessories. Depending on the engine type used with referenced parts and accessories may be provided with or without EASA certification or ASTM compliance. Certification / Compliance of referenced Parts and Accessories must in such cases be completed by the aircraft OEM.

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

Refer to the latest issue of the relevant Illustrated Parts Catalog of your specific engine type.

NOTICE

The electric starter relay assy. is on some ROTAX® Aircraft Engines not be a part of the Engine Type Design. Such a PAC part has been then tested and released by BRP-Rotax, but it might not be certified for the relevant engine type.

In such a case the correct function in conjunction with the entire system is the responsibility of the aircraft manufacturer and must be carried out jointly with the aircraft.

1.2) Concurrent ASB/SB/SI and SL

None.

1.3) Reason

In the course of product maintenance and expansion of our spare parts program, an electric starter relay assy. is available.

1.4) Subject

Electric starter relay assy. for ROTAX® Aircraft Engines.

1.5) Compliance

None - For Information Only.

1.6) Approval

None.

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.

d06825.fm

SERVICE INSTRUCTION - PAC

1.10) Software modifications

No change.

1.11) References

In addition to this technical information refer to current issue of

- Operators Manual (OM)
- Illustrated Parts Catalog (IPC)
- Installation Manual (IM)
- Maintenance Manual Line (MML)
- Maintenance Manual Heavy (MMH)

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 parts are interchangeable

SERVICE INSTRUCTION - PAC

2) Material Information

2.1) Material- cost and availability

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

Parts requirement for installation*:

Fig. no.	Part no.	Qty/ engine	Description	Application
1	992818	1	Electric starter relay assy.	
consist of:				
	242214	2	Hex. nut M6	Electric starter relay
	945831	2	Lock washer A6	Electric starter relay

* for further material and procedures to install starter relay assy. in the aircraft check with aircraft manufacturer's instructions for continued airworthiness.

2.4) Material requirement per spare part

None.

2.5) Rework of parts

None.

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

None.

SERVICE INSTRUCTION - PAC

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® - Authorized Distributors or their independent Service Centers
- Persons with approved qualifications for the corresponding engine types. Only authorized persons (iRMT, Level minimum Line Maintenance) are entitled to carry out this work.



See current Installation Manual for the respective engine type.

General

All general inspection, maintenance and repair has to be carried out e.g. in accordance with relevant Advisory Circular AC 43.13 from FAA.

Advisory Circular

This Manual "Advisory Circular" AC describes maintenance methods, techniques and practice. These are recognized and authorized for inspection and repairs in non-pressurized areas for which there are no separate maintenance and repair instructions.

3.1) Illustrated Parts Catalog - related information



See current Illustrated Parts Catalog (IPC) for the respective engine type.

3.2) Installation - related information



See current Installation Manual (IM) for the respective engine type.



The minimum cable cross-section for the wire from the battery to the electric starter relay assy. and from there to the electric starter and for the ground wire (start system) depends on the wire length "l" (= Sum of the supply wire and ground wire of the electric starter) and has to be calculated according to the table found in the Installation Manual (IM), Chapter 80-00-00.



See aircraft manufacturer's instructions for continued airworthiness for the respective aircraft and engine type.

d06825.fm

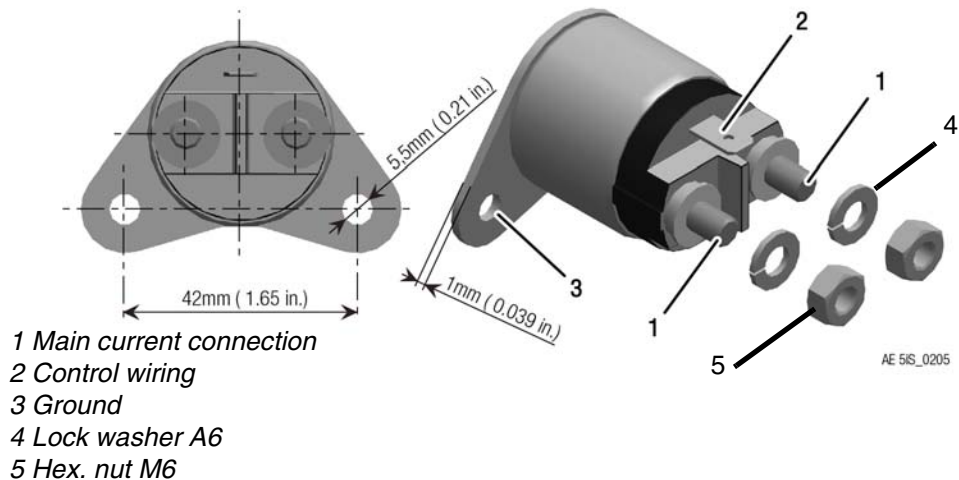
SERVICE INSTRUCTION - PAC

3.2.1) Electric starter relay assy. technical data

NOTICE

Activation of electric starter relay assy. limited to short duration. The duty cycle over an interval of 4 minutes is 25%.

NOTE: For ROTAX® 912 iS Sport (Series) and ROTAX® 915 iS A (Series) an electric starter relay assy. must be installed isolated from airframe ground.



Electric starter relay

Nominal voltage	12 V/DC
Control voltage	Min. 6 V / Max. 18 V
Switching current	Max. 75 A (permanent) Max. 300 A/1 s (short duration)
Permissible ambient temperature	Min. -40 °C (-40 °F) / Max. +100 °C (212 °F)
Weight	See Installation Manual (IM) Chapter 72-00-00 section Weight.
Main current connections	M6 screw connection (Tightening torque 4 Nm (35 in. lb) suitable for wire terminals according to DIN46225 (MIL-T-7928; PIDG or equivalent).
Control wiring	6.3x0.8 plug connector suitable for Faston connector (female) according to DIN 46247(MIL-T-7928; PIDG or equivalent).
Grounding	For ROTAX® 912 iS Sport (Series) and ROTAX® 915 iS A (Series) the must be installed isolated from the airframe ground. For ROTAX® 912 (Series) and ROTAX® 914 (Series) the relay housing is normally connected to airframe ground (see relevant Installation Manual).

d06825.fm

SERVICE INSTRUCTION - PAC

3.3) Operation - related information

NOTICE

Activation of electric starter relay assy. limited to short duration. The duty cycle over an interval of 4 minutes is 25%.



See current Operation Manual (OM) for the respective engine type.

3.4) Maintenance (Line) - related information

Points of inspection	Interval Operating hours	Chapter Reference
	100 h	
Visual inspection of the electric starter relay assy. and wiring connection for secure fit, damage and signs of wear.	X	See current Maintenance Manual (Line) for the respective engine type and its periodical maintenance information.

3.5) Maintenance (Heavy) - related information



See current Maintenance Manual Heavy (MMH) for the respective engine type.

3.5.1) Electric starter relay assy - removal

To remove the electric starter relay assy. the following steps are necessary:

See [Fig. 1](#).

Preparation

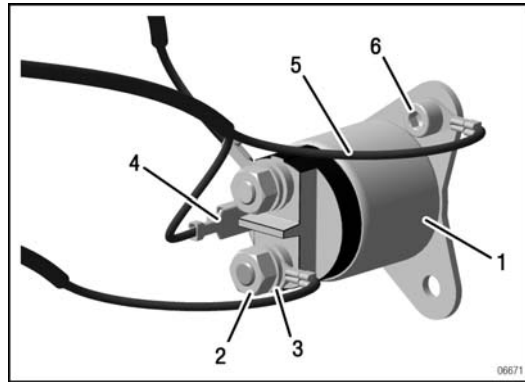
- Switch the ignition key OFF
- Disconnect the battery (negative terminal)

Step	Procedure
1	Loosen the M6 Hex. nut and remove it along with the 6.4 washer. Pull off faston connector. Press the lock to pull off the faston connector.
2	Loosen the ground Allen screw.

d06825.fm

SERVICE INSTRUCTION - PAC

TYPICAL (ROTAX® 912 iS Sport (Series) and ROTAX® 915 iS A (Series))



- 1 Electric starter relay assy.
- 2 Hex. nut M6
- 3 Washer 6.4
- 4 Faston connector
- 5 Ground
- 6 Allen screw

Fig. 1

3.5.2) Electric starter relay - installation

To install the electric starter relay assy. for 912 iS Sport and 915 iS A (Series) the following steps are necessary:

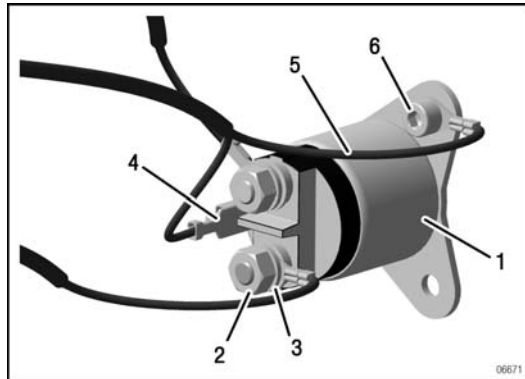
See Fig. 2.

Preparation

- Disconnect the battery (negative pole)

Step	Procedure
1	Attach the electric starter relay assy. securely to a position that is isolated from both airframe ground and EMS ground. NOTE: The starter relay's isolated ground connection is supplied via the wiring harness and must be attached via one of the starter relay mounting tabs.
2	Connect power supply wires (1) and secure with washers A6 (3) and Hex. nut M6. Tightening torque 4 Nm (35 in. lb) NOTE: See technical data provided in section 1.5.1 above, Installation Manual (IM) for the respective engine type and Aircraft manufacturer documentation for appropriate wire size and connector type selection.
3	Connect wiring harness control wiring positive + wire (2).

TYPICAL (ROTAX® 912 iS Sport (Series) and ROTAX® 915 iS A (Series))



- 1 Electric starter relay assy.
- 2 Hex. nut M6
- 3 Washer 6.4
- 4 Control wire Positive + (wiring harness)
- 5 Starter relay assy. ground (wiring harness)
- 6 Allen screw

Fig. 2

d06825.fm

SERVICE INSTRUCTION - PAC

NOTICE

Engine type ROTAX® 912 iS Sport and ROTAX® 915 iS A electric starter relay assy. housing and mounting tabs must be isolated from both airframe ground and EMS ground. For ROTAX® 912 (Series) and ROTAX® 914 (Series) the relay housing is normally connected to airframe ground (see relevant Installation Manual).

3.6) Test run

In case of uninstalled engines test run can be skipped as this is covered by the mandatory test run after installation.



Conduct test run and perform leakage check. See current Maintenance Manual Line for the respective engine type, Chapter 12-20-00.

3.7) Summary

The execution of the Service Instruction - PAC must be confirmed in the logbook.

I 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.

3.8) Inquiries

Inquiries regarding this Service Instruction - PAC 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 www.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.