

Oil radiator/-sets for ROTAX® Aircraft Engines

ATA System: 79-00-00 Lubrication system

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 oil radiator may be declared as part of the oil system on aircraft-side and so might 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

In addition to this Service Instruction - PAC the following SI-PAC should be considered:

- SI-PAC-013, title “Oil system connectors”, current issue.

1.3) Reason

In the course of continuous development and standardization, a oil radiator/-sets has been introduced as an optional extra part.

1.4) Subject

Oil radiator/-sets 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.

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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

- 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 that 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 replacement parts within the same size are interchangeable without limitation with the current equivalent part of the same size. See also the requirements for installation and maintenance in Chapter 3.2, 3.3 and 3.4.

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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

None.

2.4) Material requirement per spare part

Parts requirement OLD VERSION:

Part no.	Qty/ engine	Description	Application
886000	1	Oil radiator	"small"
886002	1	Oil radiator	"medium"
886004	1	Oil radiator	"large"
886106	1	Oil radiator	"extra large"
886032	1	Oil radiator set	metric connections
consist of:			
886000	1	Oil radiator	
242873	4	Hex nut M22x1.5	Oil radiator
230387	2	Gasket ring 14.2/18/2	Oil radiator
840461	2	Nipple 13.2/9.5	Oil radiator
886033	1	Oil radiator set	metric connections
consist of:			
886002	1	Oil radiator	
242873	4	Hex nut M22x1.5	Oil radiator
230387	2	Gasket ring 14.2/18/2	Oil radiator
840461	2	Nipple 13.2/9.5	Oil radiator
886034	1	Oil radiator set	metric connections
consist of:			
886004	1	Oil radiator	
242873	4	Hex nut M22x1.5	Oil radiator
230387	2	Gasket ring 14.2/18/2	Oil radiator

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	840461	2	Nipple 13.2/9.5	Oil radiator
886035				
		1	Oil radiator set	metric connections
consist of:				
	886106	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator
	230387	2	Gasket ring 14.2/18/2	Oil radiator
	840461	2	Nipple 13.2/9.5	Oil radiator
886036				
		1	Oil radiator set	UNF connections
consist of:				
	886004	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator
	230387	2	Gasket ring 14.2/18/2	Oil radiator
	956643	2	Adapter 3/4-16 (AN-8) UNF/M14x1.5	Oil radiator
886037				
		1	Oil radiator set	UNF connections
consist of:				
	886106	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator
	230387	2	Gasket ring 14.2/18/2	Oil radiator
	956643	2	Adapter 3/4-16 (AN-8) UNF/M14x1.5	Oil radiator

Parts requirement NEW VERSION:

Part no.	Qty/ engine	Description	Application
886001	1	Oil radiator	"small"
886003	1	Oil radiator	"medium"
886005	1	Oil radiator	"large"
886107	1	Oil radiator	"extra large"
886011			
	1	Oil radiator set	metric connections
consist of:			
	886001	1	Oil radiator
	242873	4	Hex nut M22x1.5

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	230387	2	Gasket ring 14.2/18/2	Oil radiator
	840461	2	Nipple 13.2/9.5	Oil radiator
	886012	1	Oil radiator set	metric connections
	consist of:			
	886003	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator
	230387	2	Gasket ring 14.2/18/2	Oil radiator
	840461	2	Nipple 13.2/9.5	Oil radiator
	886013	1	Oil radiator set	metric connections
	consist of:			
	886005	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator
	230387	2	Gasket ring 14.2/18/2	Oil radiator
	840461	2	Nipple 13.2/9.5	Oil radiator
	886014	1	Oil radiator set	metric connections
	consist of:			
	886107	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator
	230387	2	Gasket ring 14.2/18/2	Oil radiator
	840461	2	Nipple 13.2/9.5	Oil radiator
	886015	1	Oil radiator set	UNF connections
	consist of:			
	886005	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator
	230387	2	Gasket ring 14.2/18/2	Oil radiator
	956643	2	Adapter 3/4-16 (AN-8) UNF/M14x1.5	Oil radiator
	886016	1	Oil radiator set	UNF connections
	consist of:			
	886107	1	Oil radiator	
	242873	4	Hex nut M22x1.5	Oil radiator

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	230387	2	Gasket ring 14.2/18/2	Oil radiator
	956643	2	Adapter 3/4-16 (AN-8) UNF/M14x1.5	Oil radiator

2.5) Rework of parts

None.

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

None.

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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 Authority
- Persons with approved qualifications for the corresponding engine types. Only authorized persons (IRMT, Level Heavy Maintenance) are entitled to carry out this work

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.

Safety notice

- Secure aircraft against unauthorized operation
- Disconnect negative terminal of aircraft battery

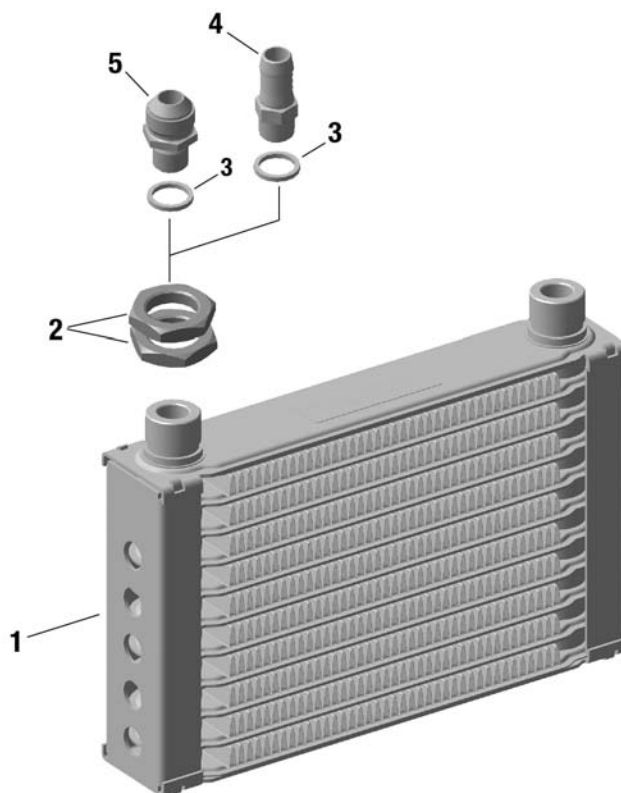
3.1) Spare Parts - related information

VARIANTS OF CONNECTORS



See relevant Illustrated Parts Catalog (IPC) for the respective engine type, Chapter 79-20-00. See also SI-PAC-013 Oil system connectors.

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Fig. 1

- | | | | |
|---|-------------------------------------|---|------------------|
| 1 | Oil radiator (NEW VERSION) | 2 | Hex. nut M22x1.5 |
| 3 | Gasket ring 14.2/18/2 | 4 | Nipple 13.2/9.5 |
| 5 | Adapter 3/4-16 UNF (AN 8) / M14x1.5 | | |

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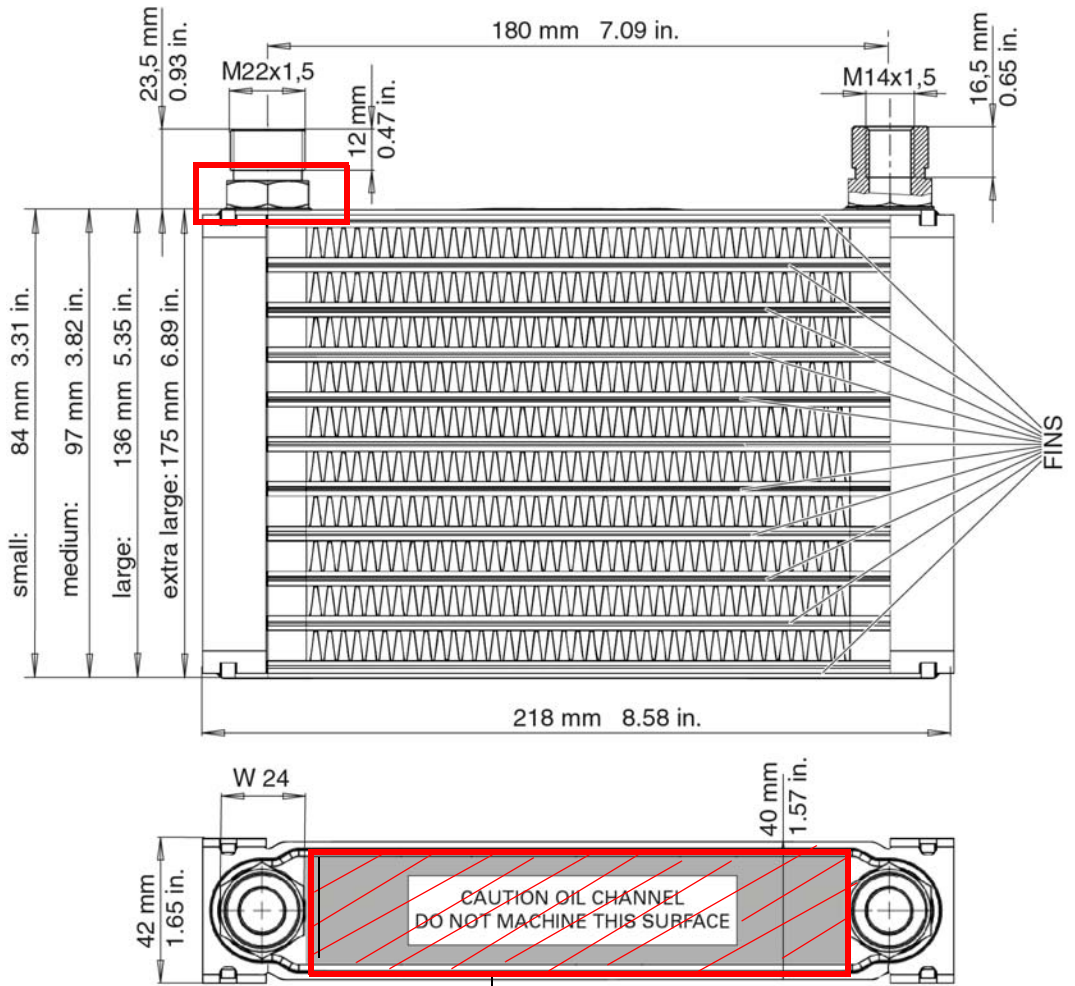
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3.2) Installation - related information

NOTICE Use backup wrench to counter-hold screw sockets when securing the oil lines.

Dimensions of the oil radiators:

OLD Version



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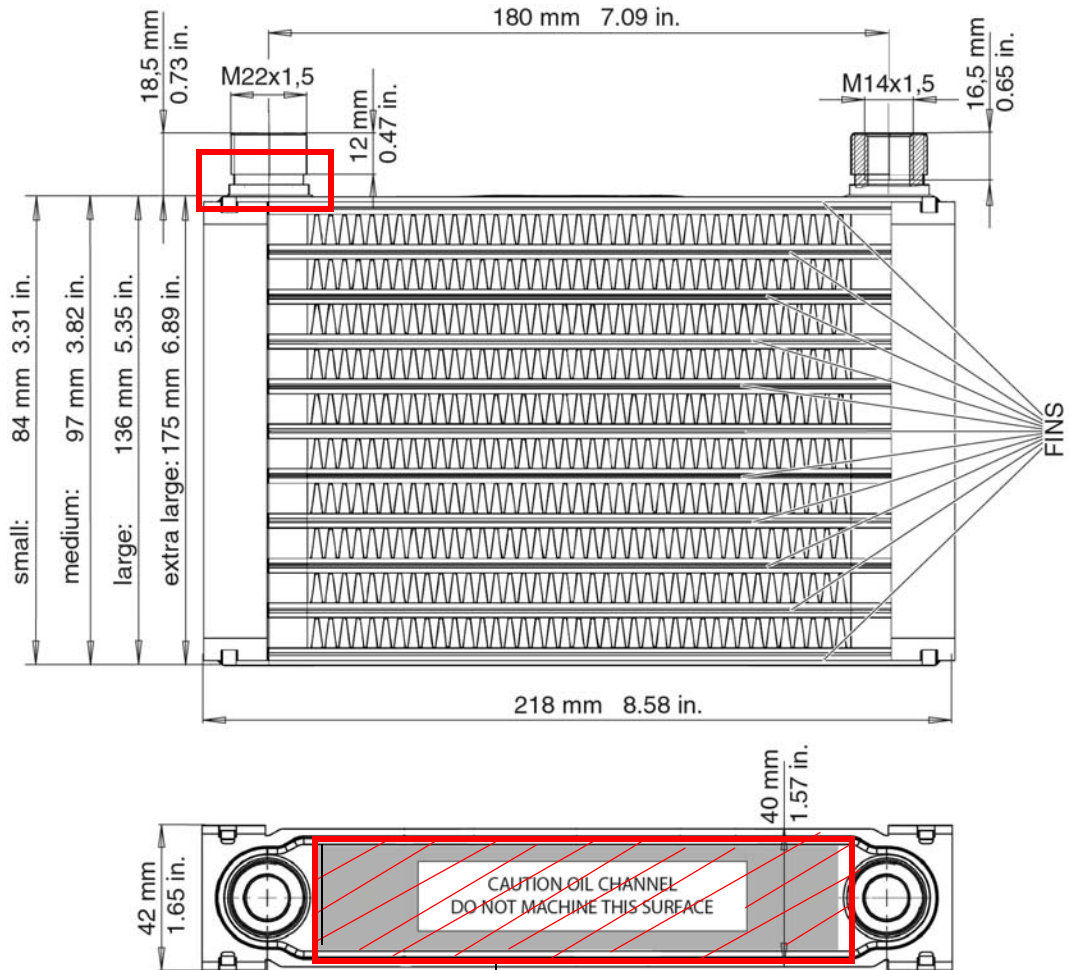
Oil channel! Do NOT machine this surface.

Fig. 2

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NEW Version



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Oil channel! Do NOT machine this surface.

Fig. 3

WARNING

Non-compliance can result in serious injuries or death!
The furnishing of proof in accordance to the latest FAR and EASA, has to be conducted by the aircraft manufacturer.

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Specifications of the oil radiator
The oil radiator must be designed to dissipate approx 30 kW (28.43 BTU/s) of thermal energy at take-off performance.
Weight: max. 0.82 kg (1.8 lb) for oil radiator "extra large"

PERMISSIBLE POSITION AND LOCATION

See Fig. 1.

WARNING

Non-compliance can result in serious injuries or death!
The components must be designed and installed such that the permissible operating temperatures are maintained and the max. values are not exceeded. This must also apply to "Hot day conditions". If need be, take appropriate measures.

The oil radiator should always be installed below the engine oil pump.
If this position is not practical:

NOTICE

The oil radiator must be installed with the radiator fittings pointing upwards i.e. in positive direction on the z-axis. This will prevent unintentional draining of the oil radiator during longer periods of engine stop.

NOTICE

The oil radiator must be installed in a way e.g. by using proper brackets to avoid that bending forces/vibration could cause fracture when mounting the oil radiator on the both connector positions.

3.3) Maintenance (Line) - related information

Points of inspection	Interval Operating hours		Chapter Reference
	100 h	200 h	
Visual inspection of the GENUINE-ROTAX® oil radiator	x		See relevant Maintenance Manual (Line) for the respective engine type and its periodical maintenance information.

During the visual inspection of the oil radiator also make sure that the exterior contours or channels do not have damages or oil leaks.

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3.4) Maintenance (Heavy) - related information

3.4.1) Removal of the oil radiator

Preparation

- Switch the ignition key OFF
- Drain the oil

NOTICE

The oil radiator is not included in the delivery of the engine. Maintenance must be carried out in accordance with the aircraft manufacturer's instructions.

ENVIRONMENTAL NOTE

All the operating fluids and cleaning agents can damage the environment if not disposed of properly. Dispose of operating fluids in an eco-friendly manner!

NOTICE

Use appropriate protective coverings to prevent the ingress of debris particles into all disconnected lines and connections.

- Remove surrounding assemblies and detach oil lines

NOTE: The assemblies and lines are only to be removed if necessary and only as far as is necessary!

Step	Procedure
1	Remove the oil hoses and clamps according to the instructions in the aircraft manufacturer's manual.

ENVIRONMENTAL NOTE

Ensure that no oil gets into the waste water system or the ground – risk of contaminating drinking water!

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3.4.2) Inspection of the oil radiator

NOTICE

The oil radiator is not included in the delivery of the engine. Maintenance must be carried out in accordance with the aircraft manufacturer's instructions.

Preparation

- Clean all parts carefully
- General visual inspection



General visual inspection. See Chapter 05-20-00 of the latest Maintenance Manual Line (MML) for the respective engine type.

Step	Procedure
1	Clean the cooling fins of the oil radiator and straighten them out if necessary.
2	Rinse out the inside of the oil radiator.

NOTICE

If the engine is damaged so that excessive metal contamination can be found in the oil filter, magnetic plug and inside the oil tank, the oil radiator must be replaced. Proper judgment of the contamination requires years of experience in the repair of piston engines.

3.4.3) Installation of the oil radiator

NOTICE

Use backup wrench to counter-hold screw sockets when securing the oil lines.

Step	Procedure
1	Install the oil hoses and clamps according to the instructions in the aircraft manufacturer's manual.

Finishing work:

- Fill with fresh oil according to the latest Maintenance Manual Line
- Purge the oil system according to the latest Maintenance Manual Line
- Restore aircraft to original operating configuration
- Connect negative terminal of aircraft battery



Conduct test run and perform leakage check. See Chapter 12-20-00 of the latest Maintenance Manual Line (MML) for the respective engine type.

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

3.6) 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.

3.7) 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.