

SERVICE INSTRUCTION

Introduction of new double ignition coils and new wiring harnesses for ROTAX® Engine Type 912 i (Series), 915 i (Series) and 916 i (Series)

ATA System: 74-20-00 Ignition system

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

All versions of ROTAX® engine types:

Engine type	Serial number
912 i Series	from S/N 10002783
915 i Series	
916 i Series	

On engines with S/N higher than those listed above, new ignition coils and wiring harnesses have already been fitted in serial production.

1.2) Concurrent ASB/SB/SI and SL

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

- 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 the course of further development and standardization, the power connectors on double ignition coils have been changed from two individual Faston connectors to a single sealed Tyco connector. In addition, the wiring harness has been changed to accommodate the new Tyco connectors at each double ignition coil.

1.4) Subject

Introduction of new double ignition coils and new wiring harnesses for ROTAX® Engine Type 912 i (Series), 915 i (Series) and 916 i (Series).

1.5) Compliance

NONE - For Information Only (It is not mandatory to retrofit non-applicable (see section 1.1) engines to the new double ignition coils and wiring harness).

1.6) Approval

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

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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 74-20-00 and 76-50-00.
- in general Operators Manual (OM)
- in general Installation Manual (IM)
- in general Maintenance Manual Line (MML) and in particular:
Chapter 74-20-00 and 76-50-00
- in general Maintenance Manual Heavy (MMH) and in particular:
Chapter 74-20-00 and 76-50-00

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

- Not affected

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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
- 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®

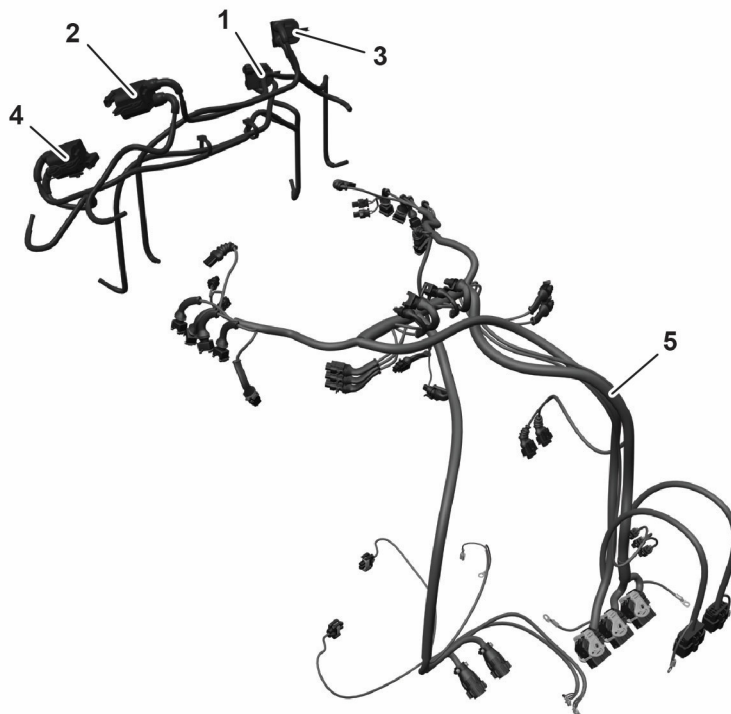
2.3) Material requirement per engine

Parts requirement:

Fig.no.	Part no.	Qty/engine	Description	Application
1-1	864660	(1)	DOUBLE IGNITION COIL 1 ASSY.	Spark plugs 1B, 2B
1-2	864661	(1)	DOUBLE IGNITION COIL 2 ASSY.	Spark plugs 1T, 2T
1-3	864662	(1)	DOUBLE IGNITION COIL 3 ASSY.	Spark plugs 3B, 4B
1-4	864663	(1)	DOUBLE IGNITION COIL 4 ASSY.	Spark plugs 3T, 4T
1-5	665621	(1)	WIRING HARNESS STANDARD	912 i Series
1-5	665623	(1)	WIRING HARNESS SHORT	912 i Series
1-5	665622	(1)	WIRING HARNESS SPECIAL	912 i Series
1-5	665681	(1)	WIRING HARNESS STANDARD	915 i A Series
1-5	665688	(1)	WIRING HARNESS STANDARD	915 i C24 Series
1-5	665683	(1)	WIRING HARNESS SHORT	915 i C24 Series
1-5	665681	(1)	WIRING HARNESS STANDARD	916 i A Series
1-5	665685	(1)	WIRING HARNESS STANDARD	916 iSc B

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- 1 Double ignition coil assy. 1
- 2 Double ignition coil assy. 2
- 3 Double ignition coil assy. 3
- 4 Double ignition coil assy. 4
- 5 Wiring harness (TYPICAL)

Fig. 1

2.4) Material requirement per spare part

None.

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 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.

3.1) Illustrated Parts Catalog - related information



See current Illustrated Parts Catalog (IPC) for the respective engine type, Chapter 24-20-00 and Chapter 74-20-00.

3.2) Installation - related information



See current Installation Manual (IM) for the respective engine type, Chapter 24-00-00.

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3.3) Operation - related information



See current Operators Manual (OM) for the respective engine type, Chapter 3.

3.4) Maintenance (Line) - related information

Points of inspection	Interval Operating Hours	Chapter Reference
	100	
Inspect the wiring (wiring harness) and its connections for secure fit, damage and signs of wear.	X	See relevant Maintenance Manual (Line) for the respective engine type and its periodical maintenance information.



See current Maintenance Manual Line (MML) for the respective engine type, Chapter 05-20-00 and 12-20-00.

3.5) Maintenance (Heavy) - related information

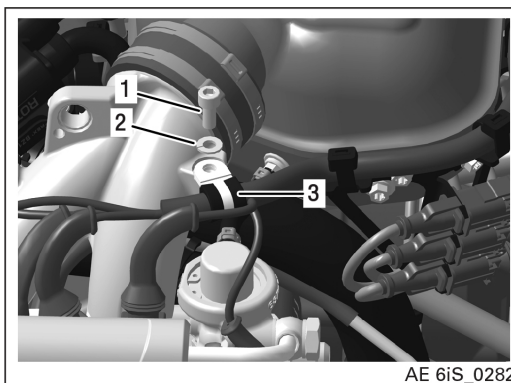


See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 24-20-00 and Chapter 74-00-00.

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3.5.1) Double ignition coil - removal

Step	Procedure
1	Disconnect the negative terminal of the battery.
2	Remove the cable clamps with Allen screws and lock washers from the intake manifold, if necessary.



- 1 Allen screw
- 2 Washer
- 3 Cable clamp

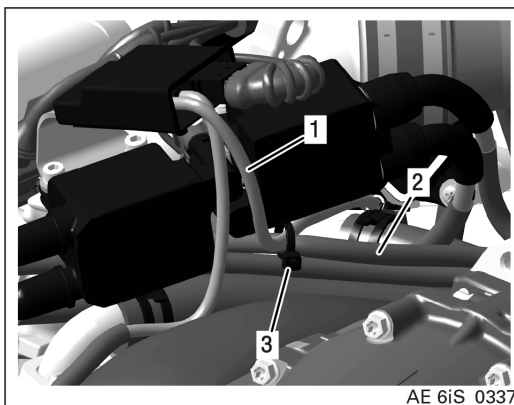
Fig. 2

Step	Procedure
3	Cut the cable tie from the exhaust gas temperature sensor cable (cyl. 1_3) connected with the double ignition coil cable.

NOTICE

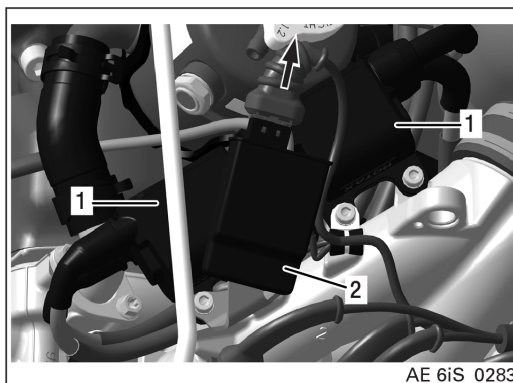
Do not damage the cables. Always cut cable ties on the side of the support plate facing away from the cables.

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- 1 EGT sensor cable
- 2 Double ignition coil cable
- 3 Cable tie

Fig. 3



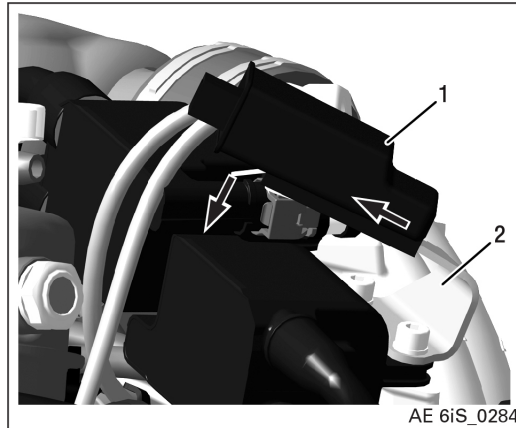
- 1 Double ignition coils
- 2 Exhaust Gas Temperature Sensor (EGT)

Fig. 4

Step	Procedure
4	Unplug the Exhaust Gas Temperature sensor (EGT). See current Maintenance Manual Heavy (MMH), Chapter 76-50-00 Wiring harness - removal.
5	Press spring hook downwards and carefully pull the Exhaust Gas Temperature sensors (cylinders 1 and 2) out of the connector bracket.

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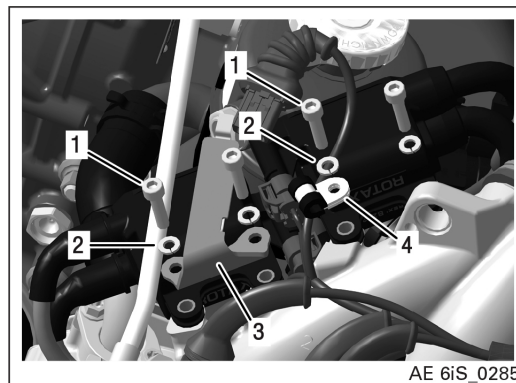
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- 1 Exhaust Gas Temperature Sensor (EGT)
- 2 Connector bracket

Fig. 5

Step	Procedure
6	Loosen Allen screws with lock washers and remove connector bracket and clamp.

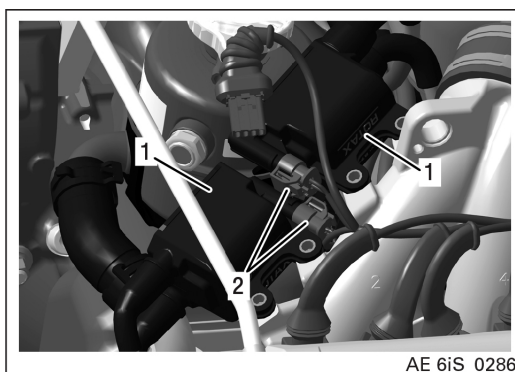


- 1 Allen screw
- 2 Lock washer
- 3 Connector bracket
- 4 Clamp

Fig. 6

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Step	Procedure
7	Unplug the connectors to the double ignition coils. See current Maintenance Manual Heavy (MMH), Chapter 76-50-00 Wiring harness - removal.
8	Remove the double ignition coils.



1 Double ignition coils
2 Ignition coil connector

Fig. 7

3.5.2) Wiring harness - removal



See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 76-50-00 Wiring harness - removal.

3.5.3) Double ignition coil - inspection

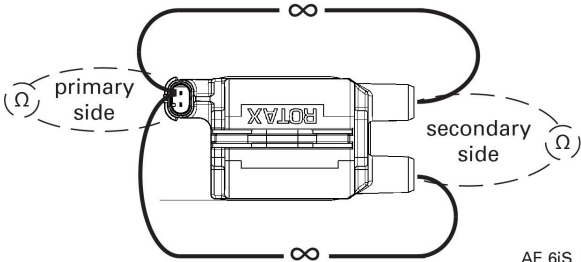


Carry out a visual inspection. See current Maintenance Manual Line (MML) for the respective engine type, Chapter 05-20-00 section Visual inspection.

Step	Procedure
1	Carry out a visual inspection, check double ignition coils for damage, corrosion, and deformation
2	Carry out a resistance test. To do this, see current Maintenance Manual Heavy (MMH), Chapter 76-70-00 section Sensors and actuators.

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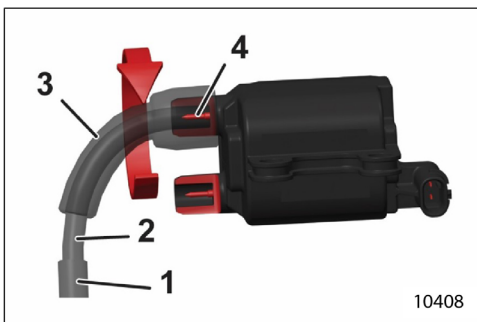
Double ignition coil		
Measurement		Figure
Measuring points	Resistance	
Primary side	0.5 Ω +/- 0.5 Ω	
Secondary side	9 k Ω +/- 0.9 k Ω	
Between primary and secondary side	Infinite	

3.5.4) Double ignition coil - installation



See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 74-20-00.

Step	Procedure
1	Screw ignition cable clockwise into coil.
2	Slide rubber seal over coil.
3	Place the appropriately marked protection hose over the ignition cable.



- 1 Protection hose
- 2 Ignition cable
- 3 Protective cap
- 4 Threaded prong

Fig. 8

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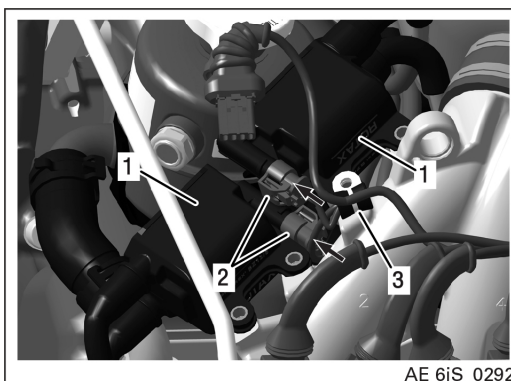
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NOTICE

New double ignition coil assemblies are provided with ignition cables pre-attached, including protective caps and protection hoses. The protection hoses are labeled on both ends:

- On the spark plug connector side the hose is labeled with a number/Letter combination (1 T, 1 B...)
- On the coil end the label marks the position of the ignition cable on the ignition coil and on the cylinder head:
1, 2, 3 and 4 = cylinder
T, B = Top, Bottom

Step	Procedure
4	Place the ignition cables through the silicone sleeves and route to the marked spark plug locations.
5	Plug in the double ignition coil connectors and install cable clamp 8/M5.

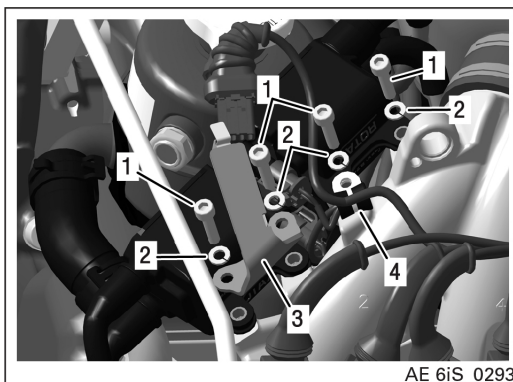


- 1 Double ignition coils
- 2 Ignition coil connector
- 3 Cable clamp 8/M5

Fig. 9

Step	Procedure
6	Fix the double ignition coils with Allen screws M5x20, connector bracket, cable clamp 8/M5 and lock washers A5. Tightening torque 5 Nm (44 in. lb.).

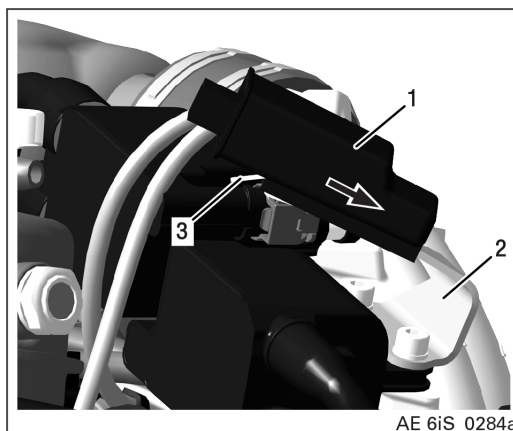
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- 1 Allen screw M5x20
- 2 Lock washer A5
- 3 Connector bracket
- 4 Cable clamp 8/M5

Fig. 10

Step	Procedure
7	Install the exhaust gas temperature sensors (cylinder 1 and cylinder 2) with the spring hook onto the connector bracket and push until it snaps into place.
8	Connect the Exhaust Gas Temperature sensors. See current Maintenance Manual Heavy (MMH), Chapter 76-50-00, section Exhaust Gas Temperature Sensor (EGT) - connection.



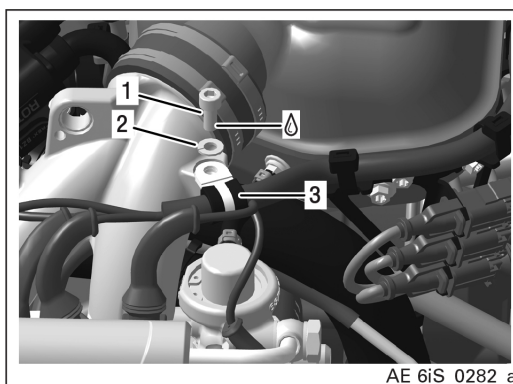
- 1 Exhaust Gas Temperature Sensor (EGT)
- 2 Connector bracket
- 3 Connector

Fig. 11

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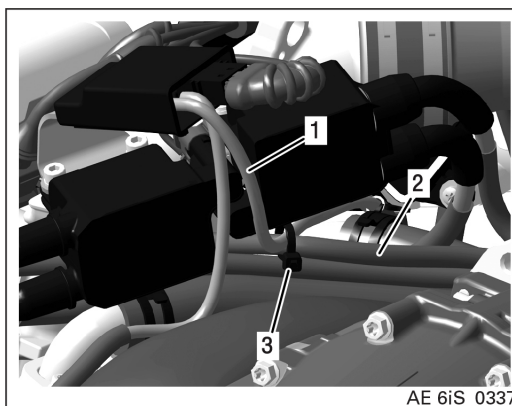
Step	Procedure
9	Secure the cable clamp 12/M6 with an Allen screw M6x14 and lock washer with LOCTITE 243. Tightening torque 10 Nm (89 in. lb).



- 1 Allen screw M6x14
- 2 Lock washer A6
- 3 Cable clamp 12/M6

Fig. 12

Step	Procedure
10	Install the cable tie on the exhaust gas temperature sensor cable (Cyl. 1_3) connected with the double ignition coil cable.



- 1 EGT sensor cable
- 2 Double ignition coil cable
- 3 Cable tie

Fig. 13

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3.5.5) Wiring harness - installation



See current Maintenance Manual Heavy (MMH) for the respective engine type, Chapter 76-50-00 Wiring harness - installation.

3.6) Finishing work

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

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

- The objective of the Customer Service Information Report (CSIR) is to give an efficient way for Rotax Aircraft Engine Operators, Maintenance Technicians and Governmental Authorities a method to report any condition which may adversely affect safe operation of the engine.
- Filling out an online ROTAX CSIR is the most efficient method of reporting an occurrence to BRP-Rotax.

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.

| 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.