

## SERVICE INSTRUCTION

# Introduction of new spark plug, spark plug connector and cylinder head for ROTAX® Engine Type 582 UL Mod. 17

ATA System: 74-00-00 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

The new spark plugs (part no. 297656), spark plug connectors (part no. 265249) and cylinder head (part no. 913848) have already been installed on the following ROTAX® engines:

Engine type	Serial number
582 UL Mod. 17	from S/N 9 619 116

NOTE: For this change a new engine model called ROTAX® 582 UL Mod. 17 was introduced in order to clearly separate this model from the previous models with different cylinder head spark plug bore design/size.

NOTE: It is not mandatory to retrofit older ROTAX® 582 UL engines like ROTAX® 582 UL Mod. 99, which are currently equipped with old spark plug types, old spark plug connector and cylinder head types. For all other ROTAX® 2-Stroke aircraft engines which are out of production, the spark plugs used so far are still available and need to be used and serviced according to our Instructions for Continued Airworthiness.

NOTE: In case of interchange/repair/maintenance of ROTAX® 582 UL Mod. 99 cylinder head assy. it is recommended to change over to the new design compatible with the new spark plugs.

The new spark plug connectors are of different design and will not fit on the old spark plugs. Mixing of old and new spark plug connector types is not allowed. All spark plug connectors must be of the same part number for the entire engine.

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

None

#### 1.3) Reason

In the course of continuous development and standardization, a new spark plug (part no. 297656), a new spark plug connector (part no. 265249) and a new cylinder head (part no. 913848) have been introduced.

#### 1.4) Subject

Introduction of a new spark plug, spark plug connector and cylinder head for ROTAX® Engine Type 582 UL Mod. 17.

#### 1.5) Compliance

None - for information only.

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## 1.6) Approval

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

## 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

- Operators Manual (OM)
- Illustrated Parts Catalog (IPC)
- Installation Manual (IM)
- Maintenance Manual (MM)

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

- All parts are interchangeable

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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

parts requirement:

Fig.no.	New p/n	Qty/ engine	Description	Old p/n	Application
1	297656	8	Spark plug	897055	Ignition system
2	265249	8	Spark plug connector	866705	Ignition system
3	913848	1	Cylinder head	913845	-
3	850040	2	O-ring	-	Cylinder head
3	850540	2	O-ring	-	Cylinder head

### 2.4) Material requirement per spare part

None

### 2.5) Rework of parts

None

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

Part no.	Description	Application
-	Wire feeler gauge	Spark plug gap
-	Pull scale	Spark plug boot "pull off" force
876940	Gauge adapter	Ignition timing
-	Spark plug socket pliers	Spark plug connector removal
897186	Silicone heat compound	Spark plug

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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:

- 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, 2-Stroke Maintenance) are entitled to carry out this work.
- Persons with type-specific training

**NOTE:** All work has to be performed in accordance with the relevant Maintenance Manual.

### Safety notice



**WARNING**

Identifies an instruction which, if not followed, may cause serious injury or even fatal injury.



**CAUTION**

Identifies an instruction which, if not followed, may cause minor or moderate injury.

**NOTICE**

Identifies an instruction which, if not followed, may severely damage the engine or could void any warranty.

### **ENVIRONMENTAL NOTE**

Environmental notes give you tips on environmental protection.

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## 3.1) Installation-related information

Besides the different shape and size of the spark plug, spark plug connectors and spark plug bore there is no change in the overall outline dimension of the engine.

**NOTE:** Once installed, the new spark plug connectors must be measured for pull-off force. See Service Instruction section 3.2.5.

### NOTICE

In transportation without spark plugs installed, the spark plug holes need to be blocked by a new protective covering:  
PROTECTION PLUG 10.6 part no. 960277.

**NOTE:** When using optional spark plug seat temperature sensor, make sure to use a sensor designed for use on 12 mm spark plug threads. ROTAX® does not supply 12 mm spark plug seat temperature sensors.

## 3.2) Maintenance-related information

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

### 3.2.1) Maintenance schedule:

Points of inspection	Interval Operating hours		
	every 12.5 h	every 25 h	every 50 h
Inspect spark plugs	x		
Check and clean inside of spark plug caps	x		
Remove the spark plugs, clean, check electrode gap. Replace as required.	x		
Replace spark plugs			x
Check ignition system		x	

### 3.2.2) Remove and replace new spark plugs

### NOTICE

To avoid spark plug damage, make sure to use a correct "spark plug" wrench/socket.

While the old spark plugs had a size of hex. 20 mm (0.79 in.), the new ones do have hex. 16 mm (0.63 in.)

Step	Procedure
1	Apply a small amount of heat conduction compound to spark plug threads.
2	Tighten the spark plugs to 16 Nm (142 in. lb.) on a <b>cold</b> engine.
Pay attention to the specifications of the latest Installation Manual!	
<b>NOTE:</b>	Spark plugs are already gapped upon delivery. No adjustment of the gap is necessary nor allowed.

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## 3.2.3) Inspection of spark plug gap measurement

Due to the curved gap between the center electrode and the ground electrodes, it is suggested to use a wire type feeler gauge for accurate gap measurement. See section 4 "Appendix", fig. 1.

### NOTICE

**Adjustment** of the spark plug gap is not allowed. If gap measurement is over permissible limit, the spark plug must be replaced.

### WARNING

Do not induce forces to the center electrode of the spark plug. These might damage the spark plug.

Electrode gap	Code	Min.	Max.	Wear limit
	SP01	0.8 mm 0.031 in.	0.9 mm 0.035 in.	1.1 mm 0.043 in.

## 3.2.4) Remove and replace of new spark plug connectors

Additional to the change of new spark plugs, the spark plug connector type was also changed. See fig. 2 for more details.

For easier removal of the spark plug connector from the spark plug and to avoid spark plug damage from side load, use proper spark plug socket pliers. See Fig. 3.

### WARNING

Make sure that the spark plug connector is properly aligned and seated on the spark plug terminal.

## 3.2.5) Spark plug connector pull-off force check

The spark plug connectors must fit tightly to ensure proper electrical connection. To check minimum pull-off force, attach a pull scale to the spark plug connector and pull perpendicular to the spark plug and observe the maximum force. Spark plug connectors that do not meet the minimum pull off force of 30 N (7 lb.) must be replaced.

### WARNING

Do not induce side load to the spark plug. This might damage the spark plug.

## 3.2.6) Check and clean inside of spark plug connectors

Inspect spark plug connectors for cracks, burn-off, dampness and fouling. Check connection with ignition cable. Never pull off spark plug connector on a running engine. Clean contact surfaces in the spark plug connectors as required.

### NOTICE

On engine installation with spark plugs down, it is highly recommended to add secondary retention system to secure the spark plug caps. (It is the responsibility of the airframe manufacturer to design and develop a secondary retention system)

## 3.2.7) Check of ignition system

See current Operators Manual of the respective engine type.

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## 3.2.8) Replacement of cylinder head

In order to provide a single spark plug type for all ROTAX® aircraft engines, the spark plug thread dimension has been changed from M14 x 1.25 to M12 x 1.25. In order to install the new spark plugs (part no. 297656) on older ROTAX® 582 UL engines (initial series and Mod. 99), the old cylinder head must be replaced by the new one with part no. 913848, which incorporates M12 x 1.25 spark plug threads. See fig. 4. General advice on adjustment work

**NOTICE**

The modification of older cylinder heads including HELICOIL® inserts is not allowed.

Also make sure to consider the different thread size of the spark plug bore, when using a dial gauge threaded into the spark plug bore e.g. for:

- fitting and setting of rotary valve or
- setting of the ignition timing

The relevant gauge adapter is also available under the new part no. 876942 considering this design change (see fig. 5).

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

## 3.3) Test run

Conduct test run including ignition check and leakage test. See chapter 12-20-00 of the latest Maintenance Manual Line for the respective engine type.

## 3.4) Summary

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



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

## 3.5) Inquiries

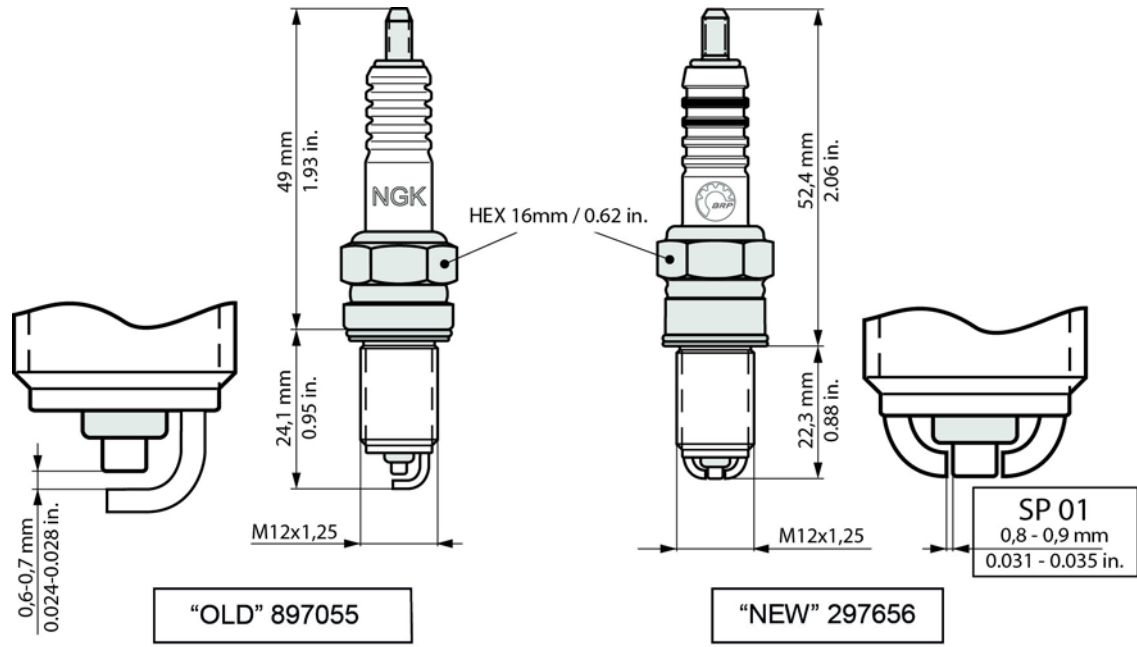
Inquiries regarding this Service Instruction should be sent to the ROTAX® Authorized Distributor or their independent Service Center of your area.

A list of all ROTAX® Authorized Distributors or their independent Service Centers is provided on [www.FLYROTAX.com](http://www.FLYROTAX.com).

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## 4) Appendix

The following drawings should convey additional information:



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Fig. 1  
Spark plug

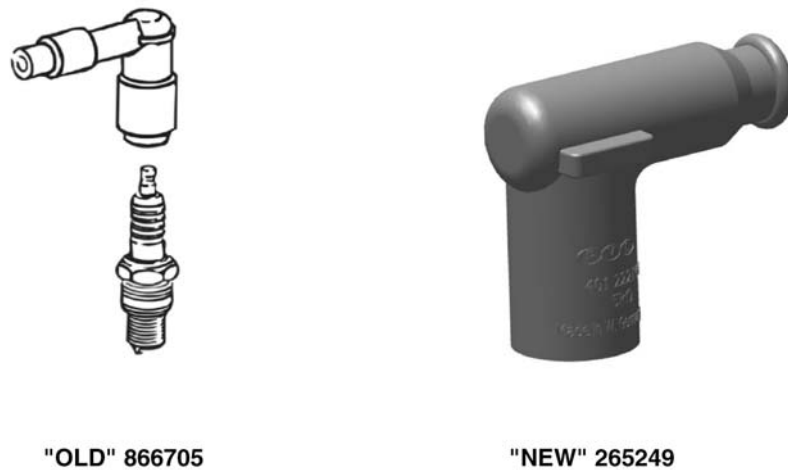


Fig. 2  
Spark plug connector

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Wire feeler gauge



Pull scale



Spark plug socket pliers

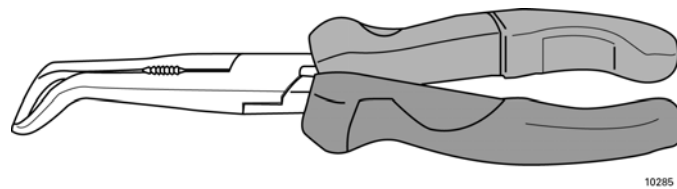
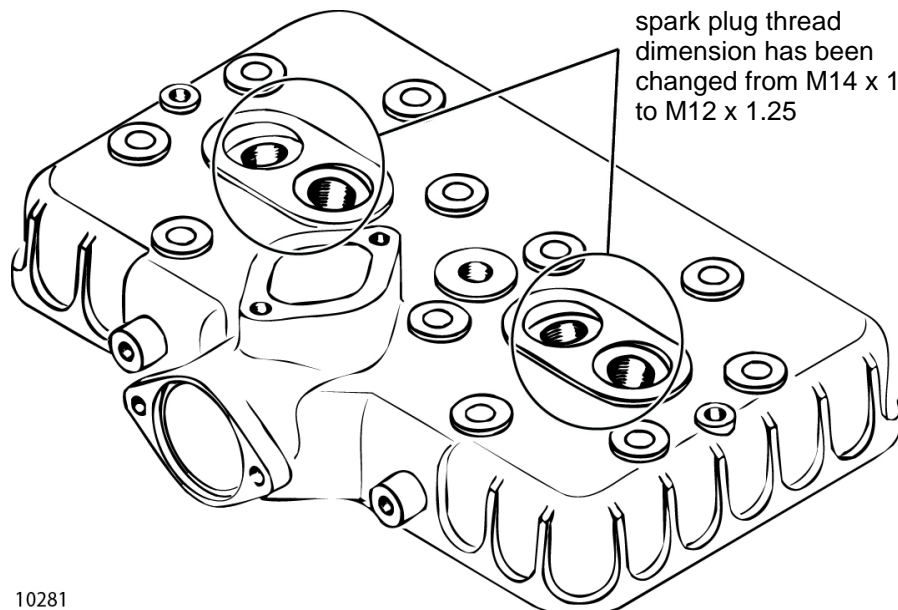


Fig. 3  
Special tooling

010254



spark plug thread  
dimension has been  
changed from M14 x 1.25  
to M12 x 1.25

Fig. 4  
Cylinder head

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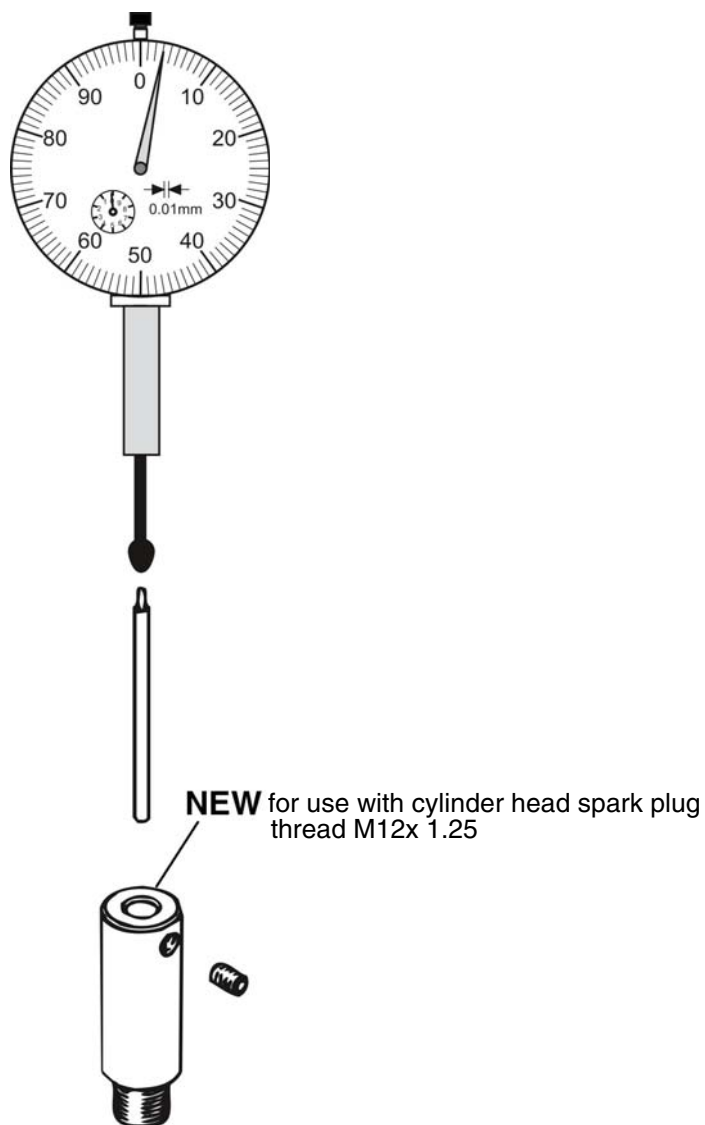


Fig. 5  
New gauge adapter

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**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 **no technical drawings** and are for reference only. For specific detail, refer to the current documents of the respective engine type.

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