



INSTRUCTION – THREADED ELEMENT

Subject: P/N: TTP2639 Series Threaded Element
Application: Austro, Rotax, Technify, UL Power and others.

Document No: TN02639

Revision: A

Date: OCT-01-2021

RECORD OF REVISIONS

When revised document changed in its entirety.

REV	DATE	DESCRIPTION	BY	CKD
A	OCT-01-2021	Initial release	DNE	GDO

Current revision approval: _____

1. PURPOSE

This installation provides guidance for Subject part listed and may supplement kit specific instructions. Refer to Installation Guide: TNG1000 for acronyms and regulatory guidance.

2. DESCRIPTION

This series of threaded electrical resistance elements have a metric thread and incorporate self-locking sealed connectors. Heat is transferred through the process of thermal conduction efficiently heating engine cylinder heads, crankcases, and gearboxes, refer to Figure 7.1.

3. RATINGS

115-Volt 40-Watt: $336.6\Omega \pm 10\%$. 115-Volt 50-Watt: $264.5\Omega \pm 10\%$.

230-Volt 40-Watt: $1322.5\Omega \pm 10\%$. 230-Volt 50-Watt: $1058.0\Omega \pm 10\%$.

Element body: 17-4PH stainless; 11mm hex head w/ M6-1.0 x 28mm threaded shank *.

Lead: 6-inch 24-gauge, 600°C Varglas sleeve.

Connector: TCP2598, sealed self-locking, 13-amp 500-volt, 200°C.

* Modified thread (ISO 5g/6g); not to be re-cut w/ standard tooling.

4. REQUIREMENTS / TOOLING

Technicians and users of this instruction are to be familiar w/ kit specific installation instructions when available and Installation Guide: TNG1000.

Required:

- Applicable OEM Engine Maintenance Manual w/ torque specifications.
- 11mm Slotted Socket p/n: TU03032 or equivalent.
- ¼ -inch drive torque wrench or equivalent - certified to traceable standards.
- Standard ISO 965 M6-1.0 tap or equivalent.
- Thread Lubricant conforming to MIL-T-83483 (sparkplug lubricant): ATS2612, Tempest T556, Loctite C5-A, or MIL-C-22572 thread oil: Aluminum Tap Magic®, or equivalent.

PROPRIETARY DATA

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- f) Suggested: Thermal Transfer Grease (silicone) high-temperature, Emerson & Cuming™ 1189083 STYCAST®, Dow Corning DC 340 or equivalent.

5. INSTALLATION

- ❌ **DO NOT USE:** Split, star, or lock-washer of any type or material. Lock-washers limit heat transfer and will result in element failure, refer to Figure 7.2.
- ✅ **FOR SPACING ONLY USE ALUMINUM SPACERS AND/OR WASHERS:** Threaded Elements are not to bottom out or extend/expose more than 3 threads at tip.
- ✅ **TO PREVENT THREAD GALLING AND SEIZURE:** Use Thread Lubricant or apply Thermal Transfer Grease to element shank and threads. Use enough to fill voids between threads and spacers. For recommended lubricants and grease refer to § 4.
- ⚠️ **BEFORE INSTALLING ELEMENT:** Recommend running M6-1.0 tap with Thread Lubricant through installation site. Suggested whether fastener/bolt was removed or not.

Requires Tension Installation w/ at least half of the element shank threaded into engine (approximately 0.6-inch / 15mm) and full engagement of hex head surface.

Configure Element, lubricate threads and when required space accordingly. Suggest using Thermal Transfer Grease to lubricate threads and fill voids around element shank, spacers, and installation site, refer to § 7 Figures 7.1 through 7.10.

Caution When Threading Element, should Element Begin to Bind – *Stop immediately!* Wait a moment to allow any heat to dissipate. Apply light weight oil, then back element out. Clean element threads w/ Thread Restoring File. Restore hole threads w/ M6-1.0 restoring tap or standard ISO tap, clean hole, and element threads, lubricate, and try again, recommended lubricants/grease refer to § 4.

Torque to manufactures recommended specification for location of installation. When unavailable use suggested values called out in applicable Figure per installation.

Minimum: 4 Newton Meters (Nm) / 35 inch-pounds (in-lbs).

Maximum Not to Exceed: 13 Nm / 115 in-lbs.

6. SERVICE

There are no authorized repair procedures, only replacement. Test w/ ohmmeter, refer § 3 and/or Installation Guide TNG1000.

7. FIGURES

Section contains narratives and examples for locating threaded elements in cylinder heads.

- ⚠️ Before starting installation *thoroughly review* §§ 4 and 5.

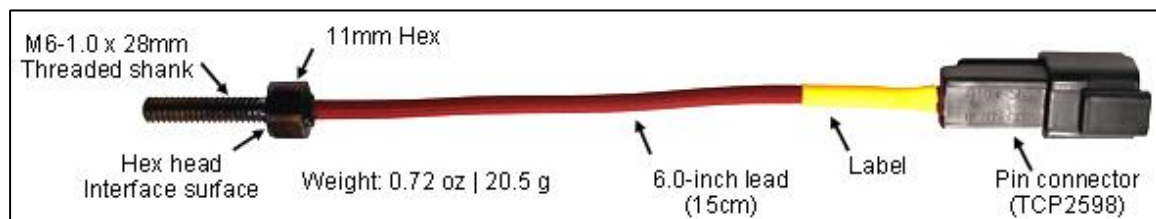


Figure 7.1. Threaded Element p/n: TTP2639- series.



Figure 7.2. DO NOT use split, star, or lock-washer of *any* type or material. Use of this type of washer will result in element failure.

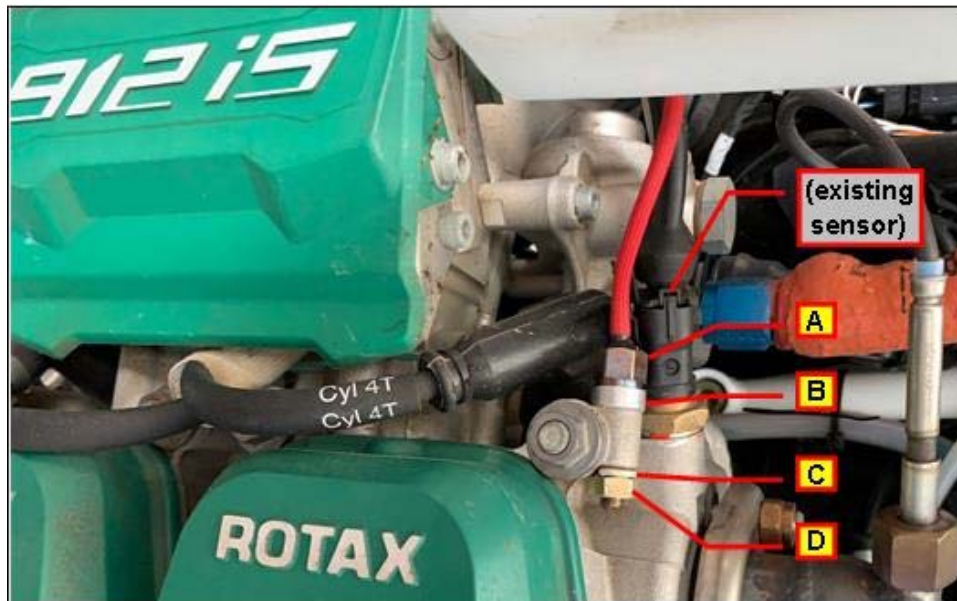


Figure 7.3. Example of element in cylinder head mounting boss. Preferred cylinder head location on Rotax 912, 914, and 915 series engines. Suggested torque: 5 Nm / 45 in-lbs. Suggest using Thermal Transfer Grease to lubricate threads and fill voids between element shank and spacers.

Note: Installation may require removal and reinstallation of existing sensor.

- | | |
|---------------------|--|
| A. Threaded Element | p/n: TTP2639-115/40 or TTP2639-230/40 (supplied by voltage). |
| B. Spacer | p/n: TU02846 (Alt: 25N18R50AP) |
| C. Modified Spacer | p/n: TU02846-03M (Alt: AN960PD-416, NAS1149D0463J). |
| D. Nut | p/n: 90592A016 (Alt: M6-1.0 steel, 38CR20, Rotax 242-211). |



⚠ DO NOT use split, star, or lock-washer of *any* type or material, refer to § 4 and Figure 7.2.

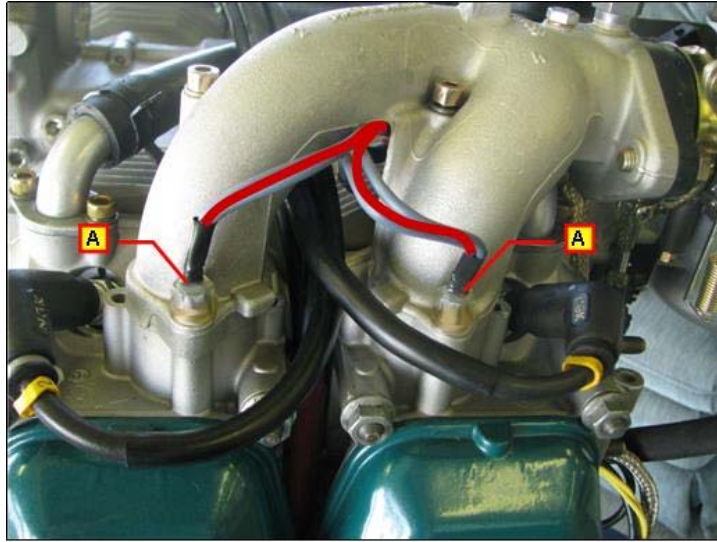


Figure 7.4. Example of element replacing intake manifold fastener. Alternate cylinder head location on carbureted Rotax engines. Location does not use spacers or washers unless required to keep element from bottoming out.

Suggest using Thermal Transfer Grease to lubricate threads and fill voids between element shank and manifold. Suggested torque: 10 Nm / 90 in-lbs.

A. Threaded Element p/n: TTP2639-115/40 or TTP2639-230/40 (supplied by voltage).

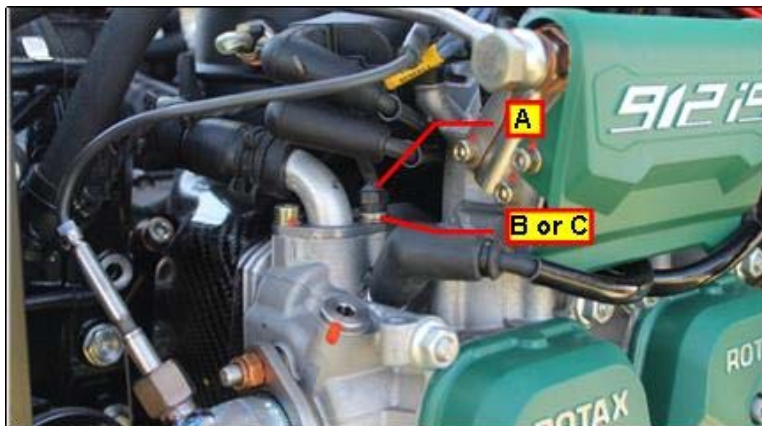


Figure 7.5. Example of element replacing water flange fastener. Alternate cylinder head location on Rotax 912, 914, and 915 series engines. Do Not allow element to bottom out space as needed. Suggested torque: 5 Nm / 45 in-lbs.

A. Threaded Element p/n: TTP2639-115/40 or TTP2639-230/40 (supplied by voltage).

B. Spacer p/n: TU02846 (Alt: 25N18R50AP)

C. Spacer p/n: TU02846-03 (Alt: AN960PD-416, NAS1149D0463J).



⚠ DO NOT use split, star, or lock-washer of *any* type or material, refer to § 4 and Figure 7.2.

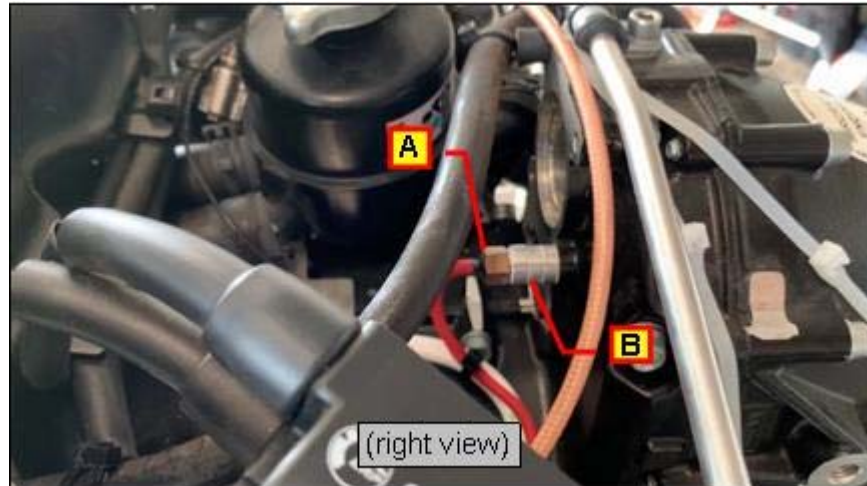


Figure 7.5. Example of element in crankcase, rear of PRGB. Preferred crankcase element location on Rotax 912, 914, and 915 series engines. Do Not allow element to bottom out only space as needed. Suggested torque: 5 Nm / 45 in-lbs.

Suggest using Thermal Transfer Grease to lubricate threads and fill voids between element shank and spacers. When location is occupied replace component fastener or refer to alternate location Figure 7.6.

- A. Threaded Element p/n: TTP2639-115/40 or TTP2639-230/40 (supplied by voltage).
- B. Spacer p/n: TU02846 (Alt: 25N18R50AP)

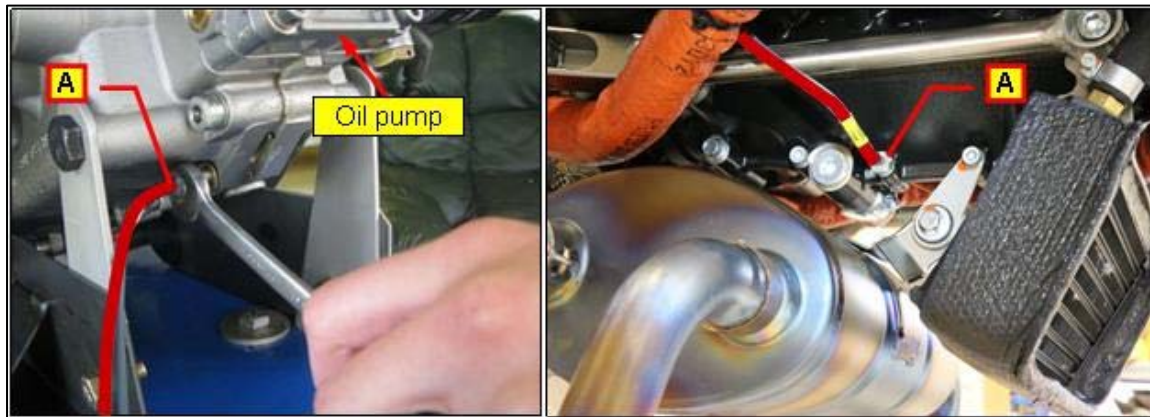


Figure 7.6. Example of element replacing lower crankcase fastener aft of oil pump. Alternate crankcase location on Rotax 912, 914, and 915 series engines. Location does not use spacer or washer. Suggested torque: 10 Nm / 90 in-lbs.

- A. Threaded Element p/n: TTP2639-115/40 or TTP2639-230/40 (supplied by voltage).



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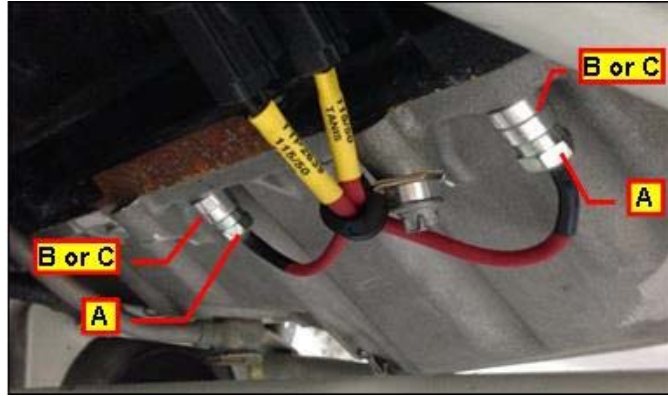


Figure 7.8. Example of elements replacing oil sump fasteners. Preferred sump element locations on Austro E4 series engines (AE300/330). Space as needed, elements are not to bottom out or extend/expose more than 3 threads at tip.

Suggest using Thermal Transfer Grease to lubricate threads and fill voids between element shank and spacers. Suggested torque: 6 Nm / 55 in-lbs.

- A. Threaded Element p/n: TTP2639-115/50 or TTP2639-230/50 (supplied by voltage).
- B. Spacer p/n: TU02846 (Alt: 25N18R50AP)
- C. Spacer p/n: TU02846-03 (Alt: AN960PD-416, NAS1149D0463J).

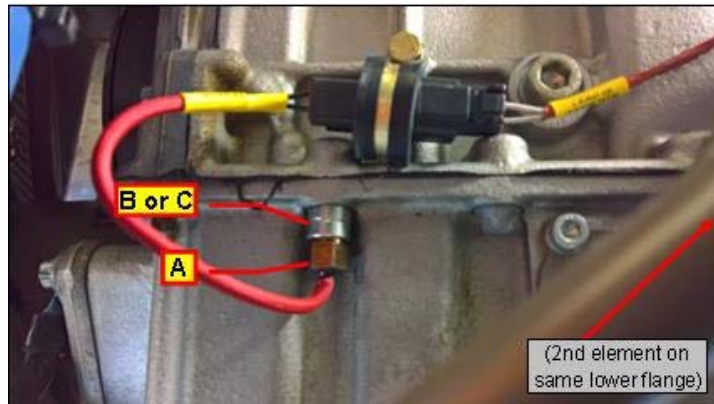


Figure 7.9. Example of elements replacing oil sump fasteners. Preferred sump element locations on Technify TAE 125 (CD-100) series engines. Space as needed, elements are not to bottom out or extend/expose more than 3 threads at tip.

Suggest using Thermal Transfer Grease to lubricate threads and fill voids between element shank and spacers. Suggested torque: 6 Nm / 55 in-lbs.

- A. Threaded Element p/n: TTP2639-115/50 or TTP2639-230/50 (supplied by voltage).
- B. Spacer p/n: TU02846 (Alt: 25N18R50AP)
- C. Spacer p/n: TU02846-03 (Alt: AN960PD-416, NAS1149D0463J).



⚠ DO NOT use split, star, or lock-washer of *any* type or material, refer to § 4 and Figure 7.2.

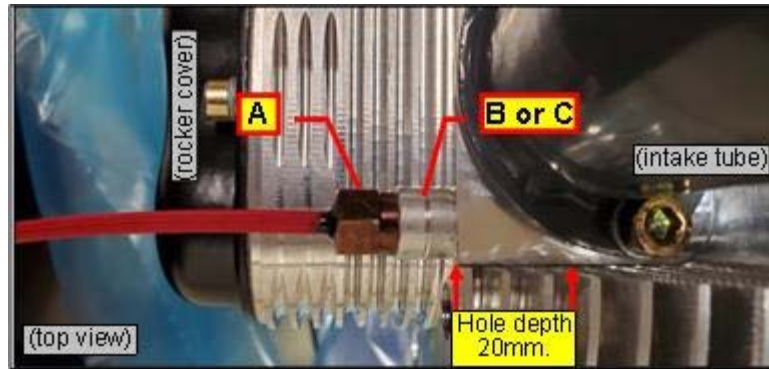


Figure 7.10. Example of element in cylinder head Airbox boss. Cylinder head element location on UL Power 4- and 6-cylinder engines.

Before starting installation measure hole and threading depth. Requires hole depth of 20mm w/ 18mm of threading. When required drill and tap w/ M6-1.0 Bottoming Tap.

Space as needed elements are not to bottom out.

Suggest using Thermal Transfer Grease to lubricate threads and fill voids between element shank and spacers. Suggested torque: 4 Nm / 35 in-lbs.

D. Threaded Element p/n: TTP2639-115/50 or TTP2639-230/50 (supplied by voltage).

E. Spacer p/n: TU02846 (Alt: 25N18R50AP)

F. Spacer p/n: TU02846-03 (Alt: AN960PD-416, NAS1149D0463J).



⚠ DO NOT use split, star, or lock-washer of *any* type or material, refer to § 4 and Figure 7.2.

******* NOTHING FOLLOWS *******