



INSTRUCTION – PREHEAT KIT INSTALLATION

Subject: P/N: TSP4CYL-2925-115, Engine Preheat Kit – 115 Volt
TSP4CYL-2925-230, Engine Preheat Kit – 230 Volt

Document No: TNP2925

Revision: E

Date: APR-12-2019

RECORD OF REVISIONS

When updated, this document is changed in its entirety.

REV	DATE	DESCRIPTION	BY	CKD
E	APR-12-2019	Reformat with 1000 series documents	DNE	GDO
D	SEP-10-2014	Replace AFMS with TPG0001 Operating Guide	DNE	DNE
C	MAR-06-2014	Release for conformity installation	DNE	DNE

Current revision approval: _____

1. PURPOSE

This instruction provides guidance for installation of 115- and 230-volt kits listed above.

2. REQUIREMENTS

Subject kit top-level drawing, 02925-115 or 02925-230, parts and documents as listed.

- Tools, hardware, and consumables, power supply and extension cords, not supplied.
- Pad element bonding sealant supplied separately refer to TN02788.
- Threaded element installation requires tools and OEM torque specs refer to TN02771.
- Shore plug mounting hardware not supplied refer to TNG1000 for mounting options.

3. INSTALLATION

⚠ Caution: Energized elements can cause 2nd and 3rd degree burns. **Do Not** connect power to elements or system before completing Functional System Check, TNG1000.

Abbreviations: Alternating current (AC), Center of gravity (CG), Cylinder head thermocouple (CHT), Circuit protection device (CPD), Original equipment manufacturer (OEM), Section (§), Service Bulletin (SB), To be determined (TBD), Top-level drawings (TLD).

- Technicians and users of this instruction should be familiar with Installation Guide TNG1000 and related document listed in TLD.

3.1 Inventory

Start with parts and document inventory, refer to subject kit TLD for item list.


3.2 Weight and Balance


Weigh kit and intended installation hardware before installation. Approximate installed weight: 1.0 lb / 0.45 kg. When required use engine arm for calculations. Refer to TNG1000 for change requirements.

PROPRIETARY DATA

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3.3 Elements

 Pad element: *Only use* approved bonding sealant. Refer to instruction TN02788 for sealant and bonding procedures.

 Threaded elements: **Do Not** use star, wave, or lock washers of any type. Secure element leads 3in/8cm or less from element. When spacers are required *only use* supplied ¼-inch TU02846 aluminum spacers and/or flat washers. Refer to instruction TN02771 for installation procedures.

For additional descriptions by engine make see below and Figures § 4.

- Should operational procedures or environment conditions require alternate or additional elements, contact Tanis engineering.
- Measure resistance of each element with ohmmeter before installing, Table 4.1.

Continental

Pad element TEP2653- Locate on oil tank/sump below nominal oil level, front, back, side or bottom, avoid oil drip point when possible.

Note: Kit compatible with Van Dusen Oil-tank cover kits 340685 and 340693.

Threaded element TTP2771- Locate one per cylinder head replacing lower rocker cover fastener.

Do Not allow element to bottom out or for more than three threads to extend beyond rear of rocker cover flange, space accordingly. *Only use* supplied ¼-inch TU02846 aluminum spacers and/or flat washers.

Do Not use star, wave, or lock washers of any type.

Torque to OEM specification for location of installation.

Secure element leads 3 inches / 8 centimeters or less from element.

Note: O-240 series, split rocker covers, replace fastener on intake valve rocker cover.

Lycoming

Pad element TEP2653- Locate on oil tank/sump below nominal oil level, front, back, side or bottom, avoid oil drip point when possible.

Threaded element TTP2771- Locate one per cylinder head replacing intake tube flange fastener (preferred) or lower rocker cover fastener.


Replacing in intake tube flange fastener (preferred): **Do Not** use any spacers or washer of any type.

Replacing lower rocker cover fastener: **Do Not** allow element to bottom out or for more than three threads to extend beyond rear of rocker cover flange, space accordingly. *Only use* supplied ¼-inch TU02846 aluminum spacers and/or flat washers. **Do Not** use star, wave, or lock washers of any type.

Torque to OEM specification for location of installation.

Secure element leads 3 inches / 8 centimeters or less from element.

3.4 Electrical

 **Do Not** transition cable leads from engine to airframe unless power plug is located off engine and then *only* power, light, and ground, leads may transition from engine.

Typical system installation below, for additional descriptions refer Figures § 4.

- Electrical routing suggested final routing TBD by installing authority.
- Wires and cables are to be supported by suitable cable ties, clamps, grommets, or other devices at intervals of not more than 6-inches / 15.25-centimeters, except when contained in ducts or conduits. Refer to TNG1000 and AC 43.13-1 (as amended) Chapter 11.
- Only connect power after completing Functional System Check with ohmmeter, § 3.5.

Continental and Lycoming

Shore Power Plug (inlet), TP02770-115 or TP02980-230, and Indicator Light TLP3039-: Hard mount plug and light in accessible area on engine, oil filler tube, baffle, or mount. Secure with cushioned clamps and/or bracket.

Optional circular plug bracket kit TU01062 available for locating supplied plug and light. Requires 6in/15cm or longer oil filler tube or engine mount, refer to instruction TN01062. Additional plug options refer to installation guide TNG1000 and Figures § 4.

Plug pinout refer to cable kit wire diagram drawing 02859.

Note: 230-volt kit supplied with extension cord plug adaptor (outlet) TP02829-230 refer to instruction TN02829.

Cable Kit TC02859 with CPD: Suggest locating on and routing with ignition leads or on engine in area that allows leads to reach corresponding components, locate CPD in serviceable area near plug.

Secure with cable-ties and/or clamps. Suggest adjusting length by looping or race-tracking. Leads may be cut and re terminated. Avoid attaching wires to fuel or fuel primer lines.

Verify OEM engine/airframe bonding strap is installed. Attach ground wire from plug to engine or aircraft structure, connection not to exceed .003 ohms, refer to TNG1000.

Placard TU02615-: Affix in visible location near power plug.

3.5 Completion

1. Inspect: Visually inspect and verify components are connected and secure.
2. Check: Perform Functional System Check, refer to Installation Guide TNG1000.
3. Record: Retain data and record as indicated in Instructions for Continued Airworthiness TCA1000 and Operating Guide TPG1000.

4. TABLES AND FIGURES

This section contains Tables with electrical values and Figures with examples of general system layout by engine make. For additional installation information and plug mounting options TNG1000.

Table 4.1. Electrical Values.

System and individual element value tolerances, +/- 10%.

TSP4CYL-2925-115		Total:	2.1 Amps	240 Watts	55.1 Ohms
Qty	Element Part Number	Element type and location		Watts	Ohms
1	TEP2653-115/40	Pad, Oil sump	each:	40	330.6
4	TTP2771-115/50	Threaded, Cylinder head	each:	50	264.5

TSP4CYL-2925-230		Total:	1.0 Amps	240 Watts	220.4 Ohms
Qty	Element Part Number	Element type and location		Watts	Ohms
1	TEP2653-230/40	Pad, Oil sump	each:	40	1322.5
4	TTP2771-230/50	Threaded, Cylinder head	each:	50	1058.0

Continental

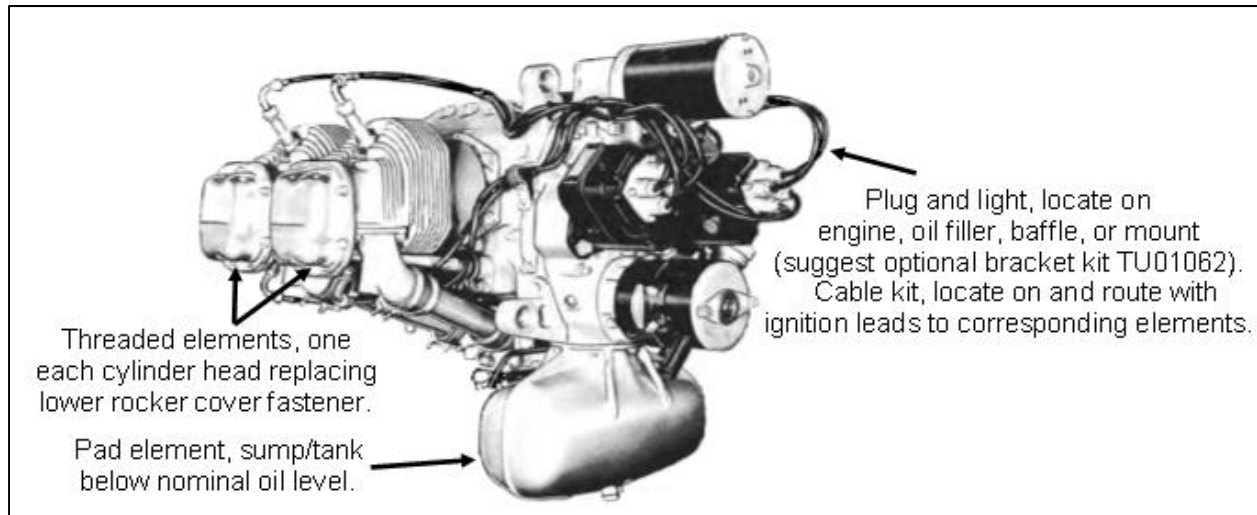


Figure 4.1. Continental engine kit layout.

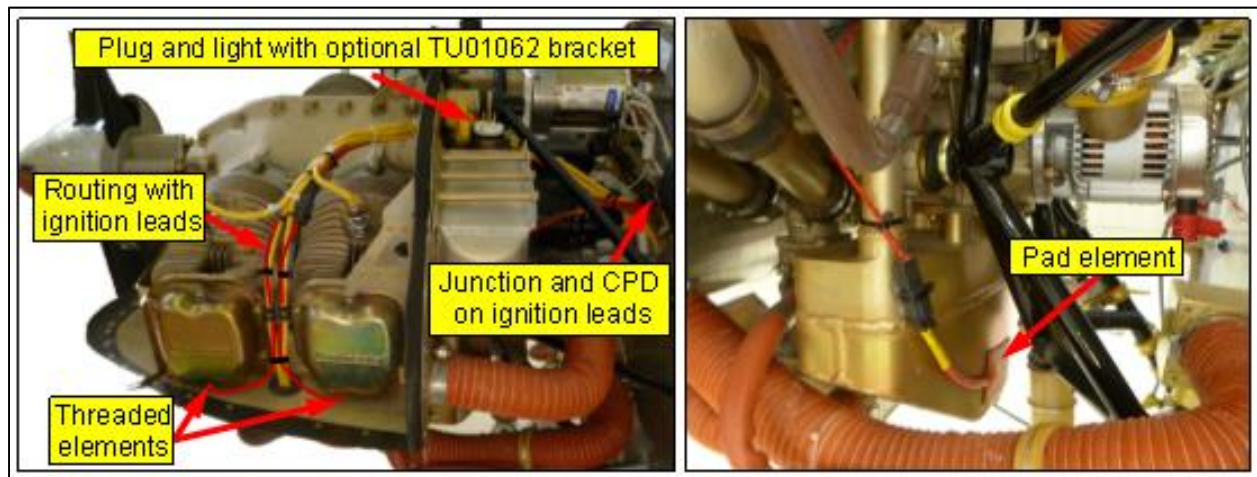


Figure 4.2. Example of kit installation on Continental O-200 engine.

Lycoming

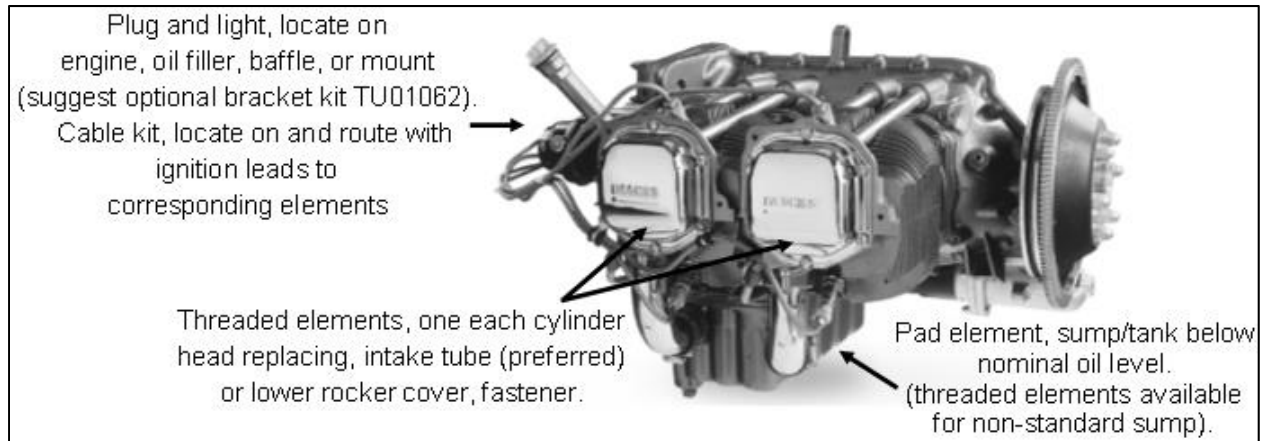


Figure 4.3. Lycoming engine kit layout.

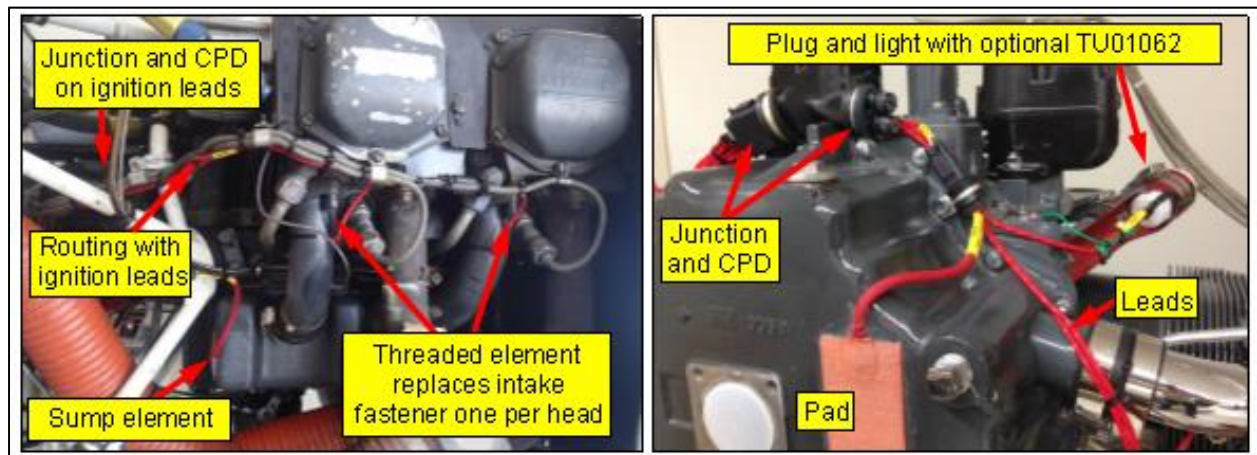


Figure 4.4. Examples of kit installation on Lycoming 0-320 engine. Left: Cable kit shown located on and routed with ignition leads secured with cable-ties and clamps. Right: Cable kit shown located on engine, junction and CPD secured with clamps and cable-ties.

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