



## INSTRUCTION – PREHEAT KIT INSTALLATION

**Subject:** Engine Preheat Kit – 115 Volt p/n: TSTPE331-1050-115  
Engine Preheat Kit – 230 Volt p/n: TSTPE331-1050-230  
Honeywell TPE331 Series Engines -3 through -12.

**Document No:** TNT1050  
**Revision:** E  
**Date:** DEC-14-2021

### RECORD OF REVISIONS

*(When updated, this document is changed in its entirety)*

REV	DATE	DESCRIPTION	BY	CKD
E	DEC-14-2021	Table 4.1 correction and add options § 3	DNE	GDO
D	JAN-18-2021	Turbine elements 1000 docs remove 2782	DNE	GDO
C	JAN-22-2015	Correct typo (03036 should be 03026)	GDO	DNE

Current revision approval: \_\_\_\_\_

### 1. PURPOSE

This instruction is for the Subject parts listed above. Refer to Installation Guide: TNG1000 for acronyms, regulatory guidance and technical information used in support of the installation.

### 2. REQUIREMENTS

Subject kit top-level drawing (TLD): 1050-115 or 1050-230, parts and documents as listed.

Users of this instruction are to be familiar w/ Installation Guide: TNG1000 and Related Documents listed in TLD.

- Tools, hardware, and consumables, power supply and extension cords, not supplied.
- Pad element bonding sealant supplied separately, refer to Instruction: TN02788.
- Plug mounting TBD by the user, refer to this Instruction and TNG1000 for examples.

### 3. INSTALLATION

**⚠ Caution:** Energized elements can cause 2<sup>nd</sup> and 3<sup>rd</sup> degree burns.

**Do Not** connect power to elements or system before installed and Functional System Check in Installation Guide: TNG1000 has been completed.

Options supplied separately:

AV/Cabin Heat Kit p/n: TU03323, Battery Heat kit p/n: TSB2800, and Single Plug Cable Kit p/n: TC03321. For additional options and technical information, refer to Installation Guide: TNG1000.

#### 3.1 Inventory

Start w/ parts and document inventory, refer to TLD: 1050-115 or 1050-230 (supplied by voltage) and Cable Kit drawing: 03026.

#### PROPRIETARY DATA

Tanis Aircraft Products proprietary rights are included in the information disclosed herein. The recipient by accepting this document agrees that neither this document nor the information disclosed herein, nor any part thereof will be reproduced or transferred to other documents or used or disclosed to others for manufacturing or for any other purpose except as specifically authorized in writing by Tanis Aircraft Products - 952-224-4425.

### 3.2 Weight and Balance

Weigh kit and intended installation hardware before installation.

- Approximate installed weight: 1.0 lb / 0.5 kg. When required use engine arm for calculations. Refer to Installation Guide TNG1000 for change requirements.

### 3.3 Elements

⚠ *Only use approved bonding sealant, TU02788 (clear DC 732 or white fluorosilicone DC 730). Refer to instruction TN02788.*

Locate elements with reference to narratives and examples below and Figures § 4.

- Elements are supplied by voltage; narratives may exclude reference after dash (-).
- Placement of pad heat elements may differ from examples.
- Supplied elements, or elements of comparable wattage, are to be located on AGB and PRGB engine case.
- Measure resistance of each element before installing, refer to values in Table in § 4.
- Common substitution elements:**  
Option for large capacity stainless oil tank, substitute 45W 3x3.5-inch element p/n: TEP3319- with 4x6-inch 90W element p/n: TEP3286- .  
Options for fitting issues dealing with variations in engine case or equipment configuration, substitution of AGB or PRGB element(s) p/n: TEP2655- or TEP3181- with 95W pad element TEP2675- or 120W pad element TEP2878-.
- For additional substitutions, contact Tanis engineering.
- AV/Cabin and battery heat kit options available separately, refer to TNG1000.

### 3.4 Electrical

Locate electrical components with reference to cable kit drawing: 03026, narrative below and § 4.

- Routing suggested. Final routing TBD by installing authority.
- Single plug twin engine option available separately, Cable Kit Mod p/n: TC03321, refer to drawing 03320.
- 230-volt kit supplied with extension cord plug adaptor, refer to instruction TN02829.
- Verify engine to airframe bonding strap is installed.
- Parallel circuit may be reconfigured to accommodate routing requirements.
- When required to reduce movement/slipping of cable-ties, suggest using self-fusing tape under cable-ties on connector and cabling (SFT available separately p/n: TU03076-05R).
- Pursuant AC 43.13-1 (as amended) Chapter 11. 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.
- When needed, to limit movement of cable-ties use self-fusing silicone tape (SFT) around connectors and/or cabling. Available separately p/n: TU03076-05R or equivalent.
- Only connect power after completing Functional System Check with ohmmeter, § 3.5.

Shore plug (inlet) and indicator light: Plug p/n: TP02070-M-115 or TP02839-S-230, and Light p/n: TLP3039-115 or TLP3039-230 (supplied by voltage). Suggested location for plug is with doubler in lower cowl. Location and mounting method TBD by user, additional suggestions and examples for plug mounting referenced in Installation Guide: TNG1000.

Alternate circular plugs available substitution p/n: TP02770-115 or TP02980-230 (supplied by voltage), in addition suggest locating w/ Plug Bracket kit p/n: TU03345, Instruction: TN03345.

For plug mounting examples and options refer to Installation Guide: TNG1000.

Cable Kit w/ CPD: Cable Kit p/n: TCT3026, locate and secure CPD and junction in serviceable areas that allow leads to reach corresponding components. Terminate power lead in rear of shore power plug, refer to Cable Kit circuit drawing: 03026.

Green ground wire: Attach to engine or airframe and terminate in shore power plug. Connection not to exceed .003 ohms, refer to Installation Guide: TNG1000.

Placard: Affix supplied placard p/n: TU02615-115 or TU02615-230 (supplied by voltage) or equivalent stating at a minimum “Tanis” with system voltage (115V or 230V), in visible area near shore 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: Record and retain data as indicated in Instructions for Continued Airworthiness: TCA1000 and Operating Guide: TPG1000.

## 4. TABLES AND FIGURES

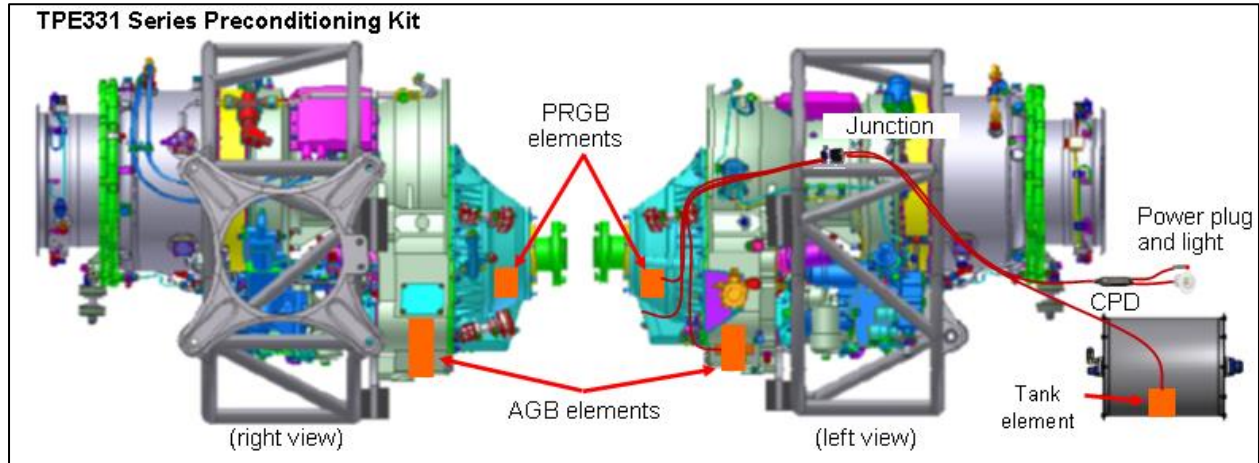
This section contains technical information and examples of typical installations, actual installation may vary due to existing equipment, operating and/or installation requirements. Installation may require a combination of three elements on AGB with one on PRGB refer to Figure 4.1.

**Table 4.1.** Electrical Values.

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

115-volt Kit			Total:	4.0 Amps	465 Watts	28.4 Ohms
Qty	Element Part Number	Element location (may vary)			Watts	Ohms
2	TEP2655-115/90	PRGB	each:	90	146.9	
2	TEP3181-115/120	AGB	each:	120	110.2	
1	TEP3319-115/45	Engine Oil Tank	each:	45	293.9	

230-volt Kit			Total:	2.0 Amps	465 Watts	113.8 Ohms
Qty	Element Part Number	Element location (may vary)			Watts	Ohms
2	TEP2655-230/90	PRGB	each:	90	587.8	
2	TEP3181-230/120	AGB	each:	120	440.8	
1	TEP3319-115/45	Engine Oil Tank	each:	45	1175.6	



**Figure 4.1.** General layout shown on up-intake engine. Up or down intake, 5-elements used, power is routed from plug through CPD and distributed to individual elements by terminal junction. Cable routing, plug location, and mounting method, TBD user. Locate CPD and junction in serviceable areas that allow leads to reach corresponding components.

**Note:** Due to engine configuration, up or down intake, positioning of elements may vary from example. When possible, locate elements low and position for lead routing.

General configuration:

Two pad elements p/n: TEP2655- are located on PRGB.

Two pad elements p/n: TEP3181- are located on AGB.

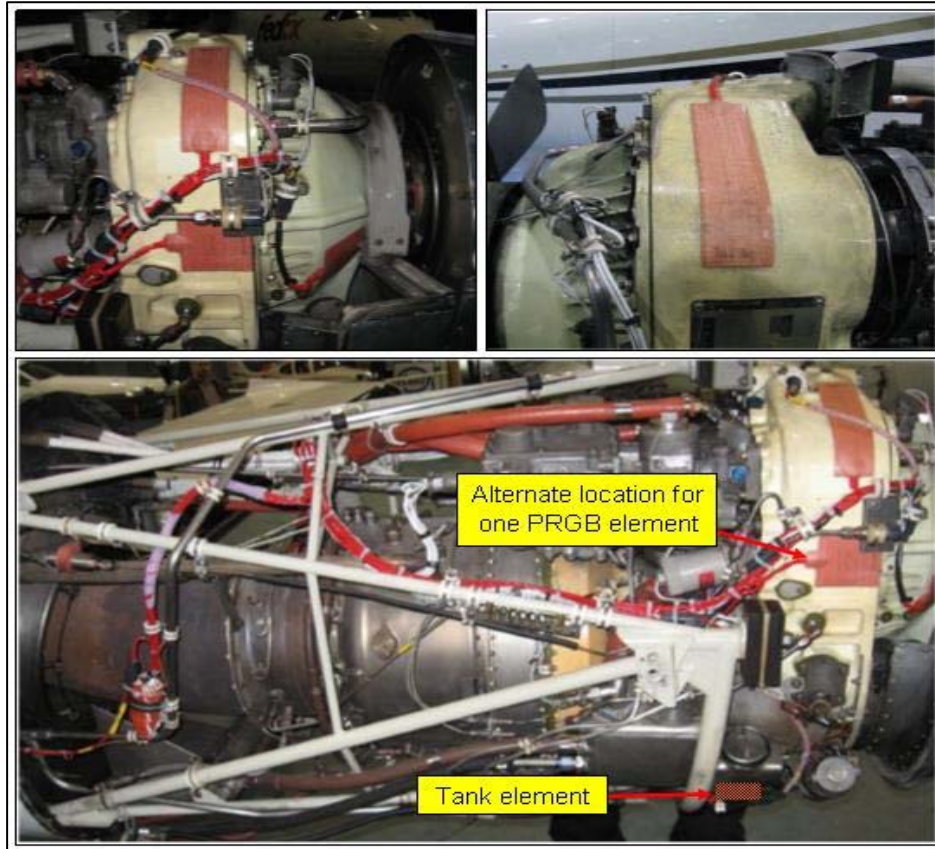
One pad element p/n: TEP3319- is located on engine oil tank below nominal oil level.

Installation may require a combination of three elements on AGB w/ one on PRGB.

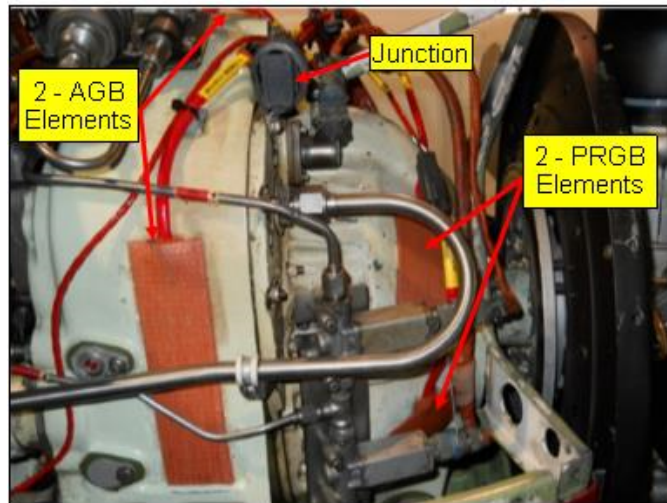
Alternate pad element available for variations in engine case variation refer to § 3.3 and top-level drawing: 1050 for common substitution elements.

High-capacity oil tank 4-liters or larger; Alternate element p/n: TEP3286- 90W 4x6 inch element.

Single plug Cable Kit Mod p/n: TC03321 and plug mounting options available, refer to drawing 03320, § 3.4. and Installation Guide TNG1000.

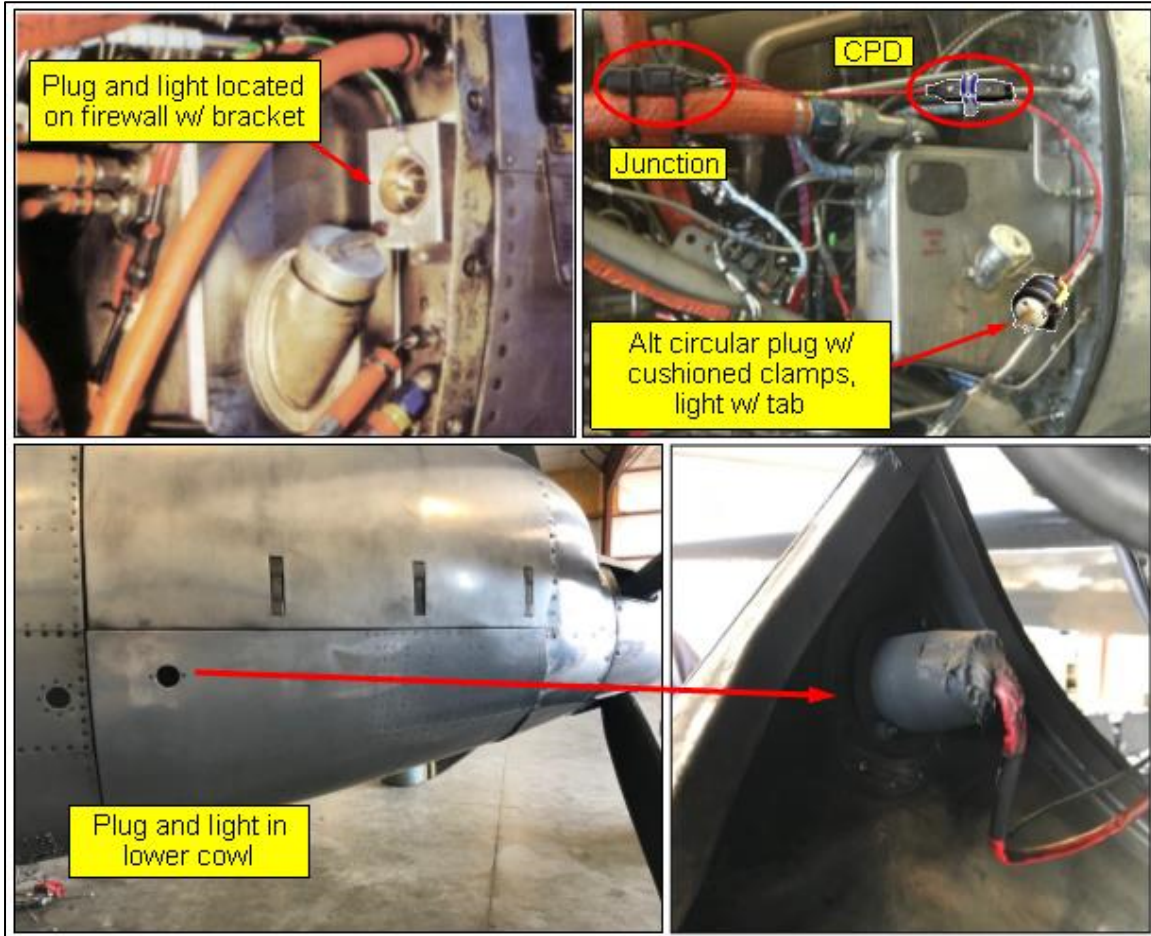


**Figure 4.2.** Example of -10 down inlet engine (CASA 212, Conquest and others).  
Three AGB elements: 2-ea. p/n: TEP3181 and 1-ea. p/n: TEP2655-.  
One PRGB element: p/n: TEP2655-.  
One Oil Tank element: p/n: TEP3319-, alt. for large tank over 4-liters refer to § 3.3.



**Figure 4.3.** Example of down inlet engine with standard element configuration.  
Two AGB elements: p/n: TEP3181-.  
Two PRGB element: p/n: TEP2655-.  
One Oil Tank element: p/n: TEP3319-, alt. for large tank over 4-liters refer to § 3.3.





**Figure 4.4.** Examples for plug mounting. Location and mounting method TBD by installing authority. Additional suggestion and examples for plug mounting referenced in Installation Guide TNG1000.

Top Left: Metroliner with supplied flush plug located on firewall with field fabricated bracket, refer to drawing: 2581.

Top Right: Metro w/ alternate circular plug p/n: TP02770-115 or TP02980-230 (supplied by voltage). Plug and light secured w/ Plug Bracket Kit TU03345 (clamp type kit) includes tab for Indicator Light.

Bottom: Supplied plug and light mounted in lower cowl, with doubler p/n: TD02838 or field fabricated doubler, drawing 2585 or fabricate similar.

Single plug twin engine Cable Kit Mod and plug mounting options available, refer to § 3.4. and Installation Guide TNG1000.

\*\*\*\*\* NOTHING FOLLOWS \*\*\*\*\*