



INSTRUCTION – PREHEAT KIT INSTALLATION

Subject: P/N: TSTFE731-3200-115, Preheat Kit – 115 Volt
TSTFE731-3200-230, Preheat Kit – 230 Volt
Honeywell TFE731 Series Turbofan Engines

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Revision: B
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RECORD OF REVISIONS

When updated, this document is changed in its entirety.

REV	DATE	DESCRIPTION	BY	CKD
B	JUL-12-2019	Reformat with 1000 series documents.	DNE	GDO
A	MAY-12-2017	Initial Release	DNE	GDO

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, 03200-115 or 03200-230, parts and documents as listed.

- a. Tools, hardware, and consumables, power supply and extension cords, not supplied.
- b. Pad element bonding sealant supplied separately, refer to TN02788.

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), Accessory gearbox (AGB), Center of gravity (CG), Circuit protection device (CPD), Fuel control unit (FCU), Maintenance Manual (MM), Original equipment manufacturer (OEM), Removal and replacement (R&R), Section (§), Service Bulletin (SB), To be determined (TBD), Top-level drawings (TLD), Transfer gearbox (TGB).

- 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 / 0.5 kg. When required use engine arm for calculations. Refer to TNG1000 for change requirements.

PROPRIETARY DATA

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3.3 Elements

Measure resistance of each element before installing, refer to § 4. Table 4.1.

- a) Locate elements with reference to narratives and examples in § 4.
- b) Pad heat elements bonded to engine components with sealant, refer to TN02788.
- c) Should alternate or additional elements be required contact Tanis engineering.

3.4 Electrical

Routing suggested final routing TBD by installing authority.

- a) Refer to cable kit wire diagram drawings, 03199 and installation guide TNG1000.
- b) Locate electrical components with reference to narratives below and examples in § 4.
- c) Wire termination and tooling refer to instructions TN02793 (junction instruction TN03012).
- d) Plug mounting TBD by installer refer to this instruction and TNG1000 for options.

Shore power plug (inlet) and indicator light: TP02070-M-115 or TP02839-S-230 and light TLP3039-. Identify location and method for installing supplied plug. Plug pinout refer to cable kit wire diagram drawing 03199. Refer to Figures 4.1., 4.4. and 4.5.

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

Note: Left and right engine kits may be operated from single plug, refer to cable kit wire diagram for plug and circuit limitations.

CPD: TU03141-B, locate in serviceable area near plug, refer to drawing 03141. Optional fused link type CPD available (TL03013-) refer to TNG1000 for additional options, refer to Figure 4.4.

Cable Kit: TCT3199, locate junction J-A on engine or in serviceable area that allows leads to reach corresponding components and route leads accordingly. Secure with cushioned clamps, cable-ties and/or appropriate lacing.

Firewall Connector Kit: TU03125, use for firewall or bulkhead penetration as needed. Location TBD installer or use existing, not used when kit is configured with optional engine mounted plug. Refer to Figures 4.1. and 4.3.

Ground wire: 22759-181 green ground wire, verify OEM engine/airframe bonding strap is installed. Attach ring crimp end of ground wire on existing ground lug or other applicable ground location on airframe or engine and terminate in shore plug. Connection not to exceed .003 ohms, refer to TNG1000.

Placard: Affix supplied TU02615- placards or placard with equivalent stating at a minimum "Tanis", and the system voltage near shore plug, refer to Figure 4.4.

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 technical information and examples of typical installations, actual installation may vary due to existing equipment or operating requirements.

Table 4.1. Electrical Values.

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

115-volt system total			Total:	2.3 Amps	260 Watts	50.8 Ohms
Qty	Element Part Number	Element Location		Watts	Ohms	
1	TEP3179-115/40	TGB	each:	40	331.6	
2	TEP3180-115/50	Oil tank and AGB fwd	each:	50	264.5	
1	TEP3181-115/120	AGB aft	each:	120	110.2	

230-volt system total			Total:	1.1 Amps	260 Watts	203.5 Ohms
Qty	Element Part Number	Element Location		Watts	Ohms	
1	TEP3179-230/40	TGB	each:	40	1322.5	
2	TEP3180-230/50	Oil tank and AGB fwd	each:	50	1058.0	
1	TEP3181-230/120	AGB aft	each:	120	440.8	

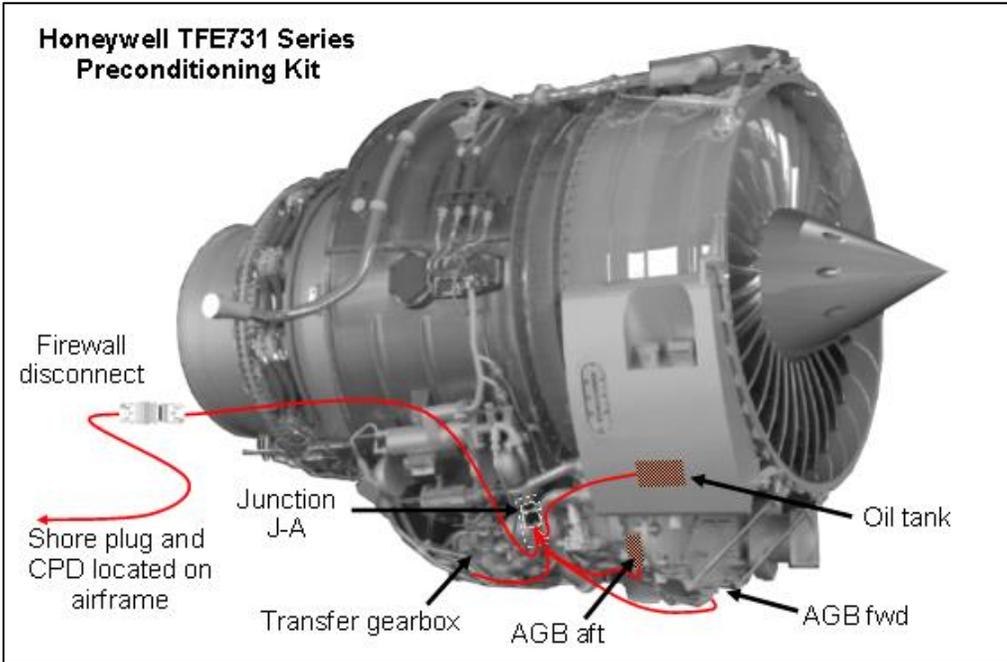


Figure 4.1. Overview of preconditioning kit layout.

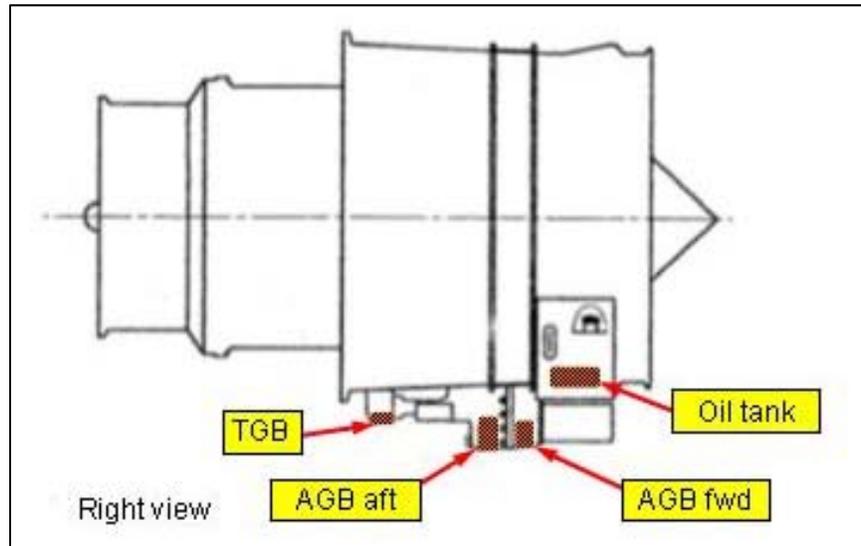


Figure 4.2. Locate engine elements low on gearboxes and on oil tank below nominal oil level. Position element leads for routing and lead support. AGB and TGB element locations may vary due to case model. Object is to get all three elements on gearboxes.

Note: **Do Not** use TEP3181- on oil tank (high wattage element).

- 1 ea. TEP3179-, TGB (90° transfer gearbox) - Low on case.
- 1 ea. TEP3180-, Oil tank - Horizontal below nominal oil level.
- 1 ea. TEP3180-, AGB - Low forward of case split.
- 1 ea. TEP3181-, AGB - Low aft of case split.

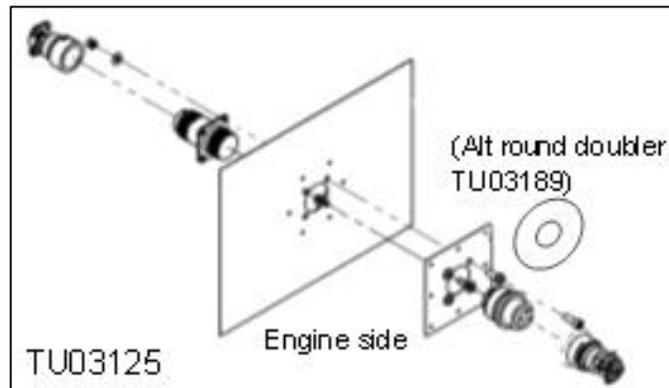


Figure 4.3. Firewall Connector Kit TU03125, use as needed. Location TBD by installing authority, assemble wet and seal with PS 700 per drawing 03125. Note: Use doubler as needed.



Figure 4.4. Examples of plug installations in non-structural inspection panel and optional plug and CPD kit on engine. Plug configuration and mounting TBD by installing authority, refer to individual component installation instructions for plug, indicator light, and CPD (instructions: TN02070, TN03039, and drawing 03141). Locate CPD in serviceable area near plug, optional fused link type CPD available (TL03013-). Refer to installation guide TNG1000 for plug and CPD options.

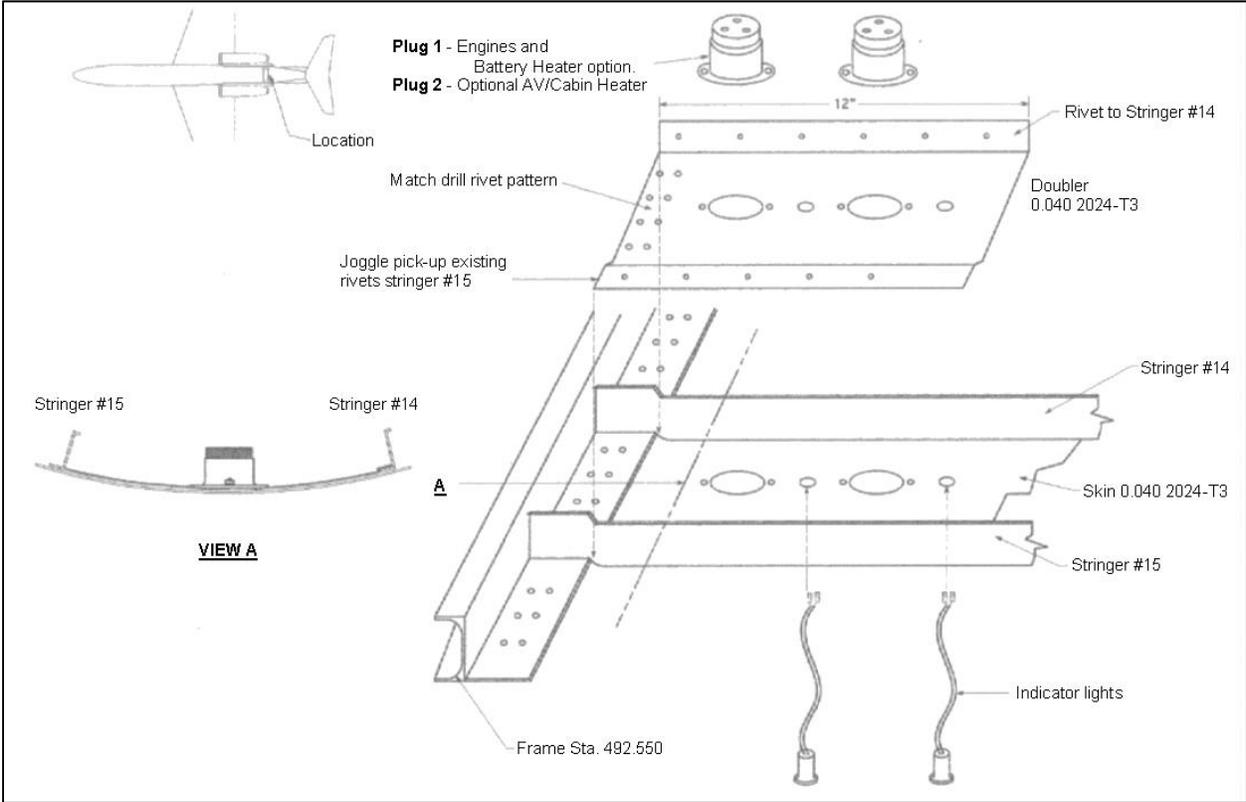


Figure 4.5. Example of plug mounting near hell hole in Learjet 31A, bracket field fabricated.

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