



INSTRUCTION – PREHEAT KIT INSTALLATION

Subject: TSTPT6A-3057-115, Engine Preheat Kit – 115 Volt
TSTPT6A-3057-230, Engine Preheat Kit – 230 Volt
PT6A Small and Medium Series Engines

Document No: TNT3057
Revision: C
Date: AUG-10-2020

RECORD OF REVISIONS

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

REV	DATE	DESCRIPTION	BY	CKD
C	AUG-10-2020	ECR 2017-0002, 2017-0028, Std. 3181 and 1000 docs.	DNE	GDO
B	OCT-04-2017	Correct typo § 6 Wt/BI reference, § 3.3.	GDO	DNE
A	JUL-14-2015	Initial Release	DNE	DNE

Current revision approval: _____

ACRONYMS

Alternating current (AC), Accessory gearbox (AGB), Center of gravity (CG), Circuit protection device (CPD), Maintenance Manual (MM), Original equipment manufacturer (OEM), Propeller reduction gearbox (PRGB), Remove and replace (R&R), Section (§), Self-fusing tape (SFT), Service Bulletin (SB), To be determined (TBD), Top-level drawings (TLD).

1. PURPOSE

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

2. REQUIREMENTS

Subject kit top-level drawing (TLD), 03057-115 or 03057-230, 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.
- Plug mounting requires Sheetmetal work, refer to TNG1000 for examples and options.
- Technicians and users of this instruction are to be familiar with document listed in TLD and related regulations listed in Installation Guide TNG1000.

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.

- Refer to Instruction Guide TNG1000 for regulatory guidance and plug mounting options.

3.1 Inventory

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

PROPRIETARY DATA

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3.2 Weight and Balance

Weigh kit and intended installation hardware before installation. Approximate installed weight: 1.5 lb / 0.7 kg. When required use engine arm for calculations. Refer to TNG1000 for change requirements.

3.3 Elements

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

- a) Measure resistance of each element before installing, refer to Table 4.1.
- b) *Only use* approved bonding sealant. Refer to instruction TN02788 for approved sealants and bonding procedures.
- c) Engine gearbox cases vary. Placement of pad heat elements may differ from examples. Supplied elements, or elements of comparable wattage, are to be located on AGB tank surface and PRGB. Should alternate or additional elements be required contact Tanis engineering. Common alternates listed below.

Common engine element alternates by application

AGB: TEP2655- (3 x 3 w/0.5 tab), TEP2657- (U- 3 x 4), TEP2675- (2 x 5), TEP2683- (LH aft 3 x 5), TEP2731- (2.5 x 9.4), TEP2736- (2 x 4), TEP2969- (3 x 3 w/0.5 tab), TEP3050- (3 x 7).

PRGB: TEP3181- (1.75 x 7), TEP2660- (8 x 4.5 x 2), TEP3035- (6 x 5 x 2).

Options supplied separately:

AV/Cabin and battery heaters refer to TNG1000 for available options.

3.4 Electrical

Locate electrical components with reference to cable kit wire diagram 03072, related documents listed in TLD, narratives and examples below and in § 4.

- a) Routing suggested. Final routing TBD by installing authority.
- b) Twin engine single plug option available separately, refer to drawing 03315.
- c) When required to reduce movement/slipping of cable-ties, suggest using self-fusing tape under ties on connector and cabling (SFT available separately p/n: TU03076-05R).
- d) 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.
- e) Only connect power after completing Functional System Check with ohmmeter, § 3.5.

Shore plug (inlet) and indicator light (supplied by voltage): Plug p/n: TP02070-M-115 or TP02839-S-230, Light p/n: TLP3039-115 or TLP3039-230. Suggested location for plug is with doubler in lower cowl below AGB, location and mounting method TBD by installing authority refer to Installation Guide TNG1000 for options. For single plug modification, refer to drawing 03315.

Placard (supplied by voltage): Affix supplied placard p/n: TU02615-115 or TU02615-230, or equivalent stating at a minimum “Tanis” with system voltage (115V or 230V), in visible area near shore power plug.

Cable Kit w/ CPD p/n: TCT3072: Locate and secure CPD in serviceable area near plug and terminate power lead in rear of shore power plug, refer to cable kit wire diagram 03072.

Ground wire 22759-181 (green): Verify OEM engine/airframe bonding strap is installed. Attach ring crimp to airframe or engine and terminate in shore plug. Connection not to exceed .003 ohms, refer to TNG1000.

Junction J-A: Locate near rear of AGB, on existing wire bundle or on engine mount, in location that allows leads to reach corresponding elements.

AGB and FCU leads, route with existing wiring and lines to corresponding elements.

PRGB lead, route forward with existing wiring and lines, use fireproof grommet as needed on aft hot section fire barrier.

Fireproof Grommet p/n: TG01056: Supplied for fire barrier penetration as required, refer to instruction TN01056.

Placard TU02615-115 or TU02615-230 (supplied by voltage): Affix supplied placard or equivalent stating at a minimum “Tanis”, and system voltage near shore 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.

Table 4.1. Electrical Values.

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

Record system information as indicated in ICA and Operating Guide.

Optional AV/Cabin and battery heat options not included in Tables. When installed refer to individual instructions and/or TNG1000.

Note: Single plug may power multiple kits, refer to cable kit wire diagram for circuit load limitations.

115-volt Kit			Total:	4.6 Amps	533 Watts	24.8 Ohms
Qty	Element Part Number	Element type and location		Watts	Ohms	
2	TEP2656-115/80	AGB	each:	80	146.9	
1	TEP2659-115/240	PRGB	each:	240	55.1	
1	TEP2682-115/13	FCU	each:	13	1017.3	
1	TEP3181-115/120	AGB	each:	120	110.2	

230-volt Kit			Total:	2.3 Amps	533 Watts	99.2 Ohms
Qty	Element Part Number	Element type and location		Watts	Ohms	
2	TEP2656-230/80	AGB	each:	80	587.8	
1	TEP2659-230/240	PRGB	each:	240	220.4	
1	TEP2682-230/13	FCU	each:	13	4069.2	
1	TEP3181-230/120	AGB	each:	120	440.8	

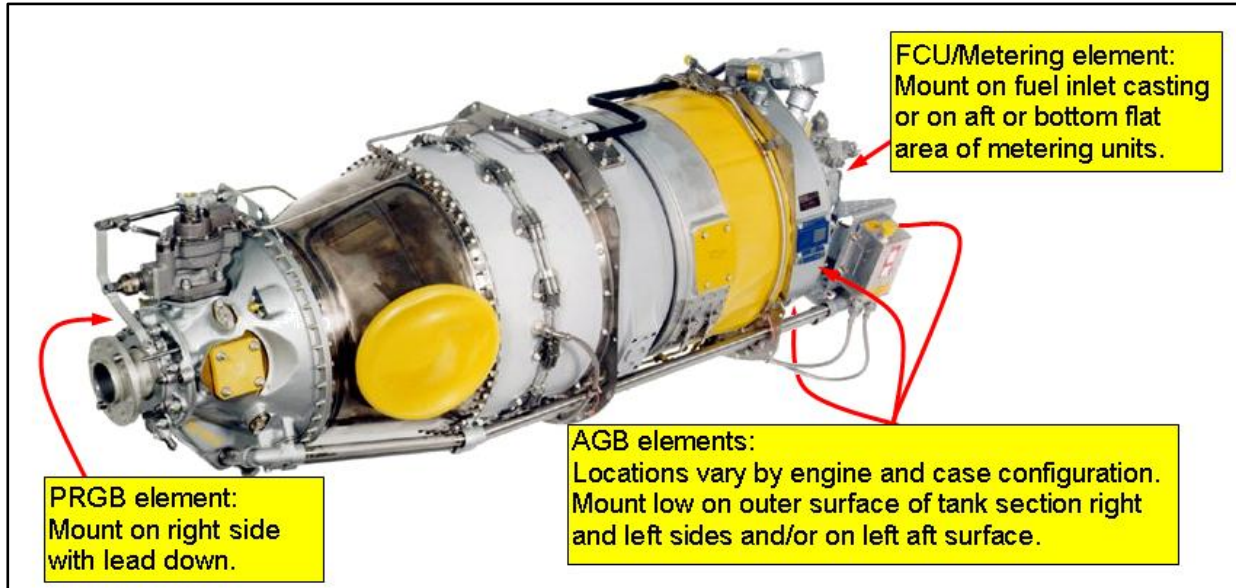


Figure 4.1. General engine element locations. Specific operational requirements, accessory, or modifications may require alternate and/or additional elements.

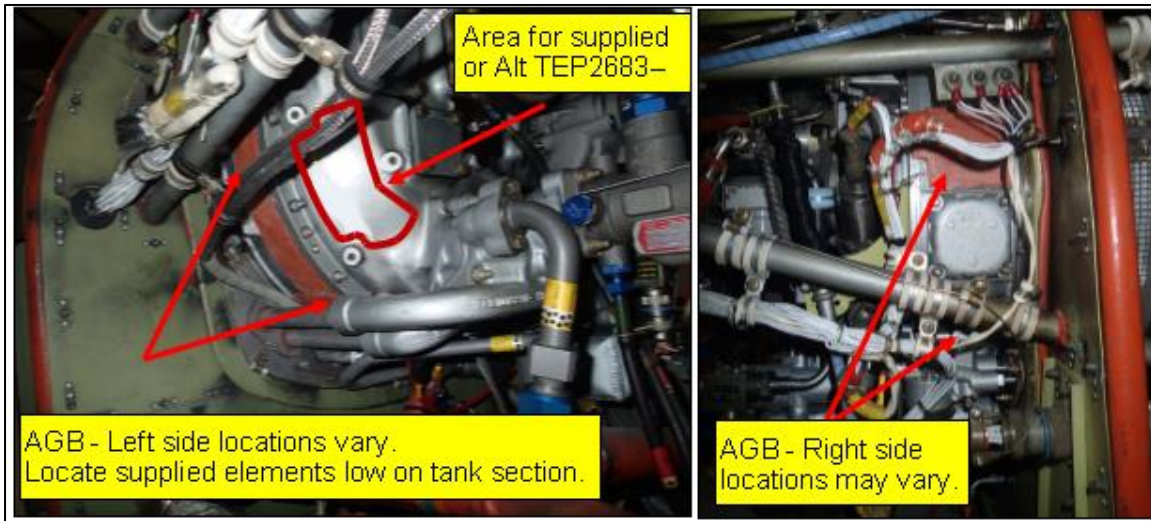


Figure 4.2. AGB element locations may vary from examples. Common configuration locates three elements on tank section: one p/n: TEP3181- and one p/n: TEP2656- on left side and one p/n: TEP2656- on right side. Locate elements as low on tank as possible.

Note: Placement of pad heat elements may differ from examples. Supplied elements, or elements of comparable wattage, are to be located on AGB tank surface and PRGB. Refer to § 3.3. for listing of common alternates or contact Tanis engineering.

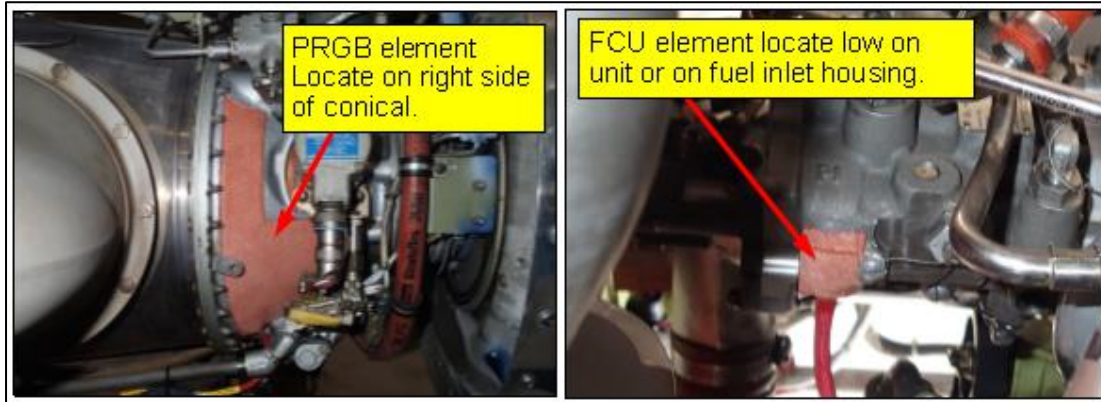


Figure 4.3. PRGB element P/N: TEP2659- locate on right side as shown. Common alternate TEP3035-. FCU element p/n: TEP2682- locate low on unit or on casting near fuel inlet fitting, use supplied pressure block TU02855 when needed, refer instruction TN02855.

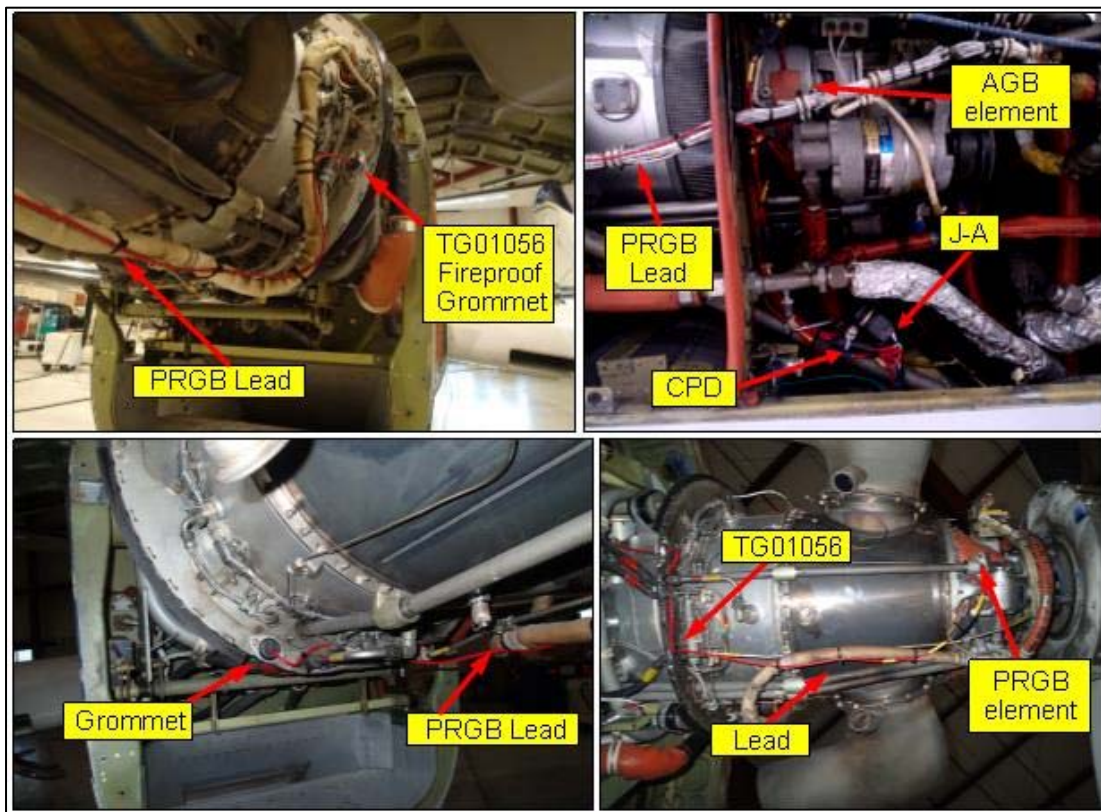


Figure 4.4. Examples of cable routing. Suggest locating junction J-A on or near rear of AGB in area that allows leads to reach corresponding elements. Secure on case, wiring bundle or engine mount. Route PRGB lead forward with existing wiring through fire barriers, use supplied fireproof grommet P/N: TG01056 in hot section barrier when needed, install with reference to instruction TN01056. Kit supplied with flush plug, suggest locating in lower cowl below AGB section, refer to TNG1000 for additional plug mounting options. Twin engine single plug option available, refer to cable kit drawing 03072 and wire diagram drawing 03315.

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