INSTRUCTION
PREHEAT INSTALLATION

Subject: P/N: TSFKODIAK-3123-115, Preheat Kit – 115 Volt
TSFKODIAK-3123-230, Preheat Kit – 230 Volt
Daher Kodiak 100 w/ PT6A-34

Document No: TNF3123
Revision: C
Date: NOV-07-2023

RECORD OF REVISIONS

(when revised, this document is changed in its entirety)

REV	DATE	DESCRIPTION	BY	CKD
C	NOV-07-2023	Rev w/ 1000 docs, turbine pads, and remove AC outlet	DNE	MFHB
B	AUG-02-2016	Update battery and shore power door kits	DNE	DNE
A	MAR-28-2016	Initial Release	GDO	DNE

Current revision approval: Digitally signed by Dirk Ellis
Date: 2023.11.10 09:11:59 -05'00'
Adobe Acrobat version: 2020.005.30524

CONTENTS

1. PURPOSE

The purpose of this instruction is to provide guidance for the installation of the Tanis Preheat Kit listed on the cover page of this document. For acronyms and regulatory guidance refer to Installation Guide: TNG1000.

2. REQUIREMENTS

Subject kit Top-Level Drawing (TLD): 03123-115 or 03123-230, parts and documents as listed.

(a) Tools, hardware, consumables, power supply, and extension cords, are not supplied.

(b) Sheet metal modifications are required for the firewall connector and plug door kits, refer to Figures 4.9 and 4.10.

(c) Pad element bonding sealant supplied separately refer to Figure 4.2.

3. INSTALLATION

⚠ **Caution:** Energized elements can cause 2nd and 3rd-degree burns. **Do Not** connect power to Pad Heat Elements or system before completing the steps in § 3.5.

Parts and related documents used in the installation are called out on the TLD and Figures § 4.

Technicians and users of this instruction should be familiar with the Installation Guide: TNG1000.

Installaton summary; Locate engine, avionics, and battery heaters and install shore power plugs. Route and connect electrical system. Perform a functional system check and record installation.

3.1 Inventory

Start with parts and document inventory, refer to TLD § 2.

3.2 Weight and Balance

Weigh the kit and intended installation hardware before installation. For Weight and Balance change requirements refer to Installation Guide: TNG1000.

Approximate installed weight:

4.0 pounds (lb.) / 1.8 Kilograms (Kg). Use engine firewall for C.G. calculations.

3.3 Heat Elements and Heaters

Locate elements, and heaters IAW narratives, related documents, and Figures in § 4.

(a) Measure the resistance of each element before installing, refer to Tables in § 4.

(b) Only use approved Bonding Sealant for pad heat element installation.

(c) Contact Tanis Aircraft Products customer support if alternate or additional elements are required.

Pad Heat Elements: Locate elements on the engine; FCU, AGB, and PRGB, using approved Bonding Sealant refer to Figures 4.2 through 4.6.

AV/Cabin Heater: Locate on the cabin/interior side of the firewall forward of the copilot rudder pedals with supplied Stud Mount Kits refer to Figure 4.7.

Battery Heaters: Locate heaters on the bottom of the battery boxes, one below each battery using Bonding Sealant refer to Figure 4.8.

3.4 Electrical System

Locate electrical system IAW narratives, related documents, Cable Kit drawing: 03122, and Figures in § 4.

(a) Routing suggested. Final routing TBD by the user.

(b) Circuits may be reconfigured to accommodate equipment and routing requirements, refer to the Cable Kit drawing for circuit load limitations and termination requirements.

(c) Wiring is to be supported by suitable cable ties, clamps, grommets, or other devices at intervals of not more than 6-in / 15.25 cm, except when contained in ducts or conduits.

(d) When needed for strain release, and to limit movement of cabling and components use Self-Fusing Tape (SFT), under cable ties and clamps, p/n: TU03076-05R or equivalent.

(e) The 230-volt kit is supplied with an extension cord plug adaptor. For installation on a user-supplied extension cord refer to Instruction: TN02829.

(f) Only connect power after completing Functional System Check with an ohmmeter § 3.5.

External Shore Power Connection: Locate the plug door with plugs and lights in the panel on the left side of the aircraft forward of the pilot doorjamb. For part numbers and installation details refer to Figure 4.9.

Firewall connector: Locate the Firewall Connector Kit in the engine firewall above the pilot side rudder pedals refer to Figures 4.10, and 4.11.

Cable Kit p/n: TCF3122, drawing: 03122

Route and terminate IAW Cable Kit drawing: 03122. Secure junctions in the engine compartment in serviceable areas that allow leads to reach corresponding elements. Refer to Figures 4, 9, 10 and 11.

Ground wires, one per plug. Verify OEM engine-to-airframe bonding straps are installed. Attach the ring crimp end to the airframe and terminate in the shore power plug. Connection not to exceed .003 Ohms, refer to TNG1000. Refer to Figure 4.9.

CPDs (fused links). Terminate in the rear of the corresponding plugs and secure with Cable Anchors and/or on existing wiring with cable ties. Refer to Figure 4.9.

AV/Cabin and Battery Heater Control Cable Assemblies. Connect to corresponding components as labeled and secure on existing wiring. Refer to Figures 4.7 and 4.8.

Placard: Affix placards in visible locations on or near the plug door refer to Figure 4.9.

3.5 Completion

1. Inspect: Visually inspect and verify the kit is installed IAW this instruction.
2. Check: Perform Functional System Check, refer to Installation Guide TNG1000.
3. Record: IAW 14 CFR part 43.9, and/or other procedures set in place by the user.
   a) Wt. & Bl. and equipment list, amend as required under aircraft basis of certification.
   b) Record and Retain Data as indicated in ICA: TCA1000 and Operating Guide: TPG1000.
   c) Complete Registration/Warranty Card, go to: https://www.tanisaircraft.com/warranty-card-registration

4. TABLES AND FIGURES

This section contains technical information and examples of typical installations. Final installation may vary due to existing equipment or operating requirements.

Table 4.1. 115 and 230 Volt Electrical Values

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

* Battery heater circuit normally open, closed below +5°C / 41°F. Refer to TN03046.

** AV/Cabin Heater circuit is normally open and closes below the set point. Electrical values vary due to design. Refer to Instructions: TN03235 and TN03094.

Plug-1. 115 Volt		**Total:**	**5.5 Amps**	**637 Watts**	**20.8 Ohms**
* Without battery heater:			4.6 Amps	533 Watts	24.8 Ohms
Qty	**Element Part Number**	**Element Type and Location**		**Watts**	**Ohms**
1	TEP3181-115/120	Pad, LH AGB		120	110.2
2	TEP2656-115/80	Pad, RH AGB		80	146.9
1	TEP2659-115/240	Pad, PRGB		240	55.1
1	TEP2682-115/13	Pad, FCU		13	1017.3
* 2	TEP3136-115/52	Pad, Battery Heater		52	254.3

Plug-2. 115 Volt		**Total:**	**** 6 Amps**	**500 Watts**	
Qty	**Part Number**	**Heater and Location**		**Watts**	**** Ohms**
1	THP3094-001	AV/Cabin Heater, Flight Deck	each:	500	(PTC)

Plug-1. 230 Volt		**Total:**	**2.8 Amps**	**637 Watts**	**83.0 Ohms**
* Without battery heater:			2.3 Amps	533 Watts	99.2 Ohms
Qty	**Element Part Number**	**Element Type and Location**		**Watts**	**Ohms**
1	TEP3181-230/120	LH AGB		120	440.8
2	TEP2656-230/80	RH AGB		80	587.8
1	TEP2659-230/240	PRGB		240	220.4
1	TEP2682-230/13	FCU		13	4069.2
* 2	TEP3136-230/52	Battery Heater		52	1017.3

Plug-2. 230 Volt		**Total:**	**** 3 Amps**	**500 Watts**	
Qty	**Part Number**	**Heater and Location**		**Watts**	**** Ohms**
1	THP3094-001	AV/Cabin Heater, Flight Deck	each:	500	(PTC)

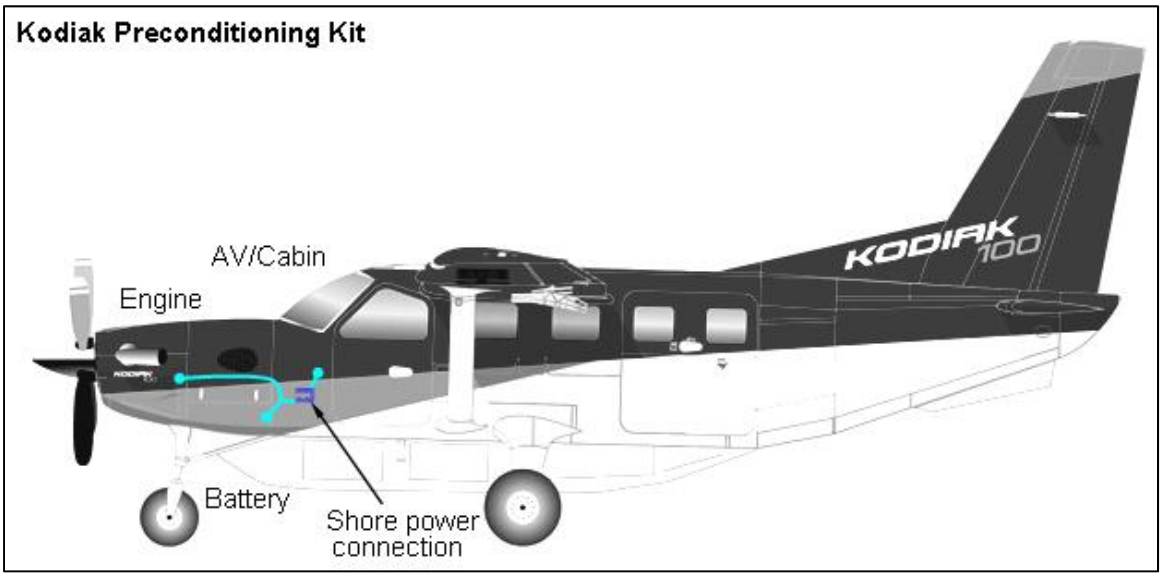

Figure 4.1. Kodiak Preheat Kit layout. Ground operated, connected to external shore power. For operating procedures and Best Practices refer to Operating Guide: TNG1000.

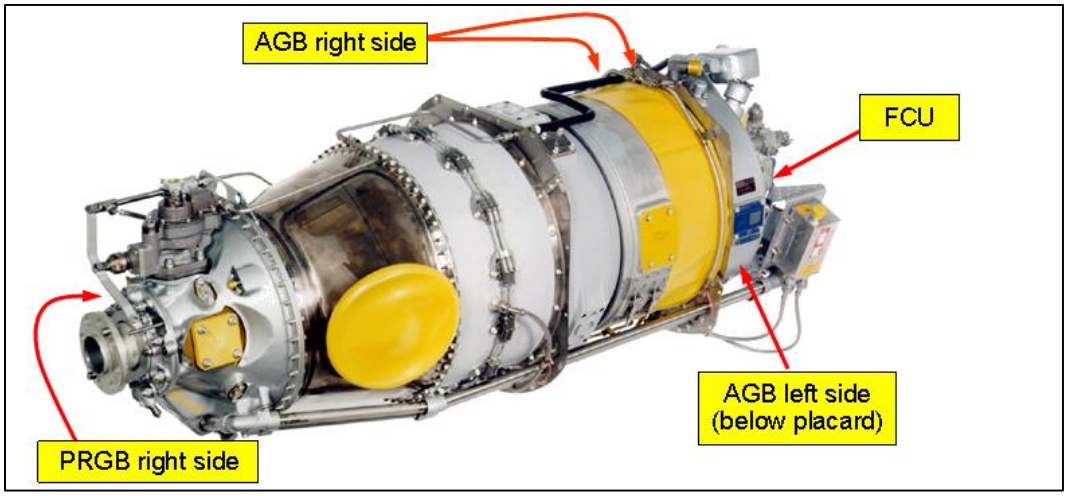

Figure 4.2. PT6A-34 Engine Pad Heat Elements (supplied by voltage). Only use approved Bonding Sealant p/n: TU02788. For bonding procedures refer to Instruction: TN02788.

2 ea. p/n: TEP2656-115/120 or TEP2656-230/120, AGB right side above and below oil filter.

1 ea. p/n: TEP2682-115/13 or TEP2682-230/13, FCU fuel inlet casting.

1 ea. p/n: TEP2659-115/240 or TEP2659-230/240, PRGB right side below governor.

1 ea. p/n: TEP3181-115/120 or TEP3181-230/120, AGB left side below placard.

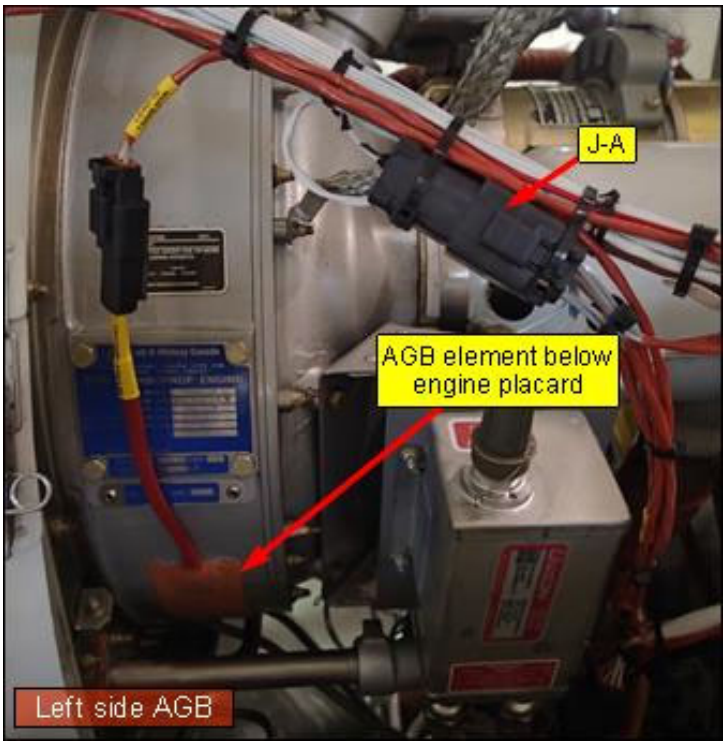

Figure 4.3. Example of left AGB Pad Heat Element p/n: TEP3181-115/120 or TEP3181-230/120 (supplied by voltage) located below the engine placard.

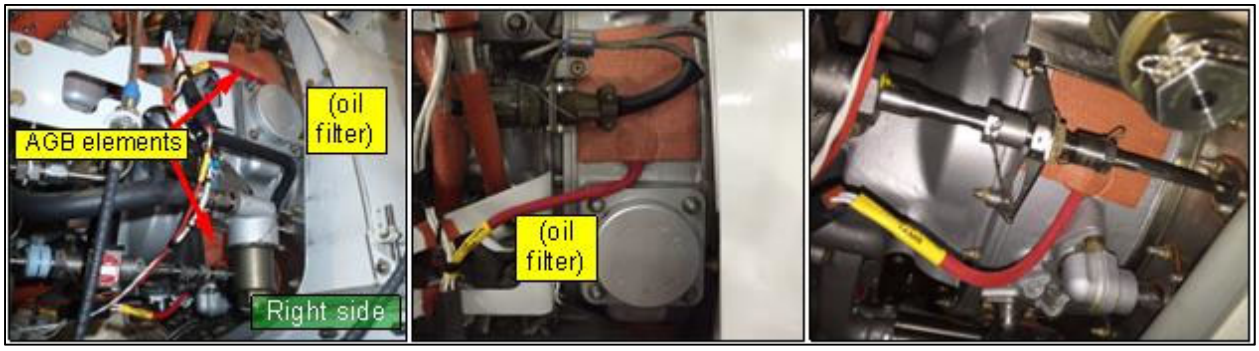

Figure 4.4. Example of right AGB Pad Heat Elements, 2 ea. p/n: TEP2656-115/120 or TEP2656-230/120 (supplied by voltage) located on the right side of the AGB. One pad above and one below the oil filter, or fit on the left and aft sides of the tank section as required. Location may vary due to case or equipment variations. Elements are available for substitutions when required.

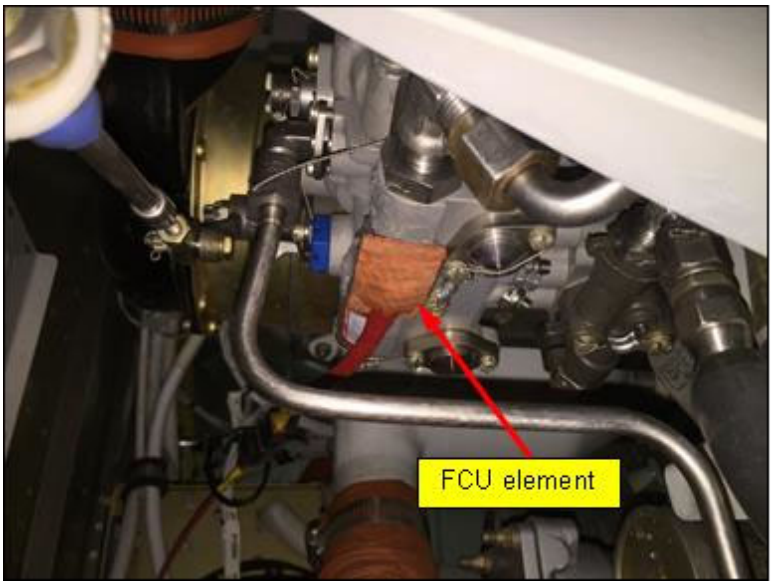

Figure 4.5. Example of FCU Pad Heat Element p/n: TEP2682-115/13 or TEP2682-230/13 (supplied by voltage) located low on FCU, on fuel inlet casting or flat surface. Location may vary due to the FCU model.

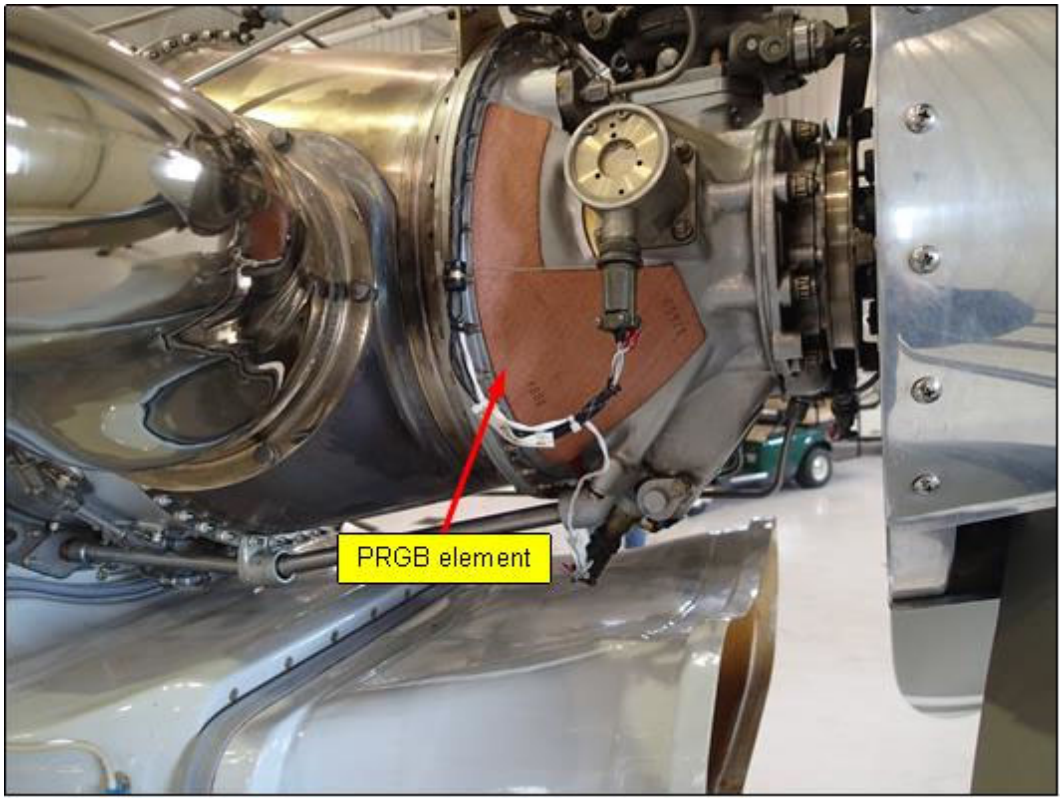

Figure 4.6. PRGB Pad Heat Element p/n: TEP2659-115/240 or TEP2659-230/240 (supplied by voltage) located on the right side of the PRGB below the prop governor.

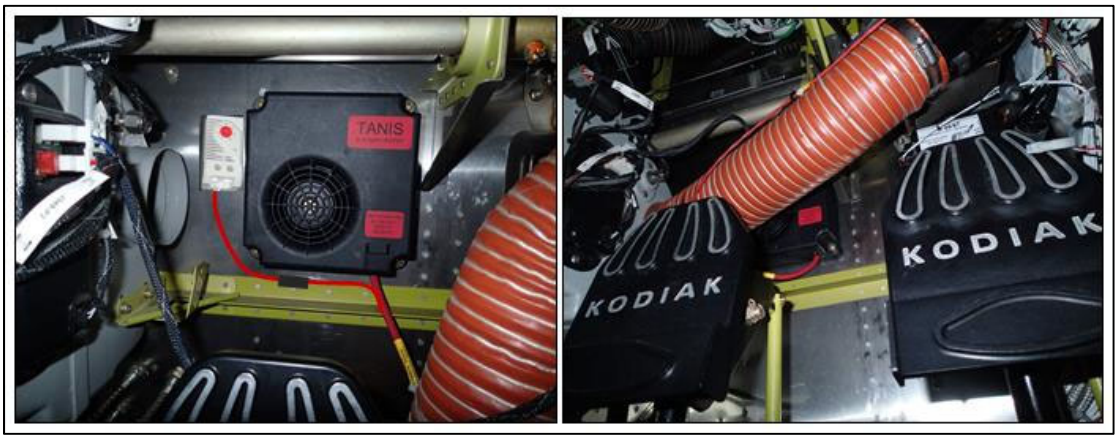

Figure 4.7. Example of AV/Cabin Heater p/n: THP3094-001 and Thermostat p/n: TLP3235 located on the firewall forward of the copilot's rudder pedals. The heater and thermostat are positioned for airflow, mounted with 4 ea. Stud Mount Kits p/n: TU03262. Once mounted they are connected with Control Cable Assembly p/n: TC3246-A (supplied with cable kit). Cabling may be secured with Cable Anchors p/n: TU02782. Adhesive Mix Kit p/n: CB92 supplied for mounting stud and anchor mounts. Refer to Cable Kit drawing: 03122 and Instructions: TN02782, TN03235 and TN03094.

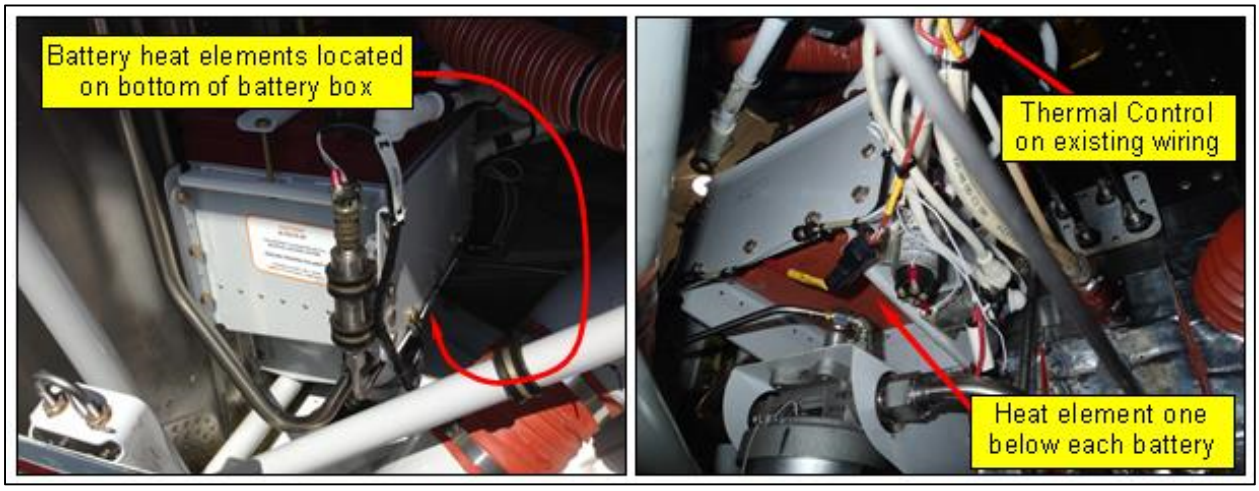

Figure 4.8. Example Battery Heat Elements p/n: TEP3136-115/52 or TEP3136-230/52 (2 ea. supplied by voltage) located on the bottom of the battery boxes. Bond one of the elements below each battery using Bonding Sealant p/n: TU02788. Refer to Instruction: TN02788.

Secure the Thermal Control Control p/n: TLP3046-05 on existing wiring near the batteries with cable ties. Then connect Control Cable Assembly p/n: TL03217-C (supplied with cable kit) as labeled. Refer to Cable Kit drawing: 03122 and Instruction: TN03046. Should battery configuration differ from example contact Tanis Aircraft Products customer support.

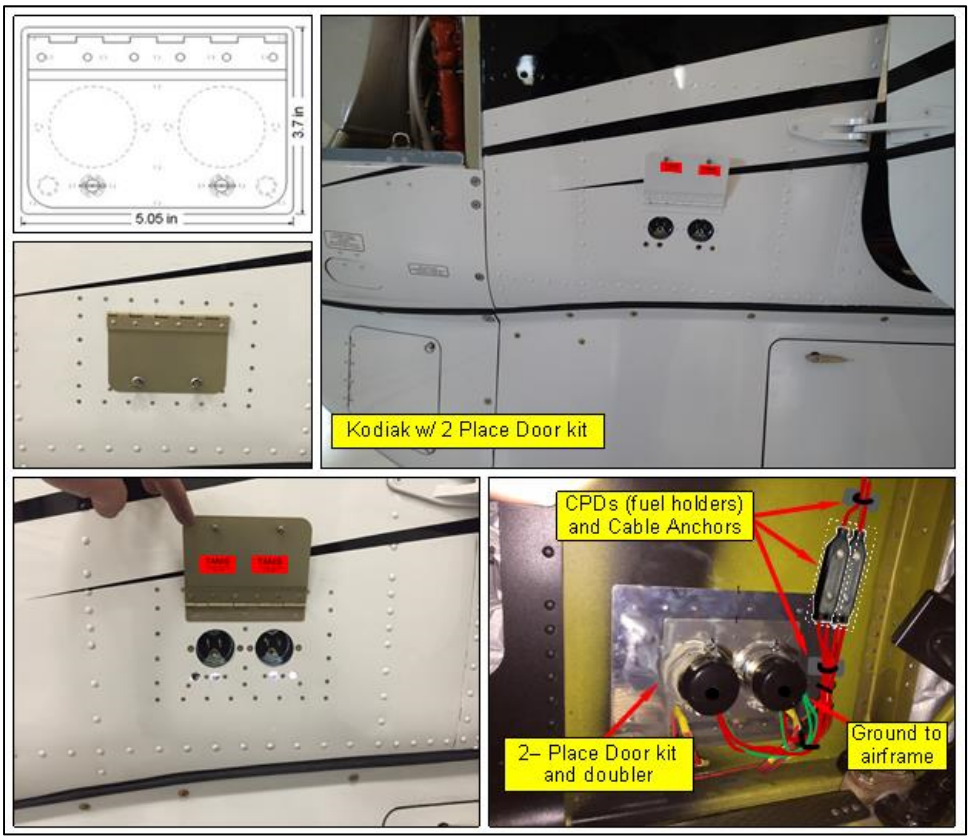

Figure 4.9. Door and Cable Kits: Example of 2 Place Door Kit p/n: TD03152 located forward of the pilot side door jamb with doubler. Door kit supplied, doubler field fabricated as needed refer to drawings: 03151 and 03152. Install wet with PS870 sealant or equivalent on all faying surfaces.

Shore Power Plugs p/n: TP02070-M-115 or TP02839-S-230, and Indicator Lights p/n: TLP3039-115 or TLP3039-230 (supplied by voltage). Locate in the door kit IAW drawing: 03152 and Instructions: TN02070 and TN03039.

Cable Kit p/n: TCF3122, locate IAW Cable Kit drawing: 03122. The cable kit connects the plugs with elements and heaters. CPDs are located and secure near the rear of the plugs with Cable Anchors p/n: TU02782 and Acrylic Mix Kit p/n: CB92 refer to Instruction: TN02782. Junctions J-A and J-B are secured in serviceable areas in the engine compartment that allow leads to reach corresponding components. Ground wires are connected to the airframe with plug mounting hardware or a ground lug is added to the airframe near plugs. Connection not to exceed .003 ohms, refer to TNG1000.

Placards: Locate in a visible location on or near the door. Alternate placards may be used, stating at a minimum “Tanis” and required voltage.

Plug-1, System Placard p/n: TU02615-115 or TU02615-230 (supplied by voltage).

Plug-2, AV/Cabin Heater p/n: TU03119-01 (heater voltage 100-240 VAC).

Figure 4.10. Example of Firewall Connector Kit p/n: TU03125 located above pilot rudder pedals. Location may vary due to installed equipment, locate IAW Firewall Connector Kit drawing: TN03125.

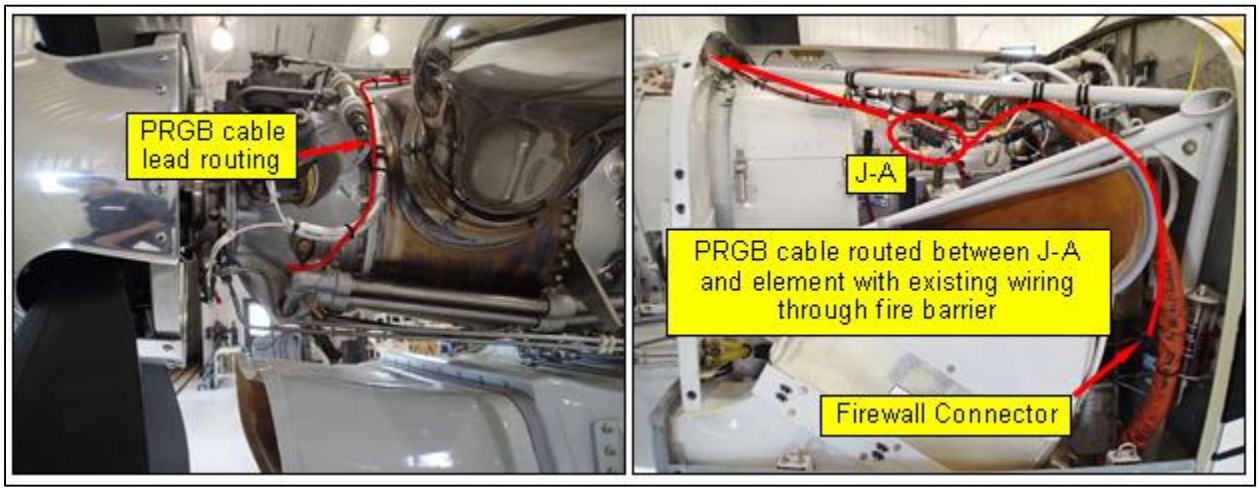

Figure 4.11. Example of engine element cable routing. The power lead is routed between Plug 1 and Junctions J-A and J-B, through the Firewall Connector Kit, Figure 4.10. Junctions are located in serviceable areas in the engine compartment that allow the leads to reach corresponding components IAW Cable Kit wire diagram: 03122.

------- END -------