INSTRUCTION –
HEATER INSTALLATION

Subject: Cirrus AV/Cabin Heat Kit, p/n: TSF3165

Document No: TNF3165
Revision: C
Date: OCT-22-2021

RECORD OF REVISIONS

When updated, this document is changed in its entirety.

REV	DATE	DESCRIPTION	BY	CKD
C	OCT-22-2021	Include firewall passthrough parts and update figures	DNE	GDO
B	OCT-15-2020	Add 3251 controller and -001 heater	DNE	GDO
A	AUG-18-2017	Initial Release	GDO	DNE

Current revision approval: Digitally signed by Dirk Ellis DN: cn=Dirk Ellis, o=Tanis, ou=Eng, email=dirk@tanisaircraft.com, c=US Date: 2021.10.22 10:02:16 -05'00'

1. PURPOSE

This instruction provides guidance for installation of Cirrus AV/Cabin Heat Kit in SR20, SR22 and SR22T aircraft. Refer to Installation Guide: TNG1000 for acronyms, regulatory guidance, and fundamental technical procedures.

2. REQUIREMENTS

Subject kit Top-Level Drawing (TLD), 03165, parts and documents as listed.

a. Tools and consumables, power supply and extension cords, are not supplied.
b. Kit may be installed w/ reference to or independent of Cirrus SB2X-71.34.
c. Sourced separately A/R when installing firewall passthrough: Silicone Sealant TU02788 (DC 732 clear), High Temp Silicone Sealant DC 736, and Loctite 425 Blue.
d. Technicians and users of this instruction are to be familiar with document listed in TLD, and Installation Guide: TNG1000.

3. DESCRIPTION

This kit is an FAA PMA kit intended for aftermarket installation as a minor change on Cirrus SR series aircraft. The kit contains the heater, and everything needed to install it, bracket, controller, cabling, and hardware. For additional descriptions refer to TLD: 03165 and Figures in § 6.

Powered by the same plug as the engine preheat system the heater preconditions avionics and increases safety of operations by helping to clear windows of frost, snow and ice. In addition, preheating avionics reduces cold weather induced gyroscopic errors, condensation and the risk of display panel malfunction, failure, and long-term moisture related damage.

a) Heater is compact 100-240VAC, 500W, forced air PTC space heater sized for compartment volume of the Cirrus SR series aircraft.
b) Installed as a subcomponent of the engine preheat system it is powered through the same external power plug.

c) Heater is located forward of the pilot and below avionics panel.

d) Kit includes preset thermal control that limits operation of the heater to ambient cabin air temperatures below 25°C / 77°F. Optional adjustable thermostat controller available.

e) Cabin temperatures rise over ambient varies, typically in the range of 30-40°F (15-25°C).

4. INSTALLATION

⚠ **Caution: Do Not** use or locate in areas exposed to weather, fluids, or fuel vapors. Keep dry and free from Foreign Objects and Debris (FOD).

- Kit may be installed w/ reference to or independent of Cirrus SB2X-71.34.
- For cable lead termination refer to Connector Instruction: TN02793.
- Firewall passthrough parts supplied for use as needed. Passthrough sealant, DC 736 and thread lock, Loctite 425 sourced separately.

4.1 Inventory

Start with parts and document inventory, refer to TLD: 03165 for item and document listing.

4.2 Weight and Balance

Weigh kit and intended installation hardware before installation. Approximate installed weight: 2.0 lb (0.7 kg), for CG arm calculations use Fuselage Station (FS) 102.5.

4.3 Heater and Bracket

AV/Cabin Heater p/n: THP3094-001 and Bracket p/n: TU03170, are mounted below avionics panel on top of left lower kick plate, with outflow directed to center console. Refer to Figures § 6.

a) Access and/or remove left lower kick plate located above pilot side rudder pedals.

b) Using the heater bracket as a template, position on kick plate as shown in Figure 6.3.

c) Before drilling verify clearance requirements of heater, wiring, static lines, etc. Older SR series aircraft may require repositioning of static lines and or wiring. Should interference exist, correct before proceeding. For additional information refer to Cirrus SB2X-71.34, Cirrus AMM, or contact Tanis engineering.

d) Drill 4-holes for bracket hardware, deburr and apply protective sealant pursuant Cirrus AMM, when not available refer to AC 43.13-1 Ch 6 § 3.

e) Using supplied hardware mount heater and bracket on kick plate, be careful not to distort bracket (collapse or crack return bend) by overtightening either of the two 1-3/8-in long rear screws. Refer to Figures 6.3 and 6.7.

4.4 Thermal Control

Thermal Control p/n: TLP3251, w/ Dual Lock™ Strips.

Note: Optional adjustable thermostat controller is available, p/n: TLP3235 refer to TLD: 03165 and Instruction: TN03235.

a) Location for controller TBD by installer. For easy access and seasonal operational checks suggest locating controller below left avionics panel just above left side quarter panel directly on aircraft skin or other serviceable location on kick plate, beside or

behind heater, position controller for lead routing. Refer to Instruction TN03251 and Figures 6.3, 6.7, and 6.10.

b) Clean and prime selected mounting surface for controller using supplied Solvent Wipe p/n: CB911, rubbing alcohol, or heptane, and let dry.

c) Without touching adhesive, remove liner from controller adhesive strip and press in place in place. To insure 100% of adhesive strip is in contact, especially around perimeter of strip, gently rock controller in place w/ down force pressure of 5 to 10-lbs then w/ pressure applied hold for 15-30 seconds, this pressure and time activates adessive properties of strip.

4.5 Cable/wire

Heater cable supplied in two parts: Cable Kit, w/ circuit protection device (CPD) p/n: TC03164 and Control Cable Assembly p/n: TC03246-A. Three Cable-tie Anchor's p/n: TU02782 and Adhesive Mix Kit p/n: CB92 are supplied for use as needed. For heater circuit diagram and cable routing refer to Figures 6.5, 6.6 and 6.7.

a) Cable Kit: Terminate short lead off CPD in rear of engine preheat power plug.

b) Route lead aft w/ existing wiring to engine firewall. Using cable-ties and/or clamps secure CPD and cable along the way. Compensate for engine movement w/ service loop/slack between engine and mount. Note: Cable Kit supplied w/ connectors that may be used at the installers discretion for engine disconnect, refer to Figures 6.5 and 6.6.

c) Select existing firewall passthrough (mixture cable or other) or install new passthrough using supplied parts, refer to Figures 6.8 and 6.9.

d) Route lead through passthrough into cabin.

e) Once lead is in cabin cut to length and terminate w/ Socket Connector Kit p/n: TCS2598 for connecting w/ Control Cable Assembly. Before cutting verify Control Cable routing.

f) Control Cable Assembly: Route and connect leads as labeled, and secure w/ exiting wiring and lines.

g) Seal firewall passthrough w/ DC 736, refer to Figure 6.8.

h) Reinstall kick plate accessed in § 4.3.

4.6 Completion

1. Inspect: Visually inspect and verify components are connected and installed in accordance with this instruction.
2. Check: Connect power to heater circuit. Cool thermostat below set point and verify operation, listen for audible fan and check for warm air circulation.
3. Record: Pursuant 14 CFR part 43.9(a), and/or other procedures set in place, record installation.

a) Wt & Bl and equipment list, amend as required under aircraft type certificate.

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

5. MAINTENANCE AND SERVICE

Do Not open-up or modify heater or controller. There are no authorized repair procedures. Should a malfunction be detected, disconnect from power, and refer to Tanis ICA: TCA1000 and/or contact Tanis engineering.

- Keep dry and free from Foreign Objects and Debris (FOD).
- Annually inspect security of attachment, air intake and outlet ports for FOD and obstructions, and verify operation.
- For additional specifications and supplement component information refer to AV/Cabin Heater Instruction: TN03094, and Thermal Control Instruction: TN03251.

6. FIGURES

Examples in section are for reference. Actual configuration and installations may vary by application and/or kit specific instruction. Additional installation information may be referenced through Cirrus SR series IPC, AMM, and SB2X-71-34.

Figure 6.1. Heater is located on left lower kick plate.

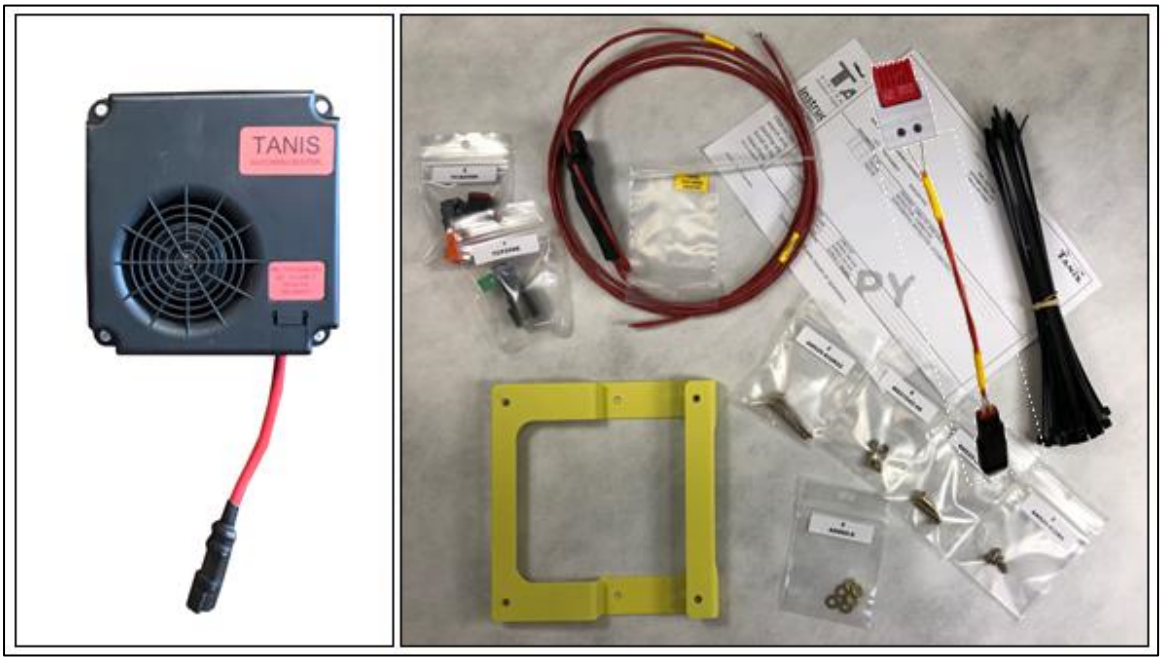
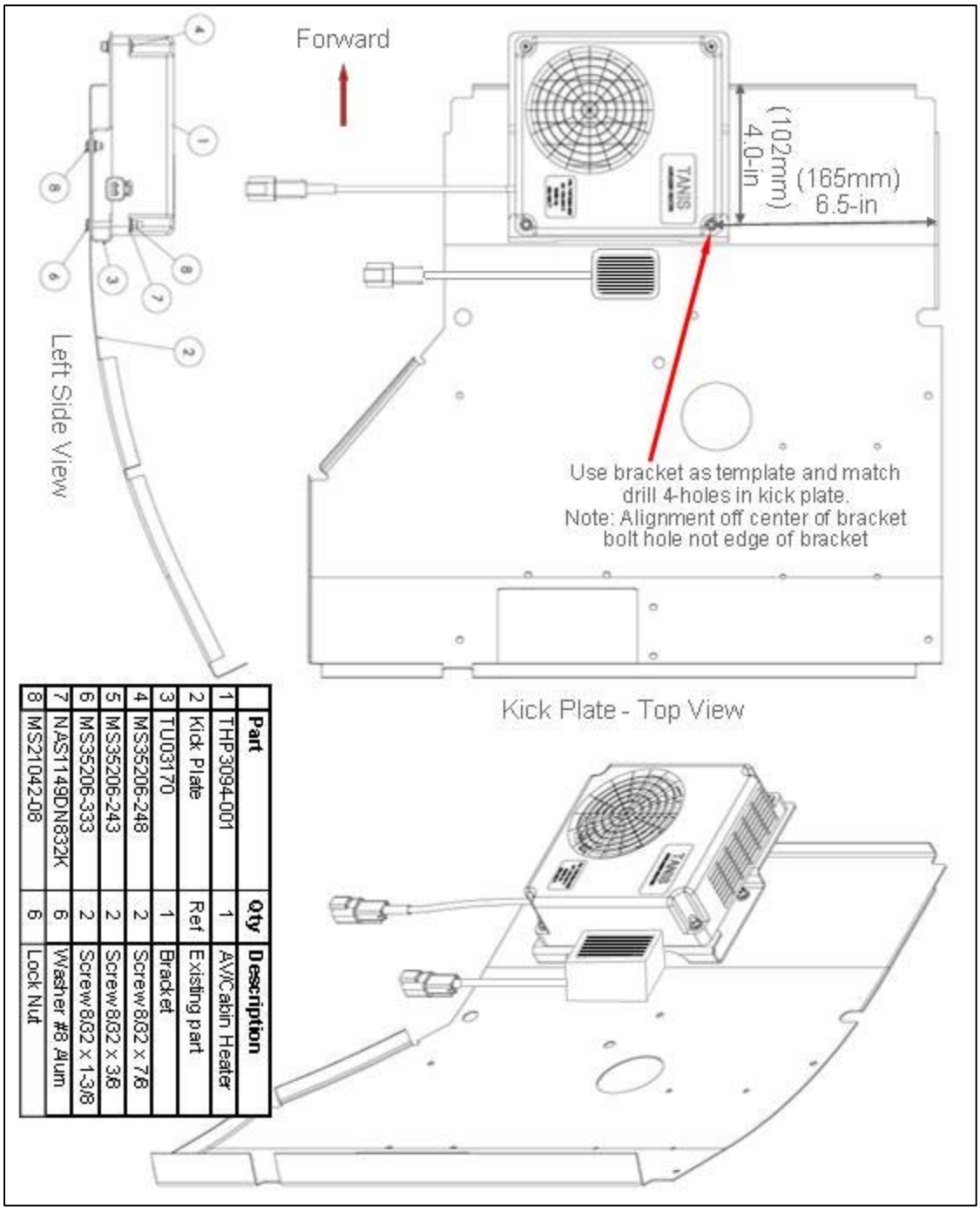


Figure 6.2. Cirrus AV/Cabin Heat Kit p/n: TSF3165, refer to TLD: 03165 for parts and document listings. Approximate installed weight: 2.0 lbs (0.68 Kg). For CG calculations use FS 102.5.



	Part	Qty	Description
1	THP3094-001	1	AVICabin Heater
2	Kick Plate	Ref	Existing part
3	TU03170	1	Bracket
4	MS35206-248	2	Screw 8/32 x 7/8
5	MS35206-243	2	Screw 8/32 x 3/8
6	MS35206-333	2	Screw 8/32 x 1-3/8
7	NAS1149DN832K	6	Washer #8 Alum
8	MS21042-08	6	Lock Nut

Figure 6.3. Example of Heater and bracket on kick plate. Using bracket as template, align right front hole of bracket as shown and match drill plate. Deburr and protect holes. Using supplied hardware mount heater and bracket on kick plate. Be careful not to distort the bracket when tightening the two long front screws.

Located controller aft of heater outflow, behind or beside heater as shown or locate in serviceable area above left quarter panel, refer to Figure 6.10. **Do Not** locate in front of heater outflow. Final location TBD by installing technician based on serviceability and heater outflow.

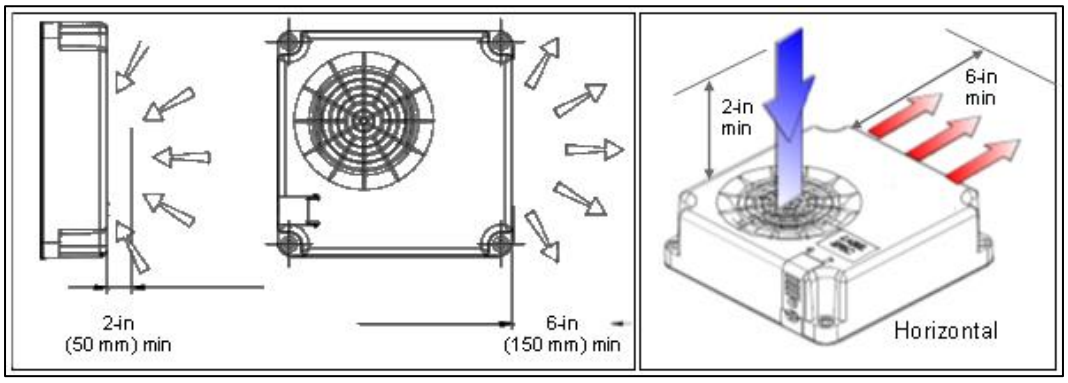


Figure 6.4. Verify ducting clearances. To avoid warm air standstill and overheating maintain ducting clearances.

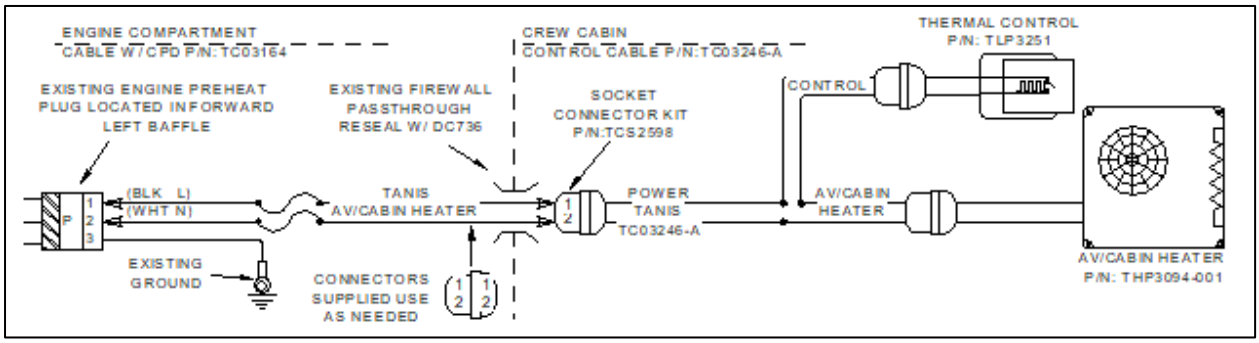


Figure 6.5. Heater circuit diagram.

Cable Kit p/n: TC03164, w/ CPD and connector kits supplied for use as needed, refer to Figure 6.6 for suggested routing.

Control Cable p/n: TC03246-A, refer to Figure 6.7 for suggested routing.

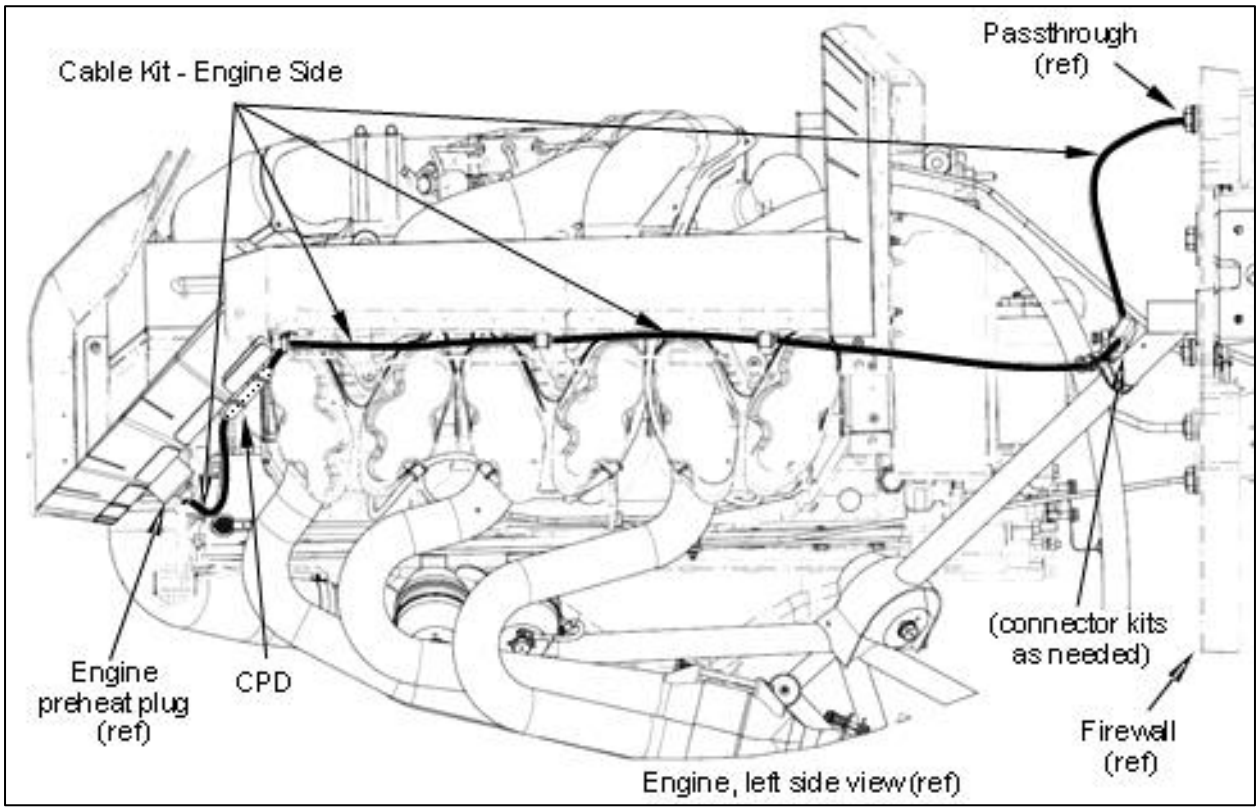


Figure 6.6. Cable Kit p/n: TC03164. Route from engine preheat plug below baffle to firewall passthrough. Secure CPD and cabling w/ existing wiring using cable-ties and/or cushioned clamps. Connector kits supplied for use as needed for engine disconnect or other, optional TBD by installer. Note: Passthrough shown as example location may vary by installation, refer to Figure 6.8.

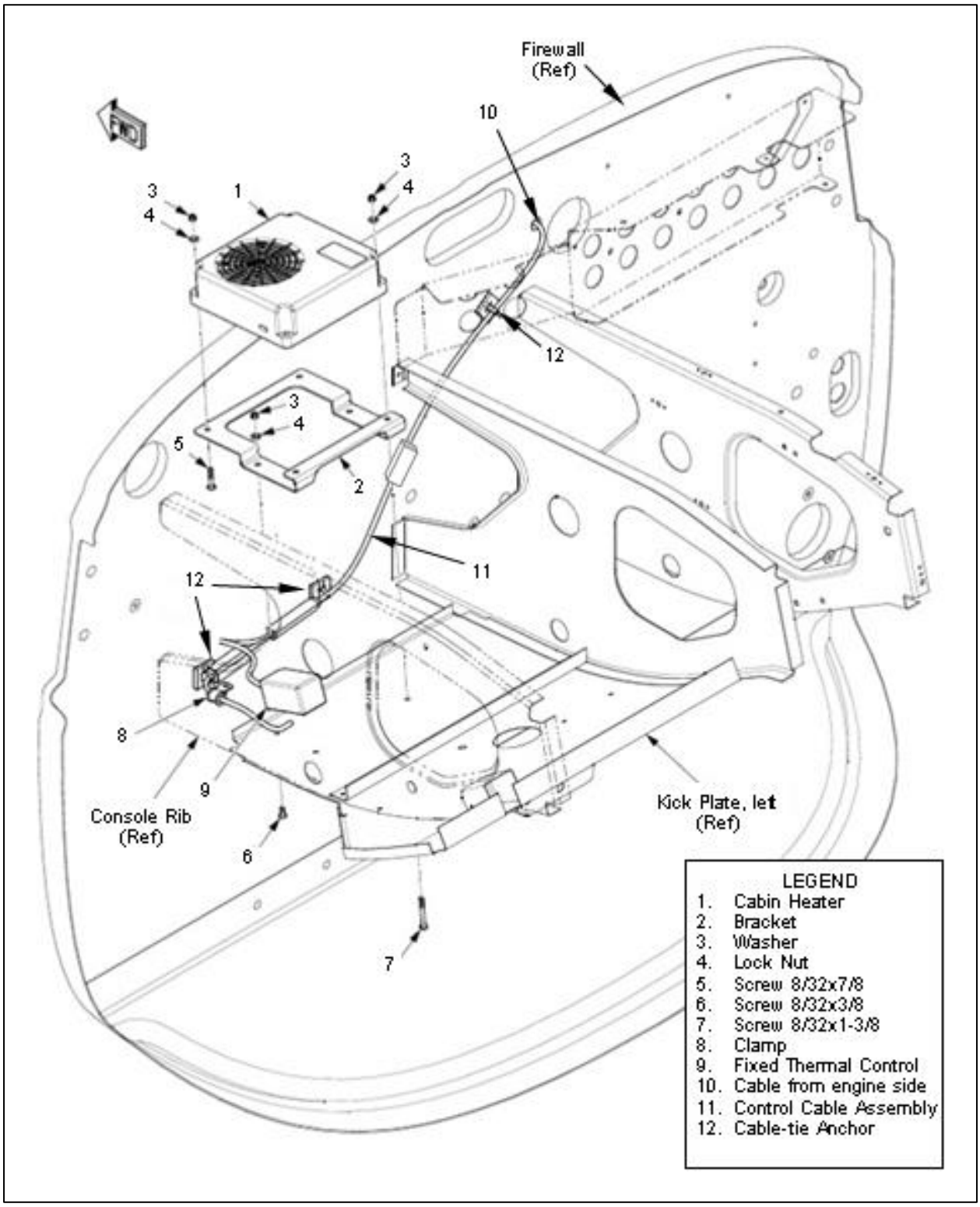


Figure 6.7. Heater kit parts explosion behind avionics panel. Cabling routed from engine mounted plug through firewall. Note: Firewall passthrough location may differ from location shown, refer to Figure 6.8.

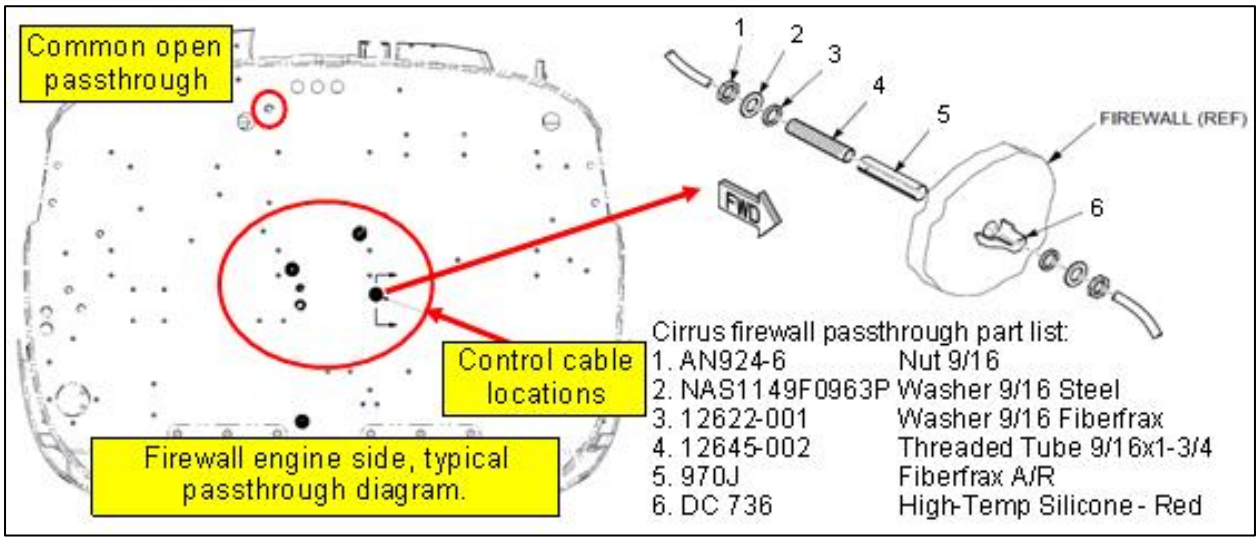


Figure 6.8. Cable routed through existing firewall passthrough (mixture cable or other) into cabin, suggested passthrough locations shown. Both sides of passthrough are resealed with High-temp silicone sealant: DC 736, reference Cirrus AMM.

Note: If new passthrough is required, configure as shown using suppled parts or refer to TNG1000 for approved alternates and Cirrus AMM or SB2X-71.34 as needed.

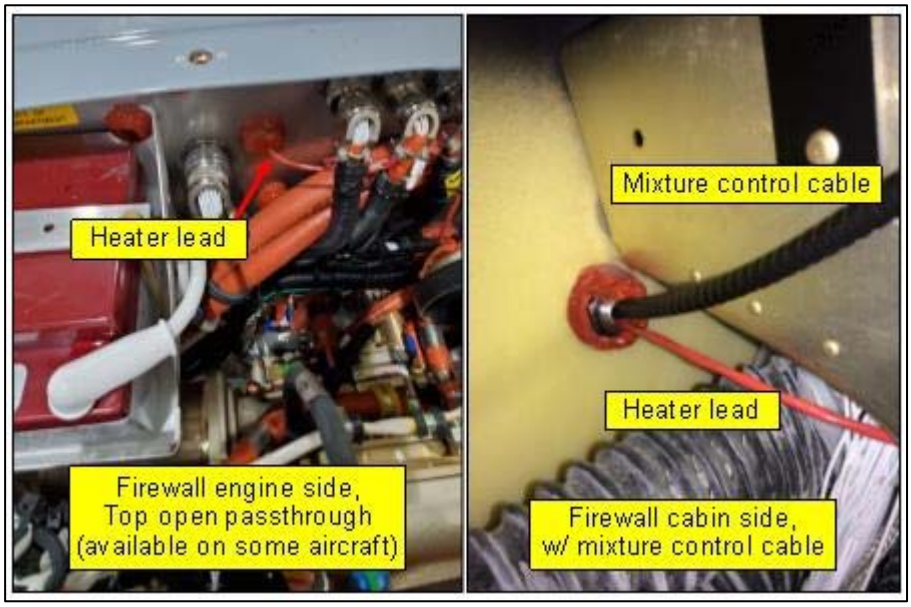


Figure 6.9. Examples of firewall passthroughs. Additional details available in Cirrus AMM or SB2X-71.34.

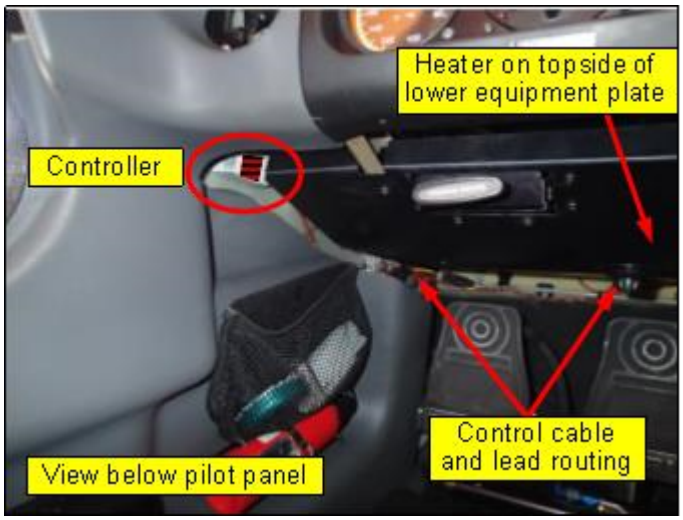


Figure 6.10. Thermal Control p/n: TN03251. Suggested location is above left-side kick plate directly on aircraft skin. Controller may be located on kick plate behind or beside heater. **Do Not** locate in front of heater outflow. Final location TBD by installing technician based on space availability and heater outflow.

Alternate adjustable controller (supplied separately): Thermostat p/n: TLP3235, refer to Instruction: TN03235.

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