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FIL.2024-T13

Kodiak- Bleed Air Heat Malfunctions

July 2024

This Flight Information Letter is meant to draw the attention of Kodiak operators to the procedures associated with malfunctions of the Bleed Air Heat (BAH) system. In particular, the intent is to emphasize the importance of **following published procedures** associated with these potential malfunctions.

All versions and series of Kodiak aircraft use engine bleed air to condition the cockpit and cabin environment, including:

- Cockpit heat and defrost in the Kodiak 100 and
- Cockpit heat, defrost, and cabin heat in the Kodiak 900.

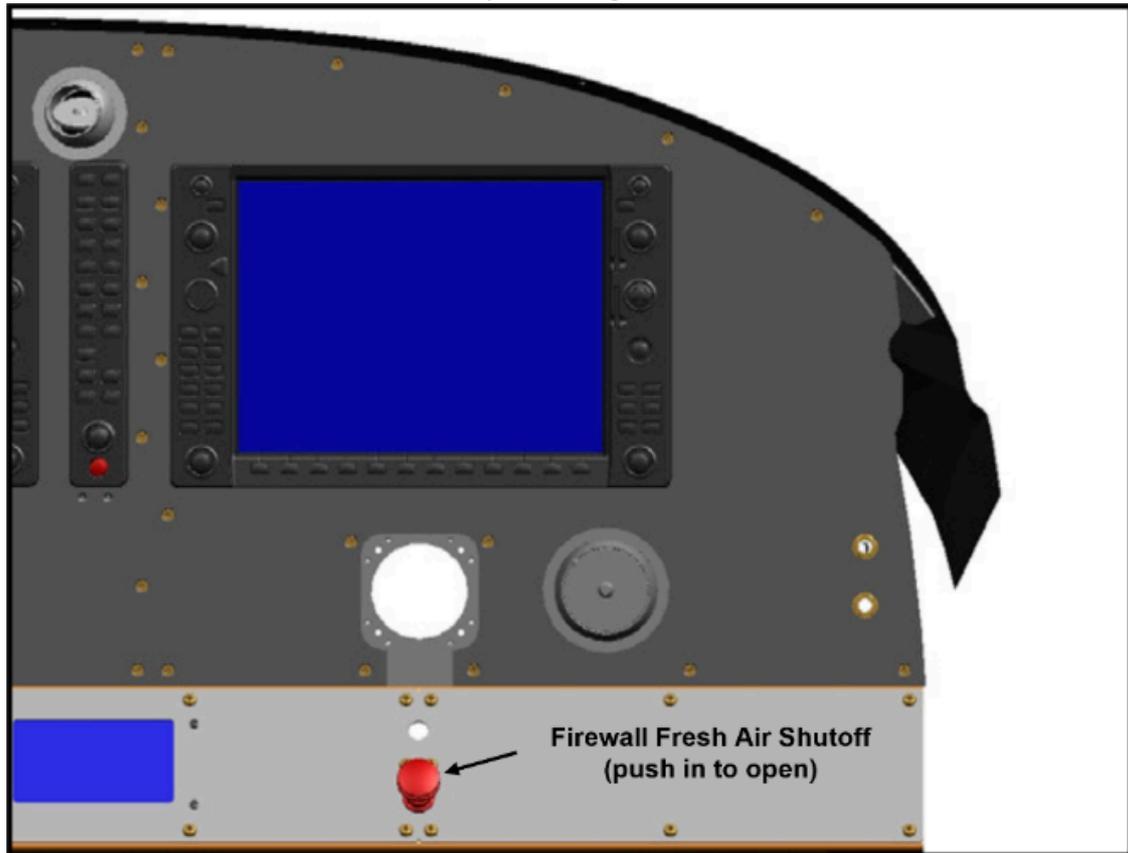
As described in the Systems portion (Section 7) of the Pilot's Operating Handbook (POH) for the respective Kodiak versions, bleed air is extracted from the aircraft's engine, mixed with fresh air and routed through the firewall for distribution inside the aircraft.

Operator control of the systems is both electrical and mechanical:

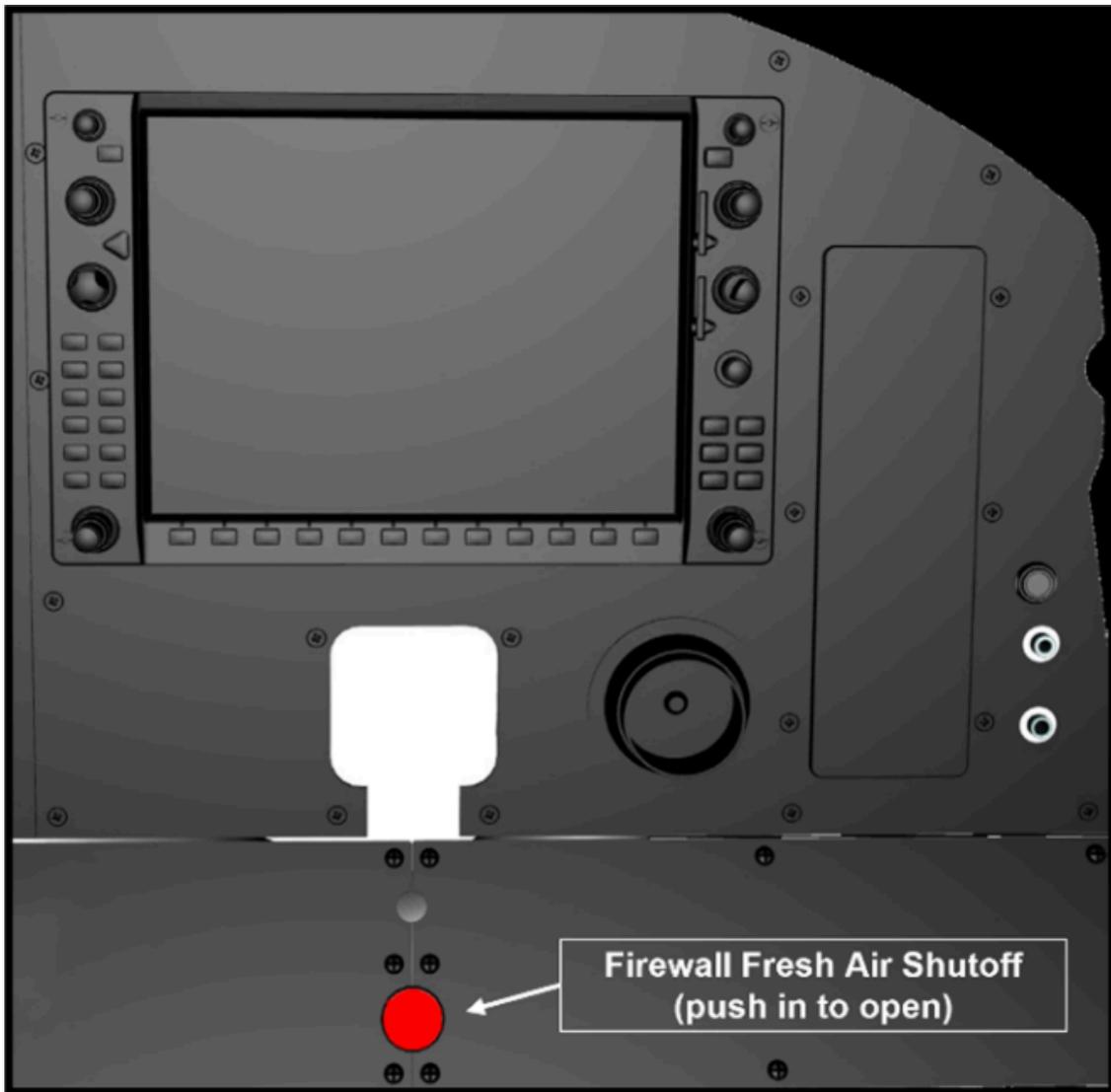
- The temperature setting and primary control are performed via the Digital Climate Control System (DCCS) panel in the cockpit, while individual airflow can be adjusted by pilots and passengers through the eyeball vents in the cockpit instrument panel or overhead gaspers in the main cabin.
- Most importantly for this discussion, in the current design a Firewall Fresh Air Shutoff valve is provided for shutting off the supply of fresh

air (including Bleed Air) from forward of the firewall. The valve is controlled by a red knob located on the instrument panel, just below the right control yoke.

Kodiak 100 Instrument Panel Layout, Right Side



Kodiak 900 Instrument Panel Layout, Right Side



In addition to emergency use, the knob may also be pulled out slightly to decrease the amount of fresh air entering the system to allow for a warmer outlet temperature when operating in cold environments.

Although the Kodiak 100's evolution has introduced a few changes to the detailed design, the basic architecture and function of current BAH systems remain fundamentally the same as the original design.

Moreover, Bleed Air Heat Malfunction procedures for the Kodiak 100 have not changed since their addition in 2014 to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (POH/AFM, document AM901.0).

As the Kodiak 900 is a recently-developed aircraft version, its BAH systems have not seen any evolution and its BAH malfunction procedures have not changed since the model's introduction in 2022.

Malfunions of the BAH system on either model would primarily be characterized by excessive hot air supplied to the cockpit and, in the Kodiak 900, to the main cabin. Essentially, the volume of P3 air distributed behind the firewall would be higher than the design operating conditions, resulting in higher cockpit temperatures unless the

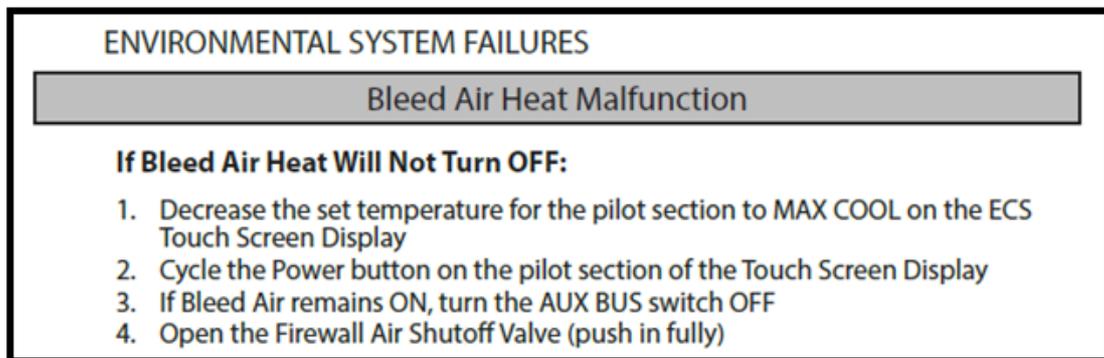
operator takes action. Therefore, in the event of a malfunction, the recommended actions are focused on minimizing the effect of Bleed Air Heat malfunctions.

Although the exact procedures differ between the two versions of Kodiak, the procedural intent is the same.

In the Kodiak 100 procedures, shown in Figure 1:

- Steps 1 and 2 are intended to maximize cool air flow and to regain system control by cycling power.
- *If these steps are not successful and the operator determines the Bleed Air remains ON, then*
- Step 3 should be performed to secure power to the Bleed Air valve, thereby closing it (the valve is designed to be electrically held open), and
- In Step 4, the operator will maximize the fresh (cooling) air through the firewall by fully pushing in the Firewall Air Shutoff Valve.

Figure 1: Kodiak 100 Abnormal Procedures, Bleed Air Heat Malfunction pushing in fully the Firewall Air Shutoff Valve.



In the Kodiak 900 procedures shown in Figure 2:

- The first three steps of Kodiak 900 Bleed Air Heat Malfunction procedures are nearly identical to those of the Kodiak 100, but the final step is just quite the opposite.
- In the final Step 4, the operator is directed to close (or shutoff) the Firewall Air Shutoff, thereby preventing any further air - P3 or fresh - from being distributed through the firewall into the cockpit and main cabin.

Differences in system design are the reason why the procedures for the Kodiak 900 and Kodiak 100 diverge in their final step.

Figure 2: Kodiak 900 Abnormal Procedures, Bleed Air Heat Malfunction

Bleed Air Heat Malfunction	
<i>If Bleed Air Heat will not turn OFF:</i>	
On the ECS touch screen display:	
1. Temperature	MAX COOL
On pilot and passenger sections, wait 20 seconds	
2. Power button	Cycle both OFF, then ON
<i>If Bleed Air remains ON and heat cannot be controlled:</i>	
3. AUX BUS switch	OFF
4. FIREWALL AIR SHUTOFF	CHECK CLOSED
<i>End of procedure.</i>	

Regardless of design differences, the bottom line is to follow the recommended procedure for the respective Kodiak version, unless the pilot-in-command determines extenuating circumstances warrant otherwise.

Failure to follow these procedures may result in further damage to aircraft components and systems.

Moreover, upon indication of a Bleed Air Heat malfunction, operators should take the next available opportunity to have a qualified mechanic (preferably at an approved Kodiak Service Center) evaluate the malfunction in accordance with the respective Aircraft Maintenance Manual.

Most Kodiak operators will never experience a malfunction of the BAH system in their Kodiak. However, all Kodiak operators can be prepared in the unlikely event their system malfunctions based on pre-flight study/preparation, along with an understanding of the proper malfunction procedures, as well as with sound piloting judgement.

Flight Information Letters serve as a Daher communications channel with the aviator community of TBM and Kodiak operators, pilots, training institutions, instructor pilots, and mentors. Their goal is to highlight safe flight practices as well as enhance overall awareness of procedures and operations. Information contained in the Flight Information Letters does not supersede procedures in the Pilot’s Operating Handbook (POH) and Pilot’s Guide.

List of all Flight Information Letters issued as of today is available in Technical Documentation file on [MyTBM.aero](#):

- FIL.2015-T1: Stabilized Approach Criteria
- FIL.2015-T2: TBM cabin pressure messages and warnings (Rev.1)
- FIL.2016-T3: Uncoordinated / Asymmetric Flight
- FIL.2017-T4: Ice contamination, speed, and flap awareness
- FIL.2019-T5: When turning the Autopilot ON
- FIL.2020-T6: Flight Control Trim
- FIL.2021-T7: Weight & Balance
- FIL.2022-T8: Inadvertent activation of the HomeSafe™
- FIL.2022-T9: Utilization of flaps
- FIL.2022-T10: Flight Control Trim System
- FIL.2022-T11: Emergency landing gear extension procedure
- FIL.2023-T12: Go Around

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