



# Service Letter SL-0002

Technical Portions FAA Approved

Epic Aircraft, LLC ♦ 22590 Nelson Road ♦ Bend OR 97701  
Phone: 541-318-8849 ♦ Fax: 541-382-5125 ♦ Web: [www.epicaircraft.com](http://www.epicaircraft.com)

**Subject:** SPS Transducer Heater Calibration

**ATA-Code:** 31-20

**Labor:** 8.0

**Effectivity:** K003-K010

**Affected Model(s):** E1000

**Due:** On Condition

**Compliance:** Advisory

**Recurrence:** No

## 1 **BACKGROUND AND PURPOSE:**

It has been found that the SPS lift transducer heater system amperage may drift due to time and usage. This drift is normal but could create a situation where the values set in the EFIS system to sense an SPS heater failure create an erroneous "STALL HT FAIL" CAS message.

This Service Letter gives instructions to test and return the aircraft to service when the SPS heater test limits can't be met.

This Service Letter should be followed if:

1. An airplane is experiencing a "STALL HEAT FAIL" CAS message and wiring or component problem has been ruled out, the stall heat calibration system can be re-calibrated within the specifications of this SL.
2. A new stall heat calibration is required for other reasons.

**NOTE:** Contact Epic Aircraft if, during a stall heater calibration, the stall heat calibration numbers fall outside of the parameters in this SL. This may indicate a failure of the heaters in the SPS lift transducers.

## 2 **REFERENCES:**

Epic E1000 Airframe Maintenance Manual, PN SK05000000  
Epic E1000 Wiring Manual, PN SK05000002  
Garmin G1000 NXi Line Maintenance Manual, PN 190-02330-00

## 3 **WARRANTY:**

For aircraft under warranty, parts and labor will be covered by Epic Aircraft, LLC if the work is performed within the compliance period and at an Authorized E1000 Service Center.

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## 4 TOOLS:

<u>No.</u>	<u>Description</u>	<u>Qty</u>	<u>Epic Aircraft Supplied</u>	<u>Customer Supplied</u>
1.	Common Hand Tools	A/R	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Jumper Wires	A/R	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 5 PARTS/MATERIALS:

<u>No.</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty</u>	<u>Epic Aircraft Supplied</u>	<u>Customer Supplied</u>
1.	N/A			<input type="checkbox"/>	<input type="checkbox"/>

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## 6 INSTRUCTIONS:

A) Make sure the left and/or right SPS transducer heaters are functioning as follows:

1) Remove access panel 5LW and 5RW as needed to access the back of the left and right lift transducers (refer to the Epic E1000 Airframe Maintenance Manual, PN SK05000000, Chapter 6-00).

2) Connect a ground power unit to the airplane (refer to the Epic E1000 Airframe Maintenance Manual, PN SK05000000, Chapter 24-40).

3) Make sure the airplane is in a weight-on-wheels configuration.

4) Set the BATT 1 and BATT 2 switches to ON.

**CAUTION: To prevent damage, make sure stall heat is not on for longer than 5 minutes in ground mode.**

5) Set the PITOT / STALL HEAT Switch to the ON position.

6) Through the removed access panel, carefully feel the back of the lift transducer to make sure it is heating up.

7) If the transducer is NOT heating up, proceed to step (B). If the transducer is heating up, proceed to step (C) and/or (D) as needed.

8) Set the PITOT / STALL HEAT Switch to the OFF position.

9) Set the BATT 1 and BATT 2 switches to OFF.

B) Make sure the affected lift transducer wiring is not damaged and the grounds have continuity and are properly attached to their ground block (refer to the Epic E1000 Airframe Wiring Manual, PN SK05000002, Chapter 30-30).

1) Repair wiring as needed and repeat step (A), or

2) If the wiring is intact and undamaged and the lift transducer(s) are not heating up, lift transducer or GEA replacement may be necessary. Contact Epic Aircraft for further troubleshooting steps before proceeding with the calibration procedure.

C) Perform the Left Stall Heat Fail Calibration:

**NOTE: This calibration may be performed on the in-air (RAW PNT 1) or on-ground (RAW PNT 2) configurations together or individually as needed.**

1) Make sure the airplane is in a weight-on-wheels configuration.

2) Set the BATT 1 and BATT 2 switches to ON.

3) Make sure the PUSHER, IGNITER, SPS CMP 1A, SPS CMP 1B, SPS CMP 2A, SPS CMP 2B, R STALL HEAT, L PITOT HEAT, and R PITOT HEAT circuit breakers pulled. Ensure the L STALL HEAT circuit breaker is in.

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4) Power up PFD 1 in configuration mode (refer to the Garmin G1000 NXi Line Maintenance Manual, PN 190-02330-00, section 2.3.3).

5) Select the DAT Calibration Page, under the CAL Page Group.

6) Press the small FMS knob. RAW PNT 0 of the TRIM\_ROLL Calibration Table is highlighted.

7) Make note of the existing RAW PNT 1 and RAW PNT 2 values.

**CAUTION: To prevent damage, verify RAW VAL is greater than 12. If it is not, turn the PITOT / STALL HEAT switch off immediately. Ensure ground heat is on for no longer than 5 minutes.**

8) Turn the large FMS knob to select RAW PNT 2 in the AOA\_HT\_MON\_L Calibration Table (refer to figure 1).

9) Press the PITOT / STALL HEAT Switch to the ON position. Leave the heater on for 3-5 minutes. Press the Cal Softkey and acknowledge the "Confirm the Calibration Point" by pressing ENT. Press the PITOT / STALL HEAT Switch to the OFF position.

10) Let the Stall Heater cool down completely.

**NOTE: Failure to allow the heaters to cool down could result in an inaccurate calibration. Cooling time can be reduced by using shop air to blow over the SPS lift transducer.**

11) Put the plane into air mode by compressing both of the Weight on Wheels Switches.

**CAUTION: To prevent damage, ensure air heat is on for no longer than 5 seconds.**

12) Turn the large FMS knob to select RAW PNT 1 in the AOA\_HT\_MON\_L Calibration Table.

13) Press the PITOT / STALL HEAT Switch to the ON position. Leave the heater on for 3-4 sec and then press the Cal Softkey and acknowledge the "Confirm the Calibration Point" by pressing ENT. Press the PITOT / STALL HEAT Switch to the OFF position.

14) Pull the Left Stall Heat PWR circuit breaker.

15) Verify RAW PNT 1 is set to 3.6 +/-0.5.

16) Verify RAW PNT 2 is set to 15.0 +/- 1.0.

17) If either RAW PNT value is outside of its range, update the configuration module, confirm the configuration (refer to figure 3), then proceed to step (E).

a) Update the configuration module:

i) Select the System Upload Page on PFD1.

ii) Press the UPDT CFG softkey at the bottom of the display.

iii) Update configuration Module?' is displayed

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- iv) Press ENT to acknowledge the prompt.
- v) The system updates the configuration module located in PFD 1 connector.
- b) Confirm the configuration:
  - i) Select the Configuration Manager page on PFD1.
  - ii) Press the CNFM CFG softkey at the bottom of the display.
  - iii) The prompt Confirm configuration as expected configuration appears with OK selected. Press ENT to confirm the configuration.

## D) Perform the Right Stall Heat Fail Calibration:

**NOTE: This calibration may be performed on the in-air (RAW PNT 1) or on-ground (RAW PNT 2) configurations together or individually as needed.**

- 1) Make sure the airplane is in a weight-on-wheels configuration.
- 2) Set the BATT 1 and BATT 2 switches to ON.
- 3) Make sure the PUSHER, IGNITER, SPS CMP 1A, SPS CMP 1B, SPS CMP 2A, SPS CMP 2B, L STALL HEAT, L PITOT HEAT, and R PITOT HEAT circuit breakers pulled. Ensure the R STALL HEAT circuit breaker is in.
- 4) Power up PFD 1 in configuration mode (refer to the Garmin G1000 NXi Line Maintenance Manual, PN 190-02330-00, section 2.3.3).
- 5) Select the DAT Calibration Page, under the CAL Page Group.
- 6) Press the small FMS knob. RAW PNT 0 of the TRIM\_ROLL Calibration Table is highlighted.
- 7) Make note of the existing RAW PNT 1 and RAW PNT 2 values.

**CAUTION: To prevent damage, verify RAW VAL is greater than 12. If it is not, turn the PITOT / STALL HEAT switch off immediately. Ensure ground heat is on for no longer than 5 minutes.**

- 8) Turn the large FMS knob to select RAW PNT 2 in the AOA\_HT\_MON\_R Calibration Table (refer to figure 2).
- 9) Press the PITOT / STALL HEAT Switch to the ON position. Leave the heater on for 3-5 minutes. Press the Cal Softkey and acknowledge the “Confirm the Calibration Point” by pressing ENT. Press the PITOT / STALL HEAT Switch to the OFF position.
- 10) Let the Stall Heater cool down completely.

**NOTE: Failure to allow the heaters to cool down could result in an inaccurate calibration. Cooling time can be reduced by using shop air to blow over the SPS lift transducer.**

- 11) Put the plane into air mode by compressing both of the Weight on Wheels Switches.

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**CAUTION: To prevent damage, ensure air heat is on for no longer than 5 seconds.**

**12)** Turn the large FMS knob to select RAW PNT 1 in the AOA\_HT\_MON\_R Calibration Table.

**13)** Press the PITOT / STALL HEAT Switch to the ON position. Leave the heater on for 3-4 sec and then press the Cal Softkey and acknowledge the “Confirm the Calibration Point” by pressing ENT. Press the PITOT / STALL HEAT Switch to the OFF position.

**14)** Pull the Right Stall Heat PWR circuit breaker.

**15)** Verify RAW PNT 1 is set to 3.6 +/-0.5.

**16)** Verify RAW PNT 2 is set to 15.0 +/- 1.0.

**17)** If either RAW PNT value is outside of its range, update the configuration module, confirm the configuration (refer to figure 3), then proceed to step (E).

**a)** Update the configuration module:

**i)** Select the System Upload Page on PFD1.

**ii)** Press the UPDT CFG softkey at the bottom of the display.

**iii)** Update configuration Module?’ is displayed

**iv)** Press ENT to acknowledge the prompt.

**v)** The system updates the configuration module located in PFD 1 connector.

**b)** Confirm the configuration:

**i)** Select the Configuration Manager page on PFD1.

**ii)** Press the CNFM CFG softkey at the bottom of the display.

**iii)** The prompt Confirm configuration as expected configuration appears with OK selected. Press ENT to confirm the configuration.

**E)** Gain access to the left and/or right wing lift transducers.

**NOTE: This procedure may be performed on the left or right side as needed.**

**F)** Check the following resistances (refer to figure 4):

**1)** Check Case Heater Resistance from 1/2P423-A to 1/2P423-B. Make sure it is 31.11 to 50.91 ohms.

**2)** Check Vane Heater Resistance from 1/2P423-C to 1/2P423-D. Make sure it is 31.11 to 50.91 ohms.

**3)** Check Plate Heater 1 Resistance from 1/2P425-A to 1/2P423-D. Make sure it is 7.57 to 11.20 ohms.

**4)** Check Plate Heater 2 Resistance from 1/2P425-B to 1/2P425-C. Make sure it is 7.57 to 11.20 ohms.

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**G)** Perform the stall heater annunciation test as follows:

1) Begin this sequence with aircraft weight ON wheels and the following CBs pulled out: L STALL HEAT, R STALL HEAT, L PITOT HEAT and R PITOT HEAT.

2) Set up the Left or Right Stall Heaters to be able to induce a failure of each individual heater (Pins 1/2P423-A, 1/2P423-C, 1/2P425-A and 1/2P425-C).

3) Press the Pitot Stall HT switch to the ON position.

**CAUTION: To prevent damage, ensure ground heat is on no longer than 5 minutes.**

4) Push in the CB labeled L STALL HEAT. Verify there is no L STALL HEAT FAIL CAS. One at a time fail each individual heater, verify loss of each heater individually activates the L STALL HEAT FAIL CAS. Pull the L STALL HEAT CB. Actuate the left and right weight on wheels switches to simulate weight OFF wheels.

**CAUTION: To prevent damage, ensure in air heat is on no longer than 5 seconds. It may require cycling the power between each heater test to ensure the time limit is not exceeded. If power has to be cycled, ensure the heater has time to cool down before turning the power back on. The heater should be returned to ambient temperature prior to starting another calibration.**

**NOTE: Cooling time can be reduced by using shop air to blow over the SPS lift transducer.**

5) Push in the CB labeled L STALL HEAT. Verify there is no L STALL HEAT FAIL CAS. One at a time fail each individual heater, verify loss of each heater individually activates the L STALL HEAT FAIL CAS. Pull the L STALL HEAT CB.

6) Push in the CB labeled R STALL HEAT. Verify there is no R STALL HEAT FAIL CAS. One at a time fail each individual heater, verify loss of each heater individually activates the R STALL HEAT FAIL CAS. Pull the R STALL HEAT CB. Actuate the left and right weight on wheels switches to simulate weight OFF wheels.

**CAUTION: To prevent damage, ensure in air heat is on no longer than 5 seconds. It may require cycling the power between each heater test to ensure the time limit is not exceeded. If power has to be cycled, ensure the heater has time to cool down before turning the power back on. The heater should be returned to ambient temperature prior to starting another calibration.**

**NOTE: Cooling time can be reduced by using shop air to blow over the SPS lift transducer.**

7) Push in the CB labeled R STALL HEAT. Verify there is no R STALL HEAT FAIL CAS. One at a time fail each individual heater, verify loss of each heater individually activates the R STALL HEAT FAIL CAS. Pull the R STALL HEAT CB.

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- 8) Reset the weight on wheels switches to the on-ground position.
- 9) Press the Pitot Stall HT switch to the OFF position.
- H) Reinstall removed access panels (refer to the Epic E1000 Airframe Maintenance Manual, PN SK05000000, Chapter 31-20).
- I) If the resistance values are met and the stall heater verification test is successful, the aircraft may be returned to service.

**Figure 1:** SPS Transducer Heater Calibration



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**Figure 2: SPS Transducer Heater Calibration**

**DAT CALIBRATION**

DAT CAL TBL 4	DAT CAL TBL 5	DAT CAL TBL 6	DAT CAL TBL 7																																								
INPUT <b>AOA_HT_MON_R</b> SOURCE 0 CAL MODE LERP CAL POINTS 4 RAW VAL 0.000 CAL VAL 2.000	INPUT NONE SOURCE - CAL MODE - CAL POINTS 0 RAW VAL ----- CAL VAL -----	INPUT NONE SOURCE - CAL MODE - CAL POINTS 0 RAW VAL ----- CAL VAL -----	INPUT NONE SOURCE - CAL MODE - CAL POINTS 0 RAW VAL ----- CAL VAL -----																																								
<b>CALIBRATION TABLE</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">RAW PNTS</th> <th style="width: 50%;">CAL PNTS</th> </tr> </thead> <tbody> <tr><td>0.000</td><td>0.000</td></tr> <tr><td>3.500</td><td>3.500</td></tr> <tr><td>14.800</td><td>14.800</td></tr> <tr><td>120.000</td><td>120.000</td></tr> </tbody> </table>	RAW PNTS	CAL PNTS	0.000	0.000	3.500	3.500	14.800	14.800	120.000	120.000	<b>CALIBRATION TABLE</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">RAW PNTS</th> <th style="width: 50%;">CAL PNTS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	RAW PNTS	CAL PNTS									<b>CALIBRATION TABLE</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">RAW PNTS</th> <th style="width: 50%;">CAL PNTS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	RAW PNTS	CAL PNTS									<b>CALIBRATION TABLE</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">RAW PNTS</th> <th style="width: 50%;">CAL PNTS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	RAW PNTS	CAL PNTS								
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Press the "CAL" key to calibrate the highlighted point with the raw or sensed value of its respective input.  
 Press the "CLR CAL" key to clear the calibration at the highlighted point.

Tbl 0-3
Tbl 4-7
Tbl 8-11
Tbl 12-15
Tbl 16-19
CAL
CLR CAL

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**Figure 3:** SPS Transducer Heater Calibration

**CONFIGURATION MANAGER**

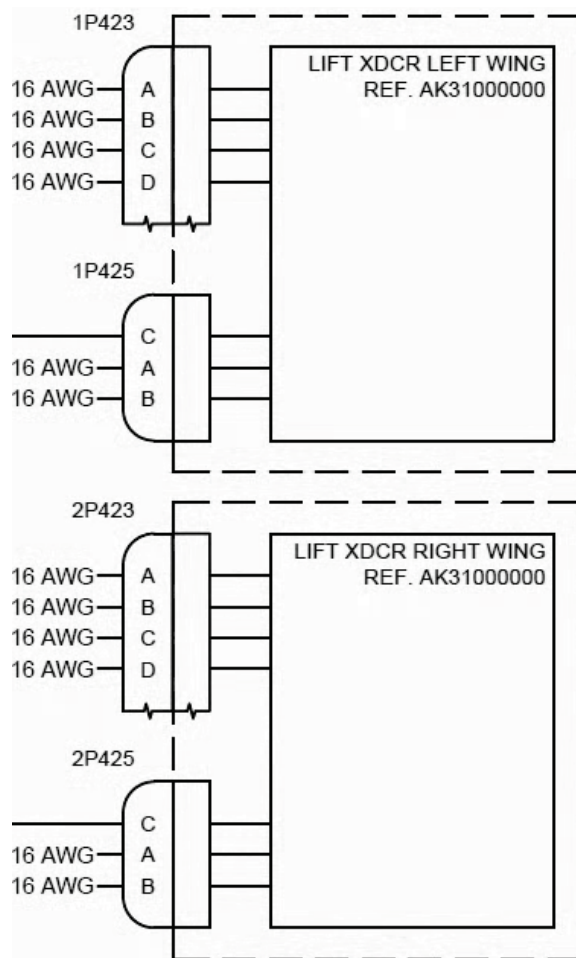
CONFIGURATION IDENTIFICATION	EXPECTED CONFIGURATION ID	ACTUAL CONFIGURATION ID
FLEET	569832E0	569832E0
AIRCRAFT	525FF3D3	525FF3D3

CONFIGURATION ITEMS	STATUS
+COM 1	Valid
+COM 2	Valid
+GCU 1	Valid
+GDC 1	Valid
+GDC 2	Valid
+GDL69	Valid
+GEA 1	Valid
+GIA 1	Valid
+GIA 2	Valid
+GMA 1	Valid
+GRS 1	Valid
+GRS 2	Valid
+GTS	Valid
+GTX 1	Valid
+GTX 2	Valid

CNFM CFG

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**Figure 4:** SPS Transducer Heater Calibration



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**7 WEIGHT AND BALANCE:**

N/A

**8 PUBLICATIONS AFFECTED:**

Epic E1000 Airframe Maintenance Manual, PN SK05000000

**9 RECORD COMPLIANCE:**

Make appropriate entry in airplane maintenance records.

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## Appendix A: Compliance Letter

*Please complete and mail this form to [Customersupport@epicaircraft.com](mailto:Customersupport@epicaircraft.com)*

This is to certify that I have completed the work in accordance with the Epic Aircraft, LLC Service Letter.

<b>Aircraft Owner Information:</b>
Date: _____ Aircraft Serial Number: _____ Aircraft Reg. Number: _____ Owner's Name: _____
<b>Maintenance Entity Information</b>
Name of Shop Performing the work: _____ Name of Person(s) Performing inspection and/or work: _____ Phone Number: _____ Email: _____

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