



AEROSPACE INCORPORATED

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HALO 350

CENTEX AEROSPACE GWI STC SERIES

**INSTRUCTIONS FOR CONTINUED
AIRWORTHINESS
FOR
SUPER KING AIR B300 & B300C**

Manual No. 051-30

Revision 1

January 2024



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INTRODUCTION

GENERAL

This manual provides Instructions for Continued Airworthiness (ICA) for Textron Aviation Inc. (Beechcraft) Super King Air B300 and B300C series airplanes modified by CenTex Aerospace's (CTA) *Halo 350 Conversion*. The Halo 350 Conversion increases the maximum takeoff weight limit and adds several safety systems designed to enhance aircraft and passenger safety and is approved under FAA Supplemental Type Certificate (STC) number ST09934AC.

This manual supplements the following Textron Aviation Aircraft Maintenance Manual (AMM):

- Super King Air B300/B300C Maintenance Manual, P/N 130-590031-11
- Super King Air B300/B300C Fusion Maintenance Manual, P/N 434-590169-0009

MODIFICATION DRAWINGS

The following CenTex Aerospace drawings are provided with the STC modification kit. These drawings are listed as reference and are not required for the continued airworthiness of the airplane. Contact CenTex Aerospace to obtain a copy of any drawing listed below.

DRAWING NO.	TITLE
051-1000	INSTALLATION INSTRUCTIONS FOR HALO 350 INCREASED GROSS WEIGHT CONVERSION
051-1001	HALO 350 INSTALLATION - ICE MODE STALL WARNING SYSTEM
051-1002	HALO 350 INSTALLATION - TRIM WARNING SYSTEM
051-1003	HALO 350 INSTALLATION - MAIN LANDING GEAR BOLT
051-1004	HALO 350 INSTALLATION - OVERSPEED WARNING SWITCH
051-1005	HALO 350 INSTALLATION - AIRSPEED PLACARD
051-1006	HALO 350 INSTALLATION - PRO-LINE 21 MODIFICATION
051-1007	HALO 350 INSTALLATION - PRO-LINE FUSION MODIFICATION
051-1008	HALO 350 INSTALLATION - GARMIN G1000 NXi MODIFICATION
051-1011-0001	HALO 350 WIRING DIAGRAM - ICE MODE STALL WARNING SYSTEM
051-1011-0002	HALO 350 WIRING DIAGRAM - TRIM WARNING SYSTEM
051-1011-0003	HALO 350 WIRING DIAGRAM - OVERSPEED WARNING SWITCH
051-4001	AIRSPEED INDICATOR ADJUSTMENT & CALIBRATION FOR HALO 350 CONVERSION

EQUIPMENT INSTALLED

The following Halo 350 Conversion equipment is installed on this airplane (check the appropriate box).

HALO 350 EQUIPMENT	INSTALLED	
	YES	NO
Ice Mode Stall Warning System	✓	
Takeoff Trim Warning System		
Overspeed Warning Switch		



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AIRPLANE MAINTENANCE

Airworthiness limitations, inspection procedures, servicing information, and maintenance procedures provided in this manual apply to the equipment and modifications associated with this STC and supplement the standard Aircraft Maintenance Manual (AMM). For aircraft modified by this STC, follow the inspection, servicing, and maintenance procedures in the AMM noted on page 1, except as provided herein. This manual uses the same chapter numbering and general format as the AMM.

For standard aviation maintenance practices, such as cutting, splicing, and replacing wire, routing and securing lines, inspecting electrical wiring and equipment, etc. use the techniques and practices found in FAA Advisory Circular AC 43.13-1B/2B or later FAA approved revision.

REPLACEMENT PARTS

Refer to CenTex Aerospace Halo 350 Illustrated Parts Catalog (IPC) no. 051-40 for a list of CenTex parts installed on the airplane. Contact CenTex Aerospace to order replacement parts.

WIRING DIAGRAMS

Refer to CenTex Aerospace Halo 350 Wiring Diagram Manual (WDM) no. 051-50 for wiring details of CenTex systems and equipment installed on the airplane.

MANUAL UPDATES

A copy of this manual is provided with the STC upon installation. When changes to this manual are made, CenTex Aerospace will provide updates through CenTex's website or direct email. Contact CenTex Aerospace to make other arrangements. If there is a change in airplane ownership or operator, please notify CenTex Aerospace in order to keep all contact information current.

Changes to the manual will be identified by revision number and date in the Revision Log. CenTex will provide the owner with the revised pages, a Revision Log, and an updated List of Effective Pages. The owner, or responsible party, will add or replace the pages affected by the revision and make an entry in the Record of Revisions in order to document the update.

ASSISTANCE

For assistance with continuing airworthiness issues or any other issues related to this STC, contact CenTex Aerospace at the following address or telephone number.

CenTex Aerospace Inc.
P.O. Box 5500
Waco, Texas 76708
(254) 752-4290
<https://www.centex.aero/>



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CHAPTER 4

AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

GENERAL

There are no changes to existing Super King Air B300 and B300C airworthiness limitations or additional airworthiness limitations as defined in 14 CFR Part 23, Appendix G, Section G23.4 for airplanes modified by CenTex Aerospace's Halo 350 Conversion.



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CHAPTER 5

TIME LIMITS/MAINTENANCE CHECKS

GENERAL

The inspection programs in this chapter apply to equipment and modifications for the Halo 350 Conversion. The format of the inspection programs is the same as those in the AMM. The terminology (phase, detail, biennial, etc.) used here has the same meaning as in the AMM. Use the AMM guidelines when following the replacement and inspection schedules specified herein. Use the *Halo 350 Equipment Inspection* sheet provided in this chapter to record the inspections. Retain the inspection sheets with the normal aircraft maintenance records.

SCHEDULED INSPECTION PROGRAM

Perform the tasks for each Halo 350 item below, if installed, according to the applicable AMM program schedule. "HUIP" refers to Textron's optional High Utilization Inspection Program. The "Special" inspection items identified in the table below apply to aircraft being maintained under Textron's Phase, Biennial, or HUIP program.

NOTE: See the *Halo 350 Equipment Inspection* sheet on page 5.3 for inspection details.

ITEM	PROGRAM	SCHEDULE
Halo 350 Placards - Inspection	Phase	1, 2, 3, 4
	Biennial	Interim, Complete
	Detail	1, 2, 3, 4, 5, 6
	HUIP	1, 2, 3, 4, Routine
Main Landing Gear NAS Hinge Bolt - Inspection	Phase	1, 3, 4
	Biennial	Complete
	Special	Landing Gear: Main gear shock absorber assembly inspection
	Detail	4, 6, 19, 20
	HUIP	1, 3, 4
Main Landing Gear Tire - Inspection	Phase	1, 2, 3, 4
	Biennial	Complete
	Detail	1, 2, 3, 4, 5, 6
	HUIP	1, 2, 3, 4, Routine
Ice Mode Stall Warning Equipment - Inspection	Phase	3
	Biennial	Complete
	Detail	3, 6
	HUIP	3
Takeoff Trim Warning Equipment - Inspection	Phase	3
	Biennial	Complete
	Detail	3, 6
	HUIP	3
Overspeed Warning Switch - Inspection	Phase	4
	Biennial	Complete
	HUIP	4
Overspeed Warning Switch - Functional Test	Special	Navigation: Pitot and static system check and leak test.
	Detail	12



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CONTINUOUS CORROSION CONTROL INSPECTION

Follow the Continuous Corrosion Control Inspection in the AMM, Chapter 5-23-00, as required.

UNSCHEDULED MAINTENANCE CHECKS

Follow the Unscheduled Maintenance Checks in the AMM, Chapter 5-50-00, as required. This includes inspections for a hard landing or an overweight landing (above 15,000 pounds gross weight).



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HALO 350 EQUIPMENT INSPECTION

Owner _____ Total Time _____ Total Cycles _____

W.O. No. _____ Date In _____ Date Out _____

Serial No. _____ Reg. No. _____ STC Installed TIS _____ Cycles _____

Inspection Program/Schedule: _____

Inspect only the items required by the inspection schedule. Write "N/A" for items not required. Refer to the page number of the manual specified in the table below for inspection details.

A. NOSE AND AVIONICS BAY	PAGE	MECH	INSP
OVERSPEED WARNING SWITCH - Check for damage to wiring, loose connectors, and security of attachment.	34.2		
B. FLIGHT COMPARTMENT			
1. PLACARDS - Check airspeed placard and Garmin ALT/IAS placard (if installed) for proper adhesion, legibility, signs of damage.	11.1		
2. STALL WARNING ICE MODE SWITCH - Check for damage to wiring, loose connectors, and security of attachment.	27.11		
3. TAKEOFF TRIM WARNING SWITCH, HORN & RELAY - Check for security of attachment, signs of damage or wear, and proper switch position.	27.4		
C. CABIN SECTION			
STALL WARNING ICE MODE LIFT COMPUTER & RELAY - Check for damage to wiring, loose connectors, and security of attachment.	27.11		
D. LANDING GEAR AREA			
1. PLACARDS - Check MLG bolt placard on main gear hinge bolt access panels for proper adhesion, legibility, signs of damage.	11.1		
2. MAIN LANDING GEAR TIRES – Inspect tires for cuts, cracks, breaks, tread wear, and deterioration; check for proper inflation.	12.1, 32.1		
3. MAIN LANDING GEAR HINGE BOLTS - Inspect NAS hinge bolts for wear, damage, and corrosion.	32.1		
E. OPERATIONAL INSPECTION			
1. TAKEOFF TRIM WARNING - Conduct a functional test whenever the system is disturbed or altered.	27.4		
2. STALL WARNING ICE MODE - Conduct a functional test whenever the system is disturbed or altered.	27.11		
3. OVERSPEED WARNING - Conduct a functional test as part of the normal pitot and static system functional check.	34.2		

INSPECTION COMPLETED

I certify that the above inspections were performed in accordance with CenTex Aerospace Halo 350 ICA Manual No. 051-30 and that the airplane is approved for return to service:

MECHANIC: _____ CREW CHIEF: _____

INSPECTOR: _____ DATE: _____



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CHAPTER 11

PLACARDS AND MARKINGS

DESCRIPTION

INTERIOR PLACARDS AND MARKINGS

Interior placards and markings for the Halo 350 Conversion are shown in Section 2, Limitations, of the FAA approved Halo 350 Airplane Flight Manual Supplement.

The airspeed placard is located over the original airspeeds on the overhead instrument panel unless the panel has been re-painted with the Halo 350 airspeeds.

The Garmin ALT/AS placard is located on the instrument panel only for aircraft equipped with Garmin G1000 NXi and a mechanical standby airspeed indicator.

EXTERIOR PLACARDS AND MARKINGS

The following exterior placard is installed with the Halo 350 Conversion. The MLG bolt placard is located on the access panel for the main landing gear hinge bolt on both sides of the nacelles.



MAINTENANCE

- 1) Clean the placard with soapy water to remove grease, oil, and dirt.
- 2) Inspect the placard for damage and wear.
- 3) Replace placards that are illegible, peeling, or delaminating.



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CHAPTER 12

SERVICING

GENERAL

The servicing procedures in the AMM apply to aircraft with the Halo 350 Conversion, except as noted below.

LANDING GEAR SERVICING

Follow the servicing procedures in the AMM, Chapter 12-10-05, except for the main tires. Follow the instructions below.

TIRES

The 10 ply, 19.5 x 6.75 x 8 rim-inflated tubeless main landing gear tires require a higher inflation pressure for the increased gross weight. The proper inflation pressure for the main gear tires with the airplane fully loaded with fuel and oil is 97 ± 2 psi or 92 ± 2 psi with the airplane unloaded. The inflation pressure for the 8 ply, 22 x 6.75 x 10 rim-inflated tubeless nose landing gear tire is unchanged.



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CHAPTER 24 **ELECTRICAL POWER**

GENERAL

The electrical power system is unchanged, except for additional electrical loads from Halo 350 Conversion equipment (if installed). Follow the procedures in the AMM and include the additional details provided below.

DC ELECTRICAL LOAD UTILIZATION

The following Tables list the electrical loads for each Halo 350 equipment item. Add the electrical load to the total electrical load for the airplane if applicable. Follow the maintenance procedures in the AMM, Chapter 24-50-00.

CONTINUOUS LOAD TABLE

Equipment	Units Used	Load per Unit (Amps DC)	Total Load (Amps DC)	Notes
Switch, Overspeed, P/N 006-1002-0005-1	1	0.08	0.08	1

INTERMITTENT LOAD TABLE

Equipment	Units Used	Load per Unit (Amps DC)	Total Load (Amps DC)	Notes
Ice Mode Stall Warning System - Total			2.23	2
Lift Computer, Ice Mode, C-06106-1	1	2.00	2.00	2
Relay, MD41-248	1	0.15	0.15	2
Switch, Ice Mode, P/N 006-1011-0005-402	1	0.08	0.08	2
Takeoff Trim Warning System - Total			0.12	
Horn, Takeoff Trim Warning, SC628	1	0.02	0.02	3
Relay, M83536/10-026M	1	0.10	0.10	4

Notes:

- (1) This load applies to the airspeed warning circuit breaker on the triple-fed bus.
- (2) Add the system total load to the stall warning circuit breaker on the triple-fed bus whenever the Ice Mode annunciator switch is illuminated.
- (3) Add this load to the engine auto-feather circuit breaker on the triple-fed bus when the Takeoff Trim Warning horn is activated during ground operation only.
- (4) Add this load to cabin temp control circuit breaker on the triple-fed bus during ground operation only.



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CHAPTER 27 **FLIGHT CONTROLS**

GENERAL

Maintenance procedures for the Halo 350 Conversion Takeoff Trim Warning system and Ice Mode Stall Warning system are provided below. Follow the AMM procedures for all other flight control systems.

TAKEOFF TRIM WARNING - DESCRIPTION

This system gives the pilot an aural warning that the elevator/pitch trim control wheel is set outside the normal takeoff range. The system is only active on the ground during the initiation of the takeoff run when the left landing gear safety switch is closed, the auto-feather switch is in the "ARM" position, and the left engine power lever is advanced past 50% travel or approximately 88% N_1 when the engine is running. The auto-feather switch provides 28 VDC power to the Takeoff Trim Warning horn.

The system senses the pitch trim control wheel position using a roller, lever-actuated micro-switch installed in the cockpit pedestal, just forward of the trim wheel, and a trigger plate that is attached to the trim dial on the opposite side of the takeoff range marking (Figure 27-1). When the trim wheel is inside the takeoff range, the roller contacts the trigger plate, which depresses the lever and keeps the switch contact open.

If the pilot moves the trim wheel up or down out of takeoff range, the roller loses contact with the trigger plate, which extends the lever and closes the switch contact (audible click). This action grounds the Takeoff Trim Warning horn circuit and sounds the alarm when takeoff is initiated.

The system deactivates after lift-off when the left landing gear safety switch opens (weight-on-wheels switch). In flight, the system is inoperative.

TAKEOFF TRIM WARNING - TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
1. Horn does not activate when it should.	a. Roller switch lever is stuck (contact is open). b. Relay is inoperative. c. Horn is inoperative.	a. Check the switch for debris or damage. Clean or replace the switch as required. b. Check for 28 VDC power to the relay. Replace the relay as required. c. Check for 28 VDC power to the horn. Replace the horn as required.
2. Horn activates when it should not.	a. Roller switch lever is stuck (contact is closed). b. Roller switch lever is not in contact with trigger plate.	a. Check the switch for debris or damage. Clean or replace the switch as required. b. Adjust the position of the plate assembly so that the switch lever contacts the trigger plate. Refer to <i>Installation - Roller Switch</i>

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TAKEOFF TRIM WARNING - MAINTENANCE

REMOVAL - ROLLER SWITCH

Reference Figure 27-1 for details.

- 1) Turn the battery switch OFF and disconnect the battery (ref. AMM Ch. 24-30-01).
- 2) Remove the elevator/pitch trim control wheel (ref. AMM Ch. 27-30-09).
- 3) Unplug the wires from the roller switch terminals.
- 4) Remove the three screws and lock washers holding the plate assembly to pedestal.
- 5) Remove the two screws, nuts, and washers attaching the switch to the plate assembly.

INSTALLATION - ROLLER SWITCH

Reference Figure 27-1 for details.

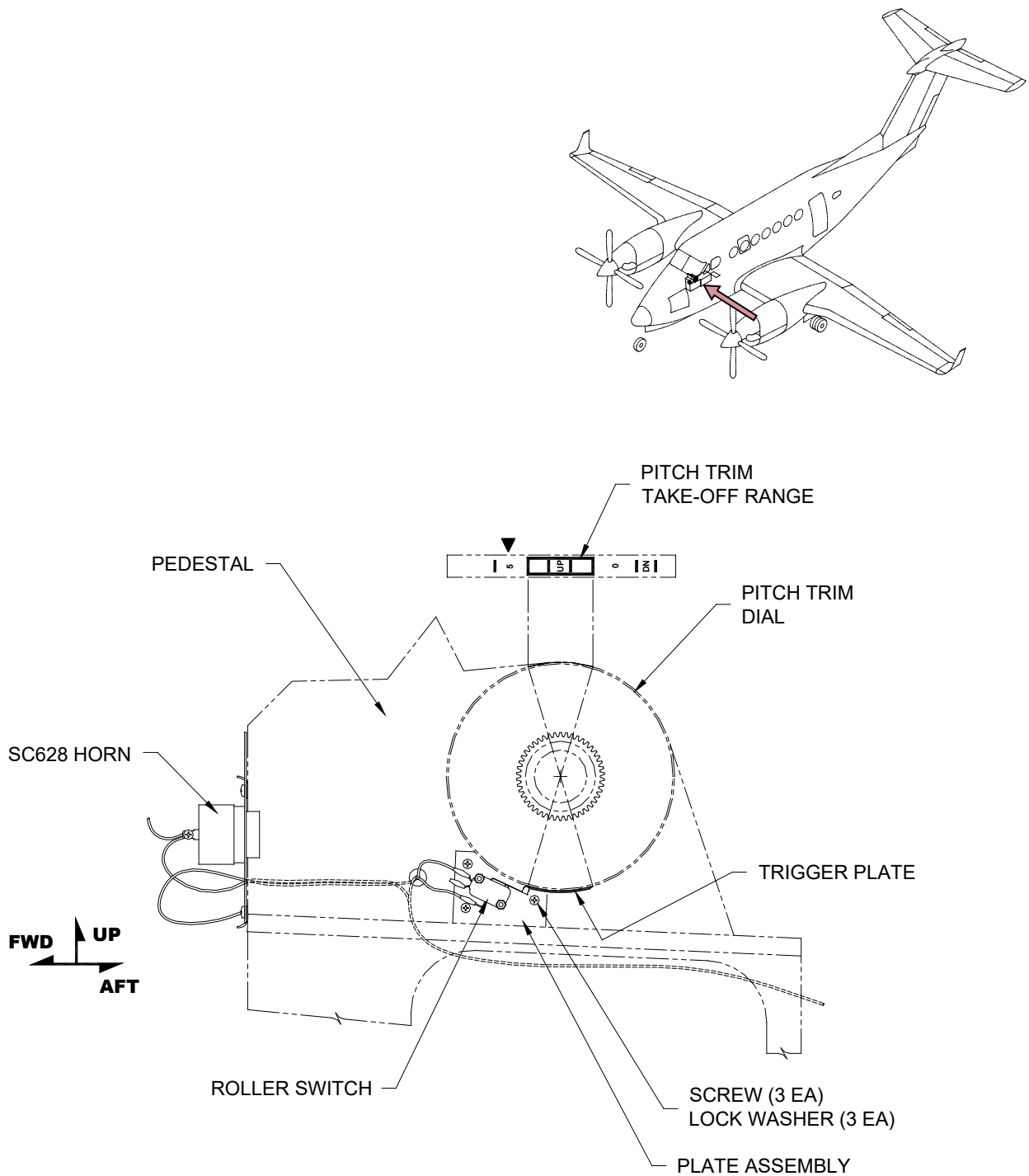
- 1) Install the roller switch on the plate assembly with the two screws, nuts and washers previously removed. Be sure the shim (part of the plate assembly) is located between the switch and the plate.
- 2) Install the plate assembly on the pedestal wall with the three screws and lock washers previously removed.
- 3) Check and adjust the position of the switch as follows to ensure proper function.
 - a. Rotate the pitch trim dial and verify the switch roller contacts the surface of the dial and trigger plate as it rotates.
 - b. When the roller transitions from the dial to the trigger plate, verify the switch lever depresses sufficiently to make an audible click.
 - c. When the roller moves off the trigger plate, verify the switch lever extends with an audible click.
 - d. Adjust the plate assembly position as needed to properly locate the switch.
- 4) Connect the wire harness receptacles to the switch terminals: GND wire to "NC" terminal, CTW203A22 wire to "C" terminal.
- 5) Install the elevator/pitch trim control wheel (ref. AMM Ch. 27-30-09).
- 6) Connect the battery (ref. AMM Ch. 24-30-01).
- 7) Conduct the Takeoff Trim Warning *Functional Test* procedure on page 27.4.

REMOVAL - HORN

Reference Figure 27-1 for details.

- 1) Turn the battery switch OFF and disconnect the battery (ref. AMM Ch. 24-30-01).
- 2) Unscrew the black plastic knurled nut from the horn in order to remove it from the mount bracket.
- 3) Remove the two screws connecting the wire leads to the horn terminals.

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NOTE: View shown without pitch trim control wheel.

FIGURE 27-1. TAKEOFF TRIM WARNING SYSTEM



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INSTALLATION - HORN

Reference Figure 27-1 for details.

- 1) Connect the wire leads to the horn terminals with the two screws previously removed: CTW201A22 wire to positive terminal, CTW201B22 wire to negative terminal.
- 2) Insert the horn in the mount bracket and install the knurled nut previously removed (hand tighten only).
- 3) Connect the battery (ref. AMM Ch. 24-30-01).
- 4) Conduct the Takeoff Trim Warning *Functional Test* procedure (below).

INSPECTION

Reference Figure 27-1 for details.

- 1) Verify the plate assembly and roller switch are securely fastened to the pedestal side wall. Check the switch for damage or wear. Replace the switch if damaged.
- 2) Check the wiring connections to the switch and horn. Verify the connections are secure and there is no signs of chafing or damage. Repair or replace any damaged wires or wire terminals.
- 3) Verify the horn is securely mounted to the mount plate.
- 4) Verify that the pitch trim control wheel rotates freely without any excessive drag.

FUNCTIONAL TEST

The Takeoff Trim Warning functional test should be done anytime the system is disturbed or altered. If the system does not perform properly, refer to the troubleshooting information on page 27.1. The horn should activate within +0 to -0.125 ($\frac{1}{8}$) inches from the takeoff range limit mark.

- 1) Turn the main battery (BAT) switch ON.
- 2) Start with the pitch trim control wheel in the takeoff range (white arc).
- 3) Place the Autofeather switch to ARM.
- 4) Move the left engine power lever full forward.
- 5) Rotate the trim wheel to 5 units nose up and verify the horn sounds as the trim wheel move out of takeoff range.
- 6) Place the Autofeather switch to OFF and verify the horn deactivates.
- 7) Place the Autofeather switch back to ARM.
- 8) Move the left engine power lever to idle and verify the horn deactivates.
- 9) Move the left engine power lever back to full forward and return the trim wheel to takeoff range. The horn should deactivate once the trim wheel is back in takeoff range.
- 10) Rotate the trim wheel to 0 units nose up and verify the warning horn sounds as the trim wheel moves out of takeoff range.
- 11) Return the trim wheel to takeoff range and verify the warning horn deactivates.
- 12) Move the left engine power lever back to idle.
- 13) Place the Autofeather switch to OFF.
- 14) Turn the main battery switch OFF.

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STALL WARNING - TROUBLESHOOTING

The troubleshooting fs for the stall warning system are unchanged, except for the following with the Halo 350 Conversion Ice Mode Stall Warning system installed.

When performing the Stall Warning - Ground Functional Test procedure in the AMM, Chapter 27-31-01, connect the test box between the Ice Mode wire harness and the airplane stall warning wire harness (Figure 27-2) in order to test the system in normal mode or Ice Mode. Connect the test box as specified in the AMM to bypass the Ice Mode Stall Warning equipment.

STALL WARNING - ICE MODE - DESCRIPTION

This system is an add-on to the existing stall warning system. The Ice Mode system provides a more accurate stall warning for operating in icing conditions with ice accumulation on the wing leading edge. The existing stall warning system is not capable of adjusting its' settings for ice accumulations, which cause the wing to stall at lower angles-of-attack, increasing stall speeds 9 to 15 knots. When "Ice Mode" is activated, the stall warning system settings are changed to trigger the warning 6 to 10 knots above the ice affected stall speed.

Ice Mode activates automatically once the pilot identifies ice accumulation on the wing and selects either "SINGLE" or "MANUAL" with the surface deice switch. A white annunciator switch, located in the pilot's instrument panel or glareshield and labeled "STALL WARNING ICE MODE," illuminates to indicate Ice Mode is active. The airplane's stall warning system provides 28 VDC power to the Ice Mode equipment. The pilot can deactivate Ice Mode at any time by depressing the annunciator switch.

When activated, a 24-pole switching relay transfers the stall warning system signals from the existing lift computer located under the center aisle floor behind the cockpit to a new, Ice Mode lift computer installed next to it (Figure 27-2). The C-06106-1 Ice Mode lift computer is calibrated at installation for the higher stall speeds that occur with ice accumulations. It has three different settings, one for each flap position, which enables it to provide an accurate warning at each flap setting.

The Ice Mode lift computer works with the existing lift transducer and aural warning system. It also functions the same as the existing lift computer. When the output of the lift transducer reaches a preset voltage, the Ice Mode lift computer triggers the stall warning horn to sound. The Ice Mode lift computer sends a constant ground signal to the aural warning system, which produces a constant tone.

When the pilot deactivates Ice Mode, the stall warning system reverts back to the normal settings. The stall warning system signals switch back to the existing lift computer and power is removed from the Ice Mode lift computer, annunciator switch, and relay.

STALL WARNING - ICE MODE - TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
1. Ice Mode does not activate when it should.	a. Relay is inoperative. b. Ice Mode annunciator switch is inoperative.	a. Check for 28 VDC power to the relay. Replace the relay as needed. b. Check for 28 VDC power to the switch. Replace the switch as needed.
2. Ice Mode stall warning speed is too high/low or warning does not activate.	a. Ice Mode lift computer potentiometers are not set properly.	a. Calibrate the Ice Mode lift computer using the <i>Ground Calibration</i> or <i>In-Flight Calibration</i> procedure on page 27.12.

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PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
2. (continued)	b. Ice Mode lift computer is inoperative. c. Relay is inoperative.	b. Check the Ice Mode lift computer function using the <i>Ground Functional Test</i> procedure on page 27.6. c. Check for 28 VDC power to the relay. Replace the relay as needed.
3. Ice Mode does not deactivate when it should.	Ice Mode annunciator switch is inoperative.	Cycle the "Stall Warn" C.B. on the right C.B. panel to reset the system. Check the switch using the <i>Functional Test</i> procedure on page 27.11. Replace the switch as needed.

GROUND FUNCTIONAL TEST

The Ground Functional Test is a stall warning system troubleshooting procedure in the AMM, Chapter 27-31-01. The procedure below supplements the AMM procedure for the purpose of testing the Ice Mode lift computer. The Ice Mode lift computer is equipped with three adjustable potentiometers in the top of the computer, which are marked "0", "1" and "2" for full up, approach, and full down flaps.

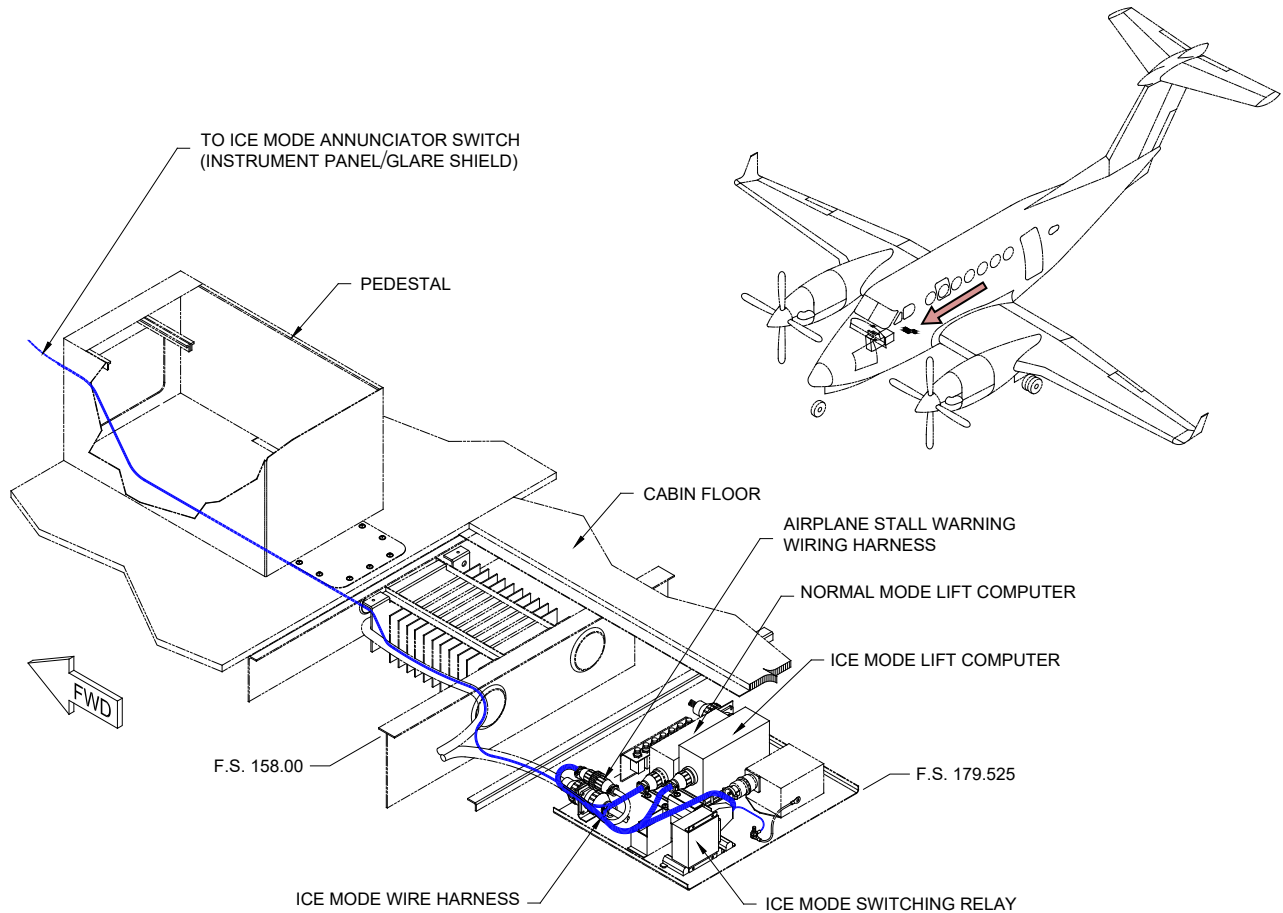
Follow the AMM procedure, except add the steps below to test the system in Ice Mode:

- 1) Connect the test/breakout box between the Ice Mode wire harness and airplane stall warning wire harness (Figure 27-2).
- 2) CenTex's force applicator may be used in lieu of the Beech force applicator specified in the AMM. Position the force arm so that the applied force is within 0.031 ($\frac{1}{32}$) inches of the transducer vane tip. Follow the force application guidelines specified in the AMM procedure.
- 3) Activate Ice Mode by selecting MANUAL on the Surface Deice switch. Verify the Ice Mode annunciator switch illuminates.
- 4) Check the Ice Mode lift computer voltages using a digital multimeter and the test box as specified in the AMM procedure, steps 9 through 12 and 19 through 21. The Ice Mode stall warning tone is heard as a solid tone when activated.
- 5) Apply the following forces to the transducer vane for each flap position as specified in the AMM procedure, steps 14 through 18:
 - a. Full Up: $+3.5 \pm 2$ tip grams
 - b. Approach: $+2.5 \pm 2$ tip grams
 - c. Full Down: $+1.0 \pm 2$ tip grams

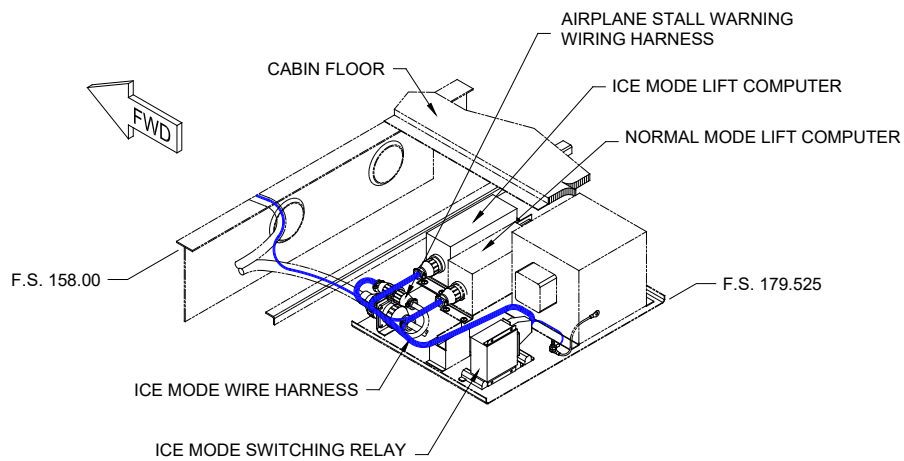
NOTE: If the lift computer potentiometer (0, 1, or 2) is set at a positive tip-gram force, the stall warning horn will sound when the transducer vane is neutral. Press the vane down/aft to turn the horn off. Settings may vary depending on adjustments made during in-flight calibration.

- 6) Deactivate Ice Mode by pressing the Ice Mode annunciator switch. Verify the annunciator light is out.
- 7) Remove the test box and reconnect the Ice Mode wire harness to the airplane wire harness.
- 8) Remove the Ice Mode lift computer for repair or replacement if it does not meet the voltage outputs specified in the AMM procedure.

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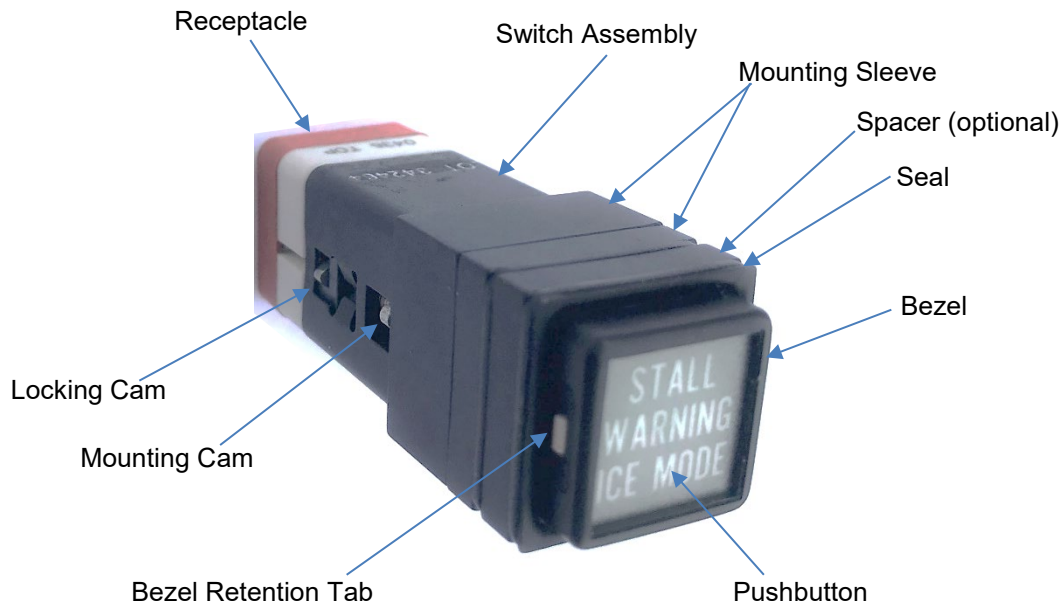
B300 FL-1 thru FL-380, FL-382; B300C FM-1 thru FM-11, FN-1



B300 FL-381, FL-383 and after; B300C FM-12 and after

FIGURE 27-2. ICE MODE STALL WARNING EQUIPMENT

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NOTE: The 4-pin connector and wiring to the switch's receptacle is not shown.

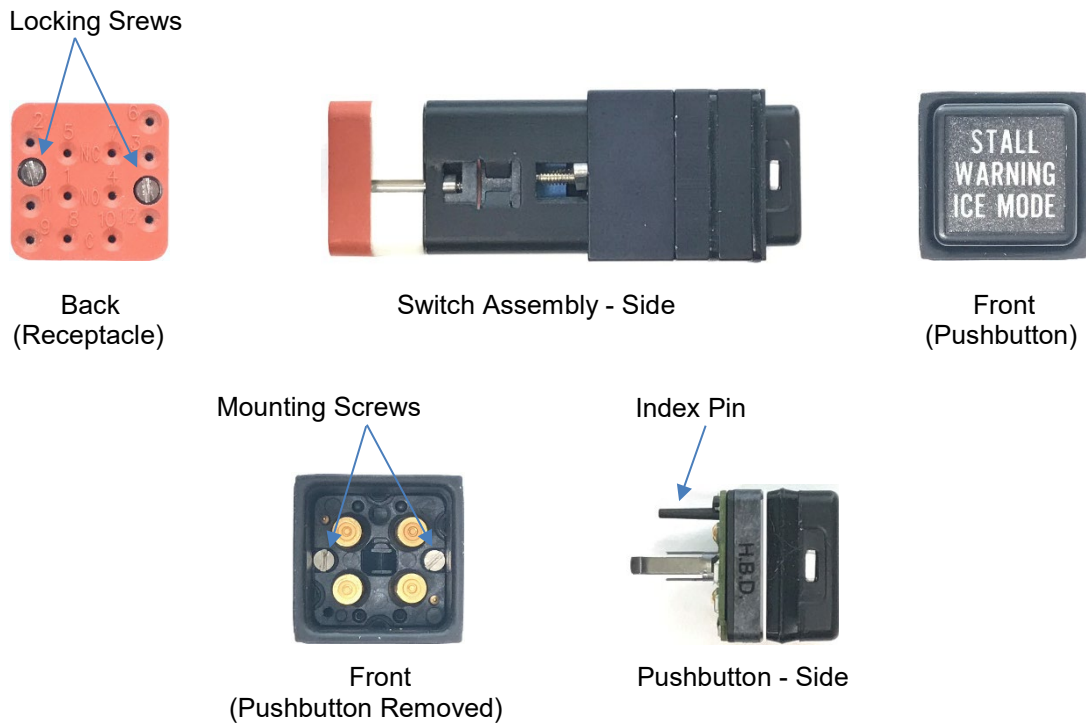


FIGURE 27-3. ICE MODE ANNUNCIATOR SWITCH

HALO 350 ICA FOR SUPER KING AIR B300/B300C

STALL WARNING - ICE MODE - MAINTENANCE

REMOVAL - ICE MODE LIFT COMPUTER & RELAY

Reference Figure 27-2 for details.

- 1) Turn the battery switch OFF and disconnect the battery (ref. AMM Ch. 24-30-01).
- 2) Remove the carpet (ref. AMM Ch. 25) and the cabin center aisle floor panels (ref. AMM Ch. 06-50-00) forward of the wing spar in order to access the electrical equipment panel under the floor.
- 3) On B300, FL-493, FL-500 and after, and B300C, FM-14 and after, remove the temperature controller panel (ref. AMM Ch. 21-61-01).
- 4) Disconnect the Ice Mode wire harness from the lift computer.
- 5) Disconnect the Ice Mode wire harness from the relay.
- 6) Remove the four screws and washers holding the lift computer to the mounting brackets.
- 7) Remove the four screws, nuts, and washers holding the relay to the bulkhead.

INSTALLATION - ICE MODE LIFT COMPUTER & RELAY

Reference Figure 27-2 for details.

- 1) Install the lift computer and relay in reverse of the removal procedure using the same hardware.
- 2) On B300, FL-493, FL-500 and after, and B300C, FM-14 and after, install the cabin temperature controller panel (ref. AMM Ch. 21-61-01).
- 3) Connect the battery (ref. AMM Ch. 24-30-01).
- 4) If a repaired or replacement lift computer is being installed, then perform the Ground and/or In-Flight Calibration procedure on page 27.12.

REMOVAL - ICE MODE ANNUNCIATOR SWITCH

Reference Figure 27-3 for details.

A. Special Tools & Equipment:

- Pushbutton extraction tool: Dallas Avionics part no. 58T-101, Staco Systems part no. 15193, or similar.

B. Pushbutton Removal Procedure:

Follow this procedure to access the switch assembly mounting screws inside the front of the switch.

- 1) Use the pushbutton extraction tool or similar tool to remove the pushbutton.
- 2) Position the extraction tool's gripping tangs under the bezel's retention tabs on each side of the pushbutton.
- 3) Squeeze the legs of the tool firmly with about 5 pounds of force and carefully pull the pushbutton out of the switch assembly. Do not remove the pushbutton bezel.

C. Receptacle Removal Procedure:

Follow this procedure in order to separate the switch assembly and remove it from or re-install it in the instrument panel or glareshield. You must have access the back of the receptacle to perform this procedure. Refer to D. Switch Assembly Removal Procedure if removing the switch.

- 1) Find the two locking screws on the back of the receptacle.



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- 2) Using a small flathead screwdriver, rotate the screws 1 to 2 turns counter-clockwise to release the locking cams.
- 3) Pull the receptacle off the back of the switch assembly being careful not to damage the pins.

D. Switch Assembly Removal Procedure:

- 1) Turn the battery switch OFF and disconnect the battery (ref. AMM Ch. 24-30-01).
- 2) Unplug the switch's 4-pin connector from the Ice Mode wire harness located behind the instrument panel (not shown).
- 3) Remove the pushbutton per B. Pushbutton Removal Procedure.
- 4) Using a small flathead screwdriver, rotate the two mounting screws 2 to 3 turns counter-clockwise to release the mounting cams.
- 5) Pull the switch assembly toward you through the mounting hole just far enough to access the back of the receptacle.
- 6) Remove the receptacle per C. Receptacle Removal Procedure.
- 7) Remove the receptacle and switch assembly from the instrument panel or glareshield.
- 8) Retain any mounting sleeves, spacer, and seals installed with the switch assembly and note the quantity and order in which they were installed.

INSTALLATION – ICE MODE ANNUNCIATOR SWITCH

Reference Figure 27-3 for details.

- 1) If a replacement Ice Mode annunciator switch is being installed, first disassemble the replacement unit as follows:
 - a. Remove the receptacle per C. Receptacle Removal Procedure.
 - b. Remove the pushbutton per B. Pushbutton Removal Procedure.
 - c. Using a small flathead screwdriver, rotate the two mounting screws 2 to 3 turns counter-clockwise to release the mounting cams.
 - d. Remove the mounting sleeves and spacer that come with the switch assembly. Leave one seal on the switch assembly just behind the panel mounting flange.
- 2) Place the required number of mounting sleeves and spacer (if needed) over the receptacle in the same order as previously removed.
- 3) Insert the receptacle through the mounting hole from the forward side.
- 4) Install the receptacle on the switch assembly.
- 5) Using a small flathead screwdriver, rotate the two locking screws on the back of the receptacle clockwise to engage the locking cams in the locked position. Do not overtighten the screws.
- 6) Install the switch assembly through the mounting hole so that the word "TOP" is oriented in the proper direction.
- 7) Push the mounting sleeves and spacer (if needed) over the switch assembly and against the back of the instrument panel or glareshield.
- 8) Using the screwdriver, rotate the two mounting screws inside the front of the switch clockwise to engage the mounting cams and hold the switch in place. Do not overtighten the screws.

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- 9) Install the pushbutton in the front of the switch assembly as follows:
 - a. Align the index pin on the back of the pushbutton with the index hole in the housing.
 - b. Make sure the text on the front of the pushbutton is oriented properly.
 - c. Gently push the pushbutton into the housing until it seats in place.
- 10) Connect the switch's 4-pin connector to the Ice Mode wire harness.
- 11) Connect the battery (ref. AMM Ch. 24-30-01).
- 12) Conduct the Ice Mode Stall Warning *Functional Test* procedure (below).

INSPECTION

- 1) Check to see that the Ice Mode annunciator switch is securely fastened (Figure 27.3). Replace the switch if it is damaged or not functioning properly.
- 2) Check to see that the Ice Mode lift computer and relay are securely fastened (Figure 27-2). Repair or replace the unit if it is not functioning properly.
- 3) Check the Ice Mode wire harness and Ice Mode equipment wiring for signs of chafing or other damage (Figure 27-2). Repair or replace any damaged wires.

FUNCTIONAL TEST

The Ice Mode Stall Warning functional test should be done anytime the system is disturbed or altered unless the *Ground Functional Test* on page 27.6 or a calibration on page 27.12 is being done. If the system does not perform properly, refer to the troubleshooting information on page 27.6.

- 1) Connect and apply external power to the airplane (ref. AMM Ch. 24-40-00).
- 2) Place the Surface Deice switch to MANUAL.
- 3) Verify the Ice Mode annunciator switch illuminates (Figure 27-3).
- 4) Set flaps UP and activate the Stall Warn Test switch. Verify the stall warning horn sounds.
- 5) Set flaps APPROACH and repeat the test.
- 6) Set flaps DOWN and repeat the test.
- 7) Set flaps UP.
- 8) Press the Ice Mode annunciator switch and verify the light goes out.
- 9) Disconnect external power (ref. AMM Ch. 24-40-00).

STALL WARNING - ICE MODE - ADJUSTMENT/TEST

The Ice Mode lift computer is equipped with three adjustable potentiometers in the top of the computer, which are marked "0", "1" and "2" for full up, approach, and full down flaps. Follow the *Ground Calibration* and *In-Flight Calibration* procedures below to set the potentiometers so the stall warning activates at the proper airspeed with ice accumulations on the wing.

The in-flight calibration may be performed without an initial ground calibration. Potentiometer settings resulting from an in-flight calibration supersede ground calibration results. Tip gram forces measured after an in-flight calibration may fall outside the limits specified for the ground calibration.



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GROUND CALIBRATION

Perform the Stall Lift Computer - On Ground Calibration procedure in the AMM, Chapter 27-31-03, except add the steps below to calibrate the system in Ice Mode. Record the calibration on the form provided on page 27.13.

- 1) Remove the potentiometer access cover from the Ice Mode lift computer (Figure 27-2).
- 2) CenTex's force applicator may be used in lieu of the Beech force applicator specified in the AMM. Position the force arm so that the applied force is within 0.031 ($\frac{1}{32}$) inches of the transducer vane tip. Follow the force application guidelines specified in the AMM procedure.
- 3) Activate Ice Mode by selecting MANUAL on the Surface Deice switch. Verify the Ice Mode annunciator switch illuminates.
- 4) Apply the following forces to the transducer vane for each flap position and set the Ice Mode lift computer potentiometers (0, 1, 2) as specified in the AMM procedure, steps 10 through 12:
 - a. Full Up (No. 0): Deflect the vane down/aft $+3.5 \pm 0.2$ tip grams.
 - b. Approach (No. 1): Deflect the vane down/aft $+2.5 \pm 0.2$ tip grams.
 - c. Full Down (No. 2): Deflect the vane down/aft $+1.0 \pm 0.2$ tip grams.

NOTE: The Ice Mode stall warning tone is heard as a solid tone when activated. If the lift computer potentiometer (0, 1, or 2) is set at a positive tip-gram force, the stall warning horn will sound when the transducer vane is neutral. Press the vane down/aft to turn the horn off.

- 5) Deactivate Ice Mode by pressing the Ice Mode annunciator switch.

IN-FLIGHT CALIBRATION

Perform the Stall Lift Computer - In-flight Calibration procedure in the AMM, Chapter 27-31-03, except add the steps below to calibrate the system in Ice Mode. Record the calibration on the form provided on page 27.14.

- 1) Remove the potentiometer access cover from the Ice Mode lift computer (Figure 27-2).
- 2) Activate Ice Mode by selecting MANUAL on the Surface Deice switch. Verify the Ice Mode annunciator switch illuminates.
- 3) While in Ice Mode, perform the stall test for each flap position as specified in the AMM procedure, steps 6 through 8.
 - a. The stall warning tone should sound at an airspeed within 15 to 25 knots prior to the stall speed, which is the moment the control column contacts the full aft stop. The actual stall speeds will be within the range shown in Table 1 below.
 - b. Adjust the Ice Mode lift computer potentiometers (0, 1, 2) as specified in the AMM procedure to achieve a 15 to 25 knot stall warning margin.
- 4) Deactivate Ice Mode by pressing the Ice Mode annunciator switch.

Table 1. Stall Speed Range for Wings Level, Power Idle, Control Column Full Aft

Flap Position	Stall Speed Range
UP	86 to 94 KIAS
APPROACH	77 to 85 KIAS
DOWN	69 to 77 KIAS

KIAS = Knots indicated airspeed



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Ice Mode Stall Warning Ground Calibration Record

Company: _____ Customer: _____
Work Order: _____ Aircraft Model: _____
Date: _____ Serial Number: _____
Technician: _____ N#: _____

Refer to page 27.12 and the On Ground Calibration procedure in the AMM, Chapter 27-31-03, for details.

1. Prepare the aircraft and set up the equipment to calibrate the Ice Mode lift computer.
2. Main Battery (BAT) switch - ON
3. Surface Deice switch - MANUAL and RELEASE
4. Ice Mode annunciator switch - ILLUMINATED
5. Perform the calibration at each flap setting using the force applicator ranges specified in Table 1.
6. Record the Ice Mode stall warning activation force in Table 1.
7. Ice Mode annunciator switch - PRESS and RELEASE
8. Main Battery switch – OFF
9. Return the aircraft to its' normal configuration.

Table 1. Ice Mode Lift Computer Ground Calibration

Flap Position	Force Applicator Range, tip grams	Lift Computer Potentiometer	Ice Mode Stall Warning Activation Force, tip grams
UP	+3.5 ± 0.2	0	
APPROACH	+2.5 ± 0.2	1	
DOWN	+1.0 ± 0.2	2	

NOTE: Deflect vane down/aft to increase positive force. Adjust lift computer potentiometer per AMM procedure to set activation point. Stall warning tone is on as vane moves up/forward from activation point to neutral position. Deflect vane down/aft until warning tone stops to determine activation force.

NOTES:

CALIBRATION COMPLETED: _____
Signature Date



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Ice Mode Stall Warning In-Flight Calibration Record

Company: _____ Customer: _____
Work Order: _____ Aircraft Model: _____
Date: _____ Serial Number: _____
Pilot: _____ N#: _____
Technician: _____ Time Start / End: _____

Refer to page 27.12 and the In-flight Calibration procedure in the AMM, Chapter 27-31-03, for details.

1. Prepare the aircraft and set up the equipment to calibrate the Ice Mode lift computer.
2. When ready to test:
 - a. Surface Deice switch - MANUAL and RELEASE
 - b. Ice Mode annunciator switch - ILLUMINATED
3. While in Ice Mode, perform the stall test at each flap setting.
 - a. Record the Ice Mode stall warning speed and stall speed in Table 1.
 - b. Adjust the Ice Mode lift computer potentiometer (0, 1, 2) to achieve a 15 to 25 knot stall warning margin.
4. When tests are completed:
 - a. Ice Mode annunciator switch - PRESS and RELEASE
 - b. Ice Mode annunciator switch - EXTINGUISHED
5. Return the aircraft to its' normal configuration.

Table 1. Ice Mode Lift Computer In-Flight Calibration

Flap Position	Stall Warning Airspeed, KIAS	Stall Speed, KIAS	Difference, knots	Lift Computer Adjustment
UP				Pot. 0:
APPROACH				Pot. 1:
DOWN				Pot. 2:

NOTES:

CALIBRATION COMPLETED: _____
Signature Date



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CHAPTER 31

INDICATING/RECORDING SYSTEMS

GENERAL

The Halo 350 Conversion includes changes to the airspeed markings for mechanical airspeed indicators and electronic flight display units depending on the equipment and avionics system installed. Airspeed markings for the Halo 350 Conversion are shown in Section 2, Limitations, of the FAA approved Halo 350 Airplane Flight Manual Supplement. These changes do not affect the maintenance or inspection requirements of the equipment installed on the airplane. Follow the normal maintenance procedures in the AMM.

DESCRIPTION

The primary pilot's and copilot's mechanical airspeed indicators (if equipped) are modified in accordance with CenTex Aerospace Engineering Specification no. 051-4000. The maximum allowable airspeed limit is set for 245 knots and 0.58 Mach.

Collins Pro Line 21 adaptive flight display units (AFD-3010), which include two primary flight display (PFD) units and one multifunction display (MFD) unit, are configured for the B300ER (350ER) factory settings (i.e., AFD strapping configuration).

Collins Pro Line Fusion adaptive flight display units (AFD-3700), which include two PFD units and one MFD unit, are configured for the B300ER factory settings. The aircraft personality module (APM-5000) is set for aircraft subtype number 01 or 1. The B300ER configuration is also referred to as the 350ER, B300 w/Extended Range, or B300/B300C Extended Range/Heavy Weight.

Garmin G1000 NXi PFD units (GDU 1050A) and MFD unit (GDU 1550) are configured for the King Air B300 PT6A-60A (or -67A) Heavyweight Configuration. The standby mechanical airspeed indicator or the standby attitude module (MD302) is also marked for the B300/B300C Heavyweight configuration. Maintenance for this equipment is specified in the Garmin G1000 NXi System Maintenance Manual for King Air 300 Series, P/N 190-00716-N1.



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CHAPTER 32 **LANDING GEAR**

GENERAL

The nose and main landing gear assemblies are unchanged for the Halo 350 Conversion, except as follows. The main landing gear tire inflation pressure is raised slightly, and there are four high-strength NAS bolts installed at the upper attachment points of the main landing gear (i.e., hinge bolts). These changes apply to all airplanes modified by the Halo 350 Conversion. Follow the landing gear maintenance procedures in the AMM, except as noted below.

It should also be noted that the Halo 350 Conversion does not require bumper blocks to be installed on the main lower spar caps. These bumper blocks only apply to airplanes equipped with high flotation main landing gear.

HIGH-STRENGTH NAS HINGE BOLT - MAINTENANCE

REMOVAL/INSTALLATION

The removal and installation procedures for main landing gear with high-strength NAS hinge bolts are the same as the normal procedures in the AMM, Chapter 32-10-03.

INSPECTION

Perform a general visual inspection of the hinge bolts installed to check for wear, damage, and corrosion. If there are any signs of damage, wear, or corrosion, remove the bolt for further examination.

Whenever the hinge bolt or main landing gear is removed for inspection, clean the bolt with mineral spirits and visually inspect for cracks, wear, corrosion, and deterioration of the protective treatment. Check the bolt shank diameter (below) and replace excessively worn or damaged parts.

Bolt shank diameter (inches): Ø.7488 to Ø.7481

MAIN LANDING GEAR TIRE - MAINTENANCE / SERVICING

Inspect each tire for cuts, cracks, breaks and tread wear. Inflate each tire to the proper tire inflation pressure specified in Chapter 12 of this manual. Follow the tire servicing guidance in the AMM, Chapter 32-40-13.



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CHAPTER 34 **NAVIGATION**

GENERAL

The Halo 350 Conversion includes changes to the overspeed warning system, Collins air data computers, and the electronic standby instrument system (ESIS) depending on the equipment installed. These changes do not affect the maintenance or inspection requirements of the equipment installed on the airplane. Follow the normal maintenance procedures in the AMM, except as noted below.

DESCRIPTION

CenTex's overspeed warning switch replaces the Aerosonic airspeed warning switch in the pitot and static pressure system on model B300, FL-1 through FL-92, and B300C, FM-1 through FM-8. See the following sections for a description and maintenance instructions.

Airspeed indicators that have a built-in overspeed switch are modified in accordance with CenTex Aerospace Engineering Specification no. 051-4000. The overspeed warning activates at speeds above 245 knots and 0.58 Mach.

Collins Pro Line 21 air data computers (ADC-3000) are configured for the B300ER/ER-II/ER-III factory settings (i.e., ADC strapping configuration). The configuration module (DCM-3100) on the electronic standby flight display (GH-3100) is specific to the Halo 350 Conversion.

Collins Pro Line Fusion air data computers (ADC-3000) are configured for the B300ER/B300CER (Heavy Weight) factory settings (i.e., ADC strapping configuration). The remote sensor unit (GH-3900RSU) for the ESIS display is configured for the King Air B300HW aircraft type.

For the Halo 350 Conversion, use the maximum allowable airspeed (V_{MO}) in Section 2, Limitations, of the FAA approved Halo 350 Airplane Flight Manual Supplement for the Overspeed and Reversion Test in the Fusion AMM, Chapter 34-10-01, or other similar procedures.

OVERSPEED WARNING SWITCH - DESCRIPTION

The overspeed warning switch is installed in place of the Aerosonic airspeed warning switch. It is located in the nose avionics bay on B300, FL-1 through FL-92, and B300C, FM-1 through FM-8 (Figure 34-1). The switch is set to activate the existing aural overspeed alarm at airspeeds above 245 knots or 0.58 Mach.

OVERSPEED WARNING SWITCH - TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
1. Alarm activates too low or too high.	a. Pitot or static line clogged. b. Switch out of calibration.	a. Disconnect lines and blow out with low pressure air. Perform the <i>Functional Test</i> on page 34.2. b. Return switch to CenTex to be "Rebuilt."
2. Alarm does not activate.	No power or faulty connection.	Check circuit breaker and wire harness connection. Repair as required.

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OVERSPEED WARNING SWITCH - MAINTENANCE

REMOVAL

Reference Figure 34-1 for details.

- 1) Turn the battery switch OFF and disconnect the battery (ref. AMM Ch. 24-30-01).
- 2) Remove the avionics compartment access panels (both sides).
- 3) From the left side, disconnect the overspeed switch pitot and static line hoses from their respective manifolds.
- 4) From the right side, remove the four screws and washers holding the support assembly to the shelf.
- 5) Disconnect the wire harness from the switch.
- 6) Pull the switch, support assembly, and hoses (still connected) out of the compartment.
- 7) Disconnect the pitot and static line hoses from the switch.
- 8) Remove the four screws and washers attaching the switch and support assembly.

INSTALLATION

Reference Figure 34-1 for details.

- 1) Install the switch in reverse of the removal procedure using the same hardware.
- 2) Connect the battery (ref. AMM Ch. 24-30-01).
- 3) Perform the overspeed warning switch *Functional Test* procedure (below).
- 4) Perform a static system leak test (ref. AMM Ch. 34-10-05).

INSPECTION

- 1) Check to see that the switch is securely fastened (Figure 34-1).
- 2) Check the condition of the rubber insulators on the shelf. Replace the insulator if it is hard or cracked.
- 3) Check the condition of the pitot and static hoses (ref. AMM Ch. 34-10-01).
- 4) Check the wire harness for security and signs of chafing or damage. Repair or replace any damaged wires.

FUNCTIONAL TEST

The overspeed warning switch functional test should be done as part of the normal pitot and static system functional check every 24 months and anytime the system is disturbed. If the switch does not perform properly, refer to the troubleshooting information on page 34.1.

- 1) Connect and apply external power to the airplane (ref. AMM Ch. 24-40-00).
- 2) Perform a pitot system pressure test (ref. AMM Ch. 34-10-01).
- 3) Read the airspeed at which the overspeed warning alarm sounds. The alarm should activate between 245 to 251 knots.
- 4) Verify the alarm has deactivated by the time airspeed drops below 245 knots.
- 5) Disconnect external power (ref. AMM Ch. 24-40-00).

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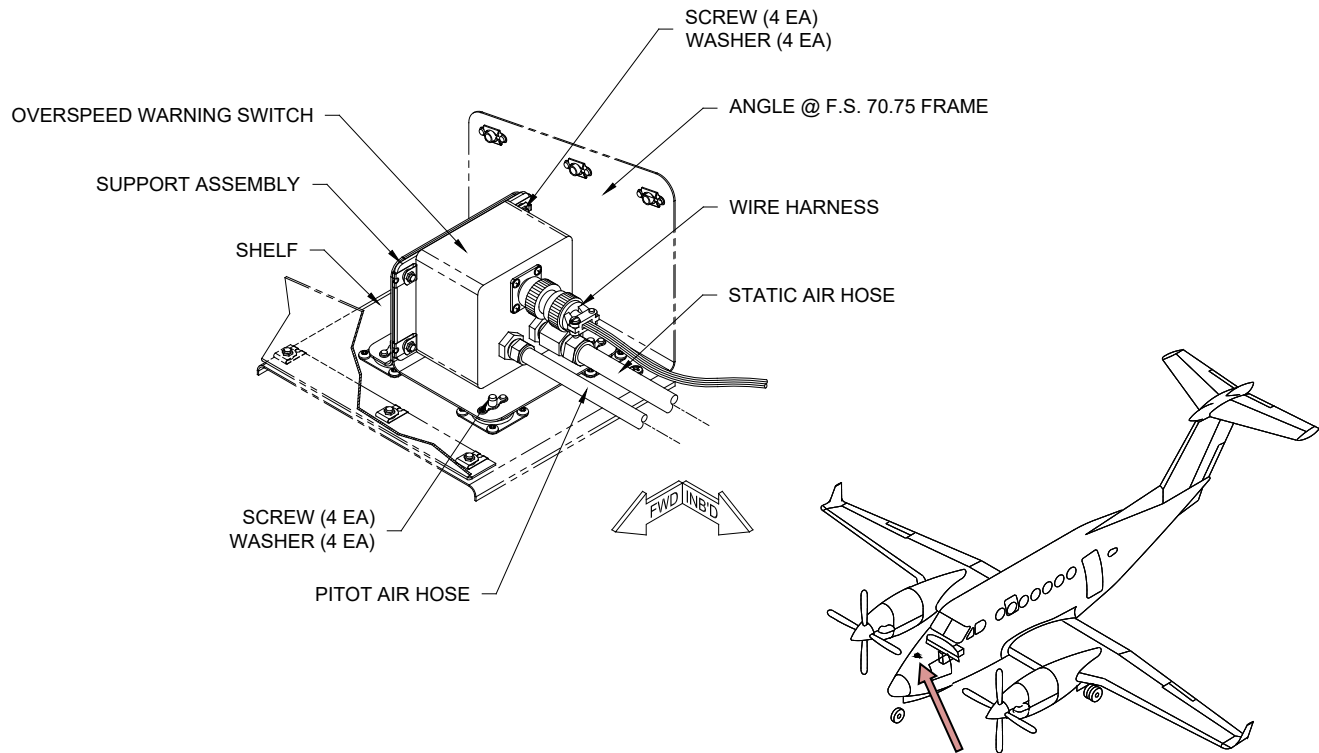


FIGURE 34-1. OVERSPEED WARNING SWITCH



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