

## **PILOT'S GUIDE FOR ICEMAN CARBURETOR ICE DETECTOR**

Section 1.0, 2.0, 3.0, 4.0, 5.0, and 6.0 of this document comprise the PILOT'S GUIDE. Compliance with Section 2 (Limitations) is mandatory. Section 6.0 (Carb Icing) is unapproved.

This Ice Detector is for advisory purposes only. Refer to the approved Flight Manual for your Aircraft for ice detection and clearing procedure. The information contained herein supplement the basic Approved Flight Manual only in the areas listed. For General, Limitations, Emergency Procedures, Normal Procedures, and Performance Information not contained in this PILOT'S Guide, refer to the approved Flight Manual for your Aircraft.

THIS PILOT'S GUIDE APPLIES TO THE CARBURETOR ICE DETECTOR, MODEL: ICEMAN, INSTALLED IN ACCORDANCE WITH SUPPLEMENTAL TYPE APPROVAL (STA) No; SA 93-170 and (STC) No: SA00081NY

### **1.0 GENERAL DESCRIPTION OF ICE DETECTOR SYSTEM**

1.1 By means of a solid state electronic circuit, a warning light and audio alarm are actuated by the blockage of light rays by frost or ice build-up between the light emitting source and the photo detector probe in the carburetor. This system is independent of and is not affected by temperature or pressure changes. In the absence of frost or ice, the warning light remains off and the audio alarm remains silent.

1.2 The "ADJUST" rotary control is provided to adjust the system sensitivity level for ice detection. This setting should be just below the threshold of the "CARB ICE" warning light illumination after engine start.

1.3 The "TEST" switch is provided to verify system operation by activating the red "CARB ICE" light and the audio alarm. The "RESET" switch is provided to allow the pilot to mute the audio alarm.

1.4 With increasing time or operation on the engine, a slight film of fuel residue may form on the probe which may result in a slight reduction of sensitivity at the original setting when the detector is first installed. This will be observed when it is required to turn the "ADJUST" rotary control to an ever increasing clockwise setting as time goes on. However, the basic sensitivity of the detector is not reduced when adjusted as outlined above. If the "ADJUST" rotary control must be turned fully clockwise and the light still fails to extinguish, then the probe must be removed for cleaning with a soft cloth and white gasoline. This procedure must be carried out by a qualified maintenance engineer.

NOTE: This instrument is approved as optional equipment only and flight operation predicated on its use is prohibited. Procedures listed herein on the use of heat are intended to supplement existing instructions.

### **2.0 LIMITATIONS**

2.1 Placard: "Flight not to be predicated on use of Carburetor Ice detector." Return to Table of Contents

### **3.0 EMERGENCY PROCEDURES**

3.1 No change.

## **4.0 PROCEDURES**

### **4.1 NORMAL PROCEDURES**

4.1.1 After turning the aircraft master switch to the “ON” position and starting the aircraft engine, set the detector power switch to “ON”, and turn the “ADJUST” rotary control fully counter-clockwise. The audio alarm will activate and the red “CARB ICE” warning light will illuminate. Depress the “RESET” switch to deactivate and silence the audio alarm.

4.1.2 NOTE: [During the engine run-up], apply carb heat for at least 30 seconds prior to adjusting the sensitivity using the “ADJUST” rotary control, to ensure that no ice is present when adjustment is made. [Turn the “ADJUST” rotary control clockwise until the light goes off.]Every time a re-adjustment of the “ADJUST” rotary control is required, carburetor heat must be applied for at least 30 seconds, prior to such adjustment to ensure that no ice is present in the carburetor.

4.1.3 Leave the ice detector power switch set to “ON” at all times during flight.

4.1.4 To test the ice detector, activate the “TEST” switch which will trigger the red “CARB ICE” light and the audio alarm will sound. On release of the “TEST” switch, the “CARB ICE” light goes out, but the audio alarm remains activated until the “RESET” switch is momentarily depressed. The system operation is again in the ice detection mode.

4.1.5 If the “CARB ICE” light illuminates and the audio alarm sounds, indicating ice formation on the probe in the carburetor throat, immediately apply carb heat. Then depress and release the “RESET” switch to mute the audio alarm. This will deactivate and reset the audio alarm. The “CARB ICE” warning light will remain “ON” until the frost or ice has been cleared from the carburetor at which time the red light will go out.

4.1.6 If the red light does not go out after approximately two minutes of heat application, the cause may be an improper “ADJUST” rotary control setting or carburetor icing conditions. Using the “ADJUST” rotary control, reset the sensitivity and the light should go out. If the light fails to go out, continue to apply heat until it does. You may be flying in conditions conducive to carburetor icing, continue to apply carburetor heat and refer to your P.O.H. for proper procedures.

### **4.2 ABNORMAL PROCEDURES**

4.2.1. If after activating the “Test” switch the red “CARB ICE” warning light fails to illuminate and the audio alarm fails to activate, then either the fuse is burnt or the ice detection unit requires service. The “ON/OFF” switch should be turned “OFF” and the unit serviced before reuse.

4.2.2 If upon activating the “Test” switch the “CARB ICE” light fails to illuminate but the audio alarm activates, the unit requires servicing. The “ON/OFF” switch should be turned to the “OFF” position and the unit serviced before reuse.

## **5.0 PERFORMANCE**

5.1 No change.

## **UNAPPROVED — 6.0 CARB ICING**

6.1 What you should know: (Ref: D.O.T. statement #TP2700E CARB ICING)

- a) Ensure carb heat works during pre-takeoff check;
- b) Repeatedly monitor engine instruments for loss of rpm (fixed pitch) or manifold pressure (constant speed) — this means ice is forming;
- c) Select full carb heat early — and keep it on (the engine may run rough while the ice melts);
- d) Move mixture control carefully, leaning to smooth engine roughness as the ice melts;
- e) Be aware that carb or induction ice can form while climbing and apply carb heat prior to levelling off if ice is suspected;
- f) Prior to descent, apply full carb heat — periodically open throttle during extended closed-throttle descent for added heat to melt ice.