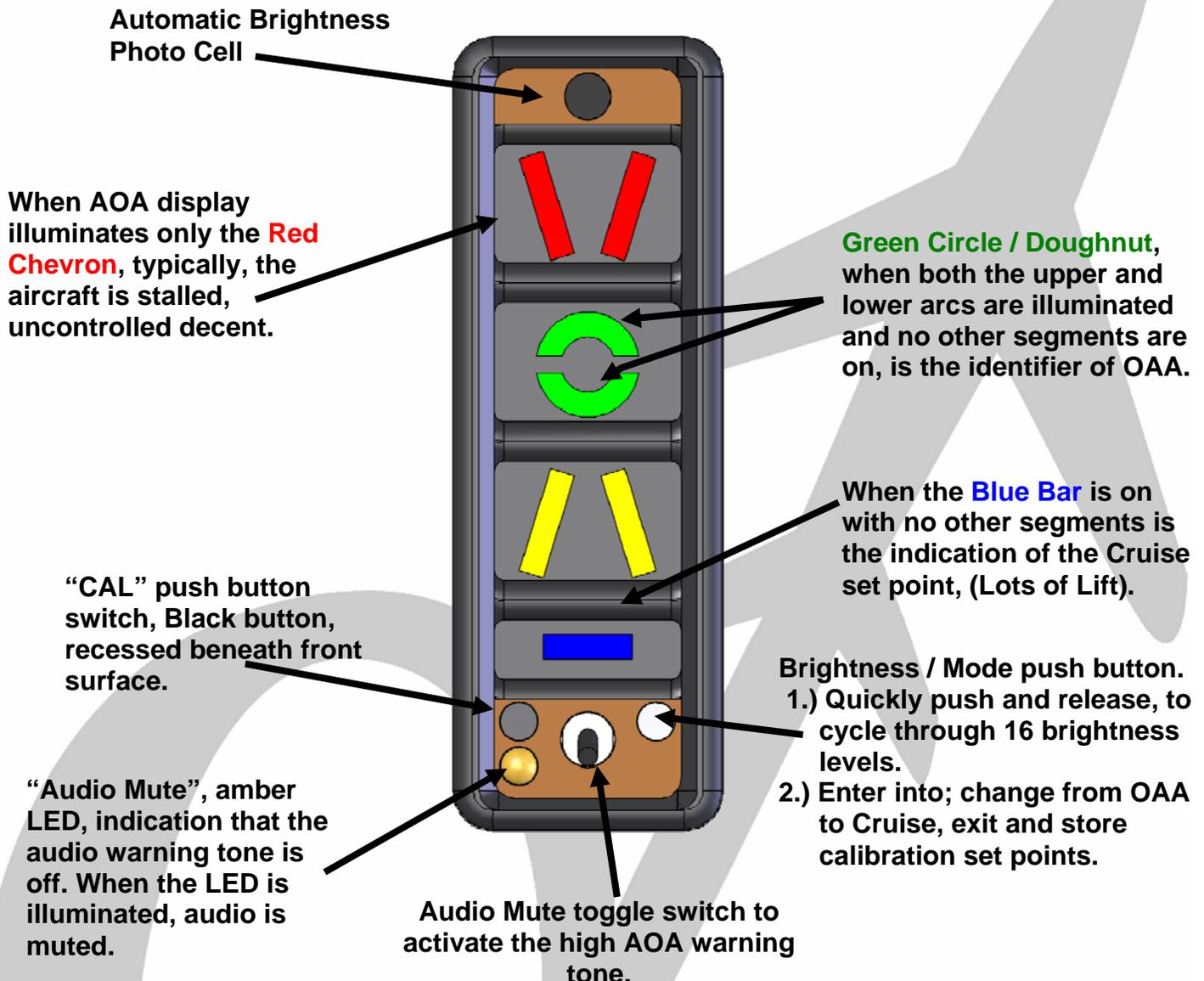


## Alpha Systems "Legacy" Display



This manual has duplicate information that was provided in the Installation / Operation manual. The calibration procedures outlined are detailed to help the pilot understand the correlation for in-flight aircraft AOA flight dynamics and functions of the "Legacy" AOA display indications.

The pilot / installer will calibrate the AOA display to the specific aircraft by 3 simple calibration set points and one button pushes to enter and save the set point values.

**FLY SAFE.... FLY AOA!**

## Legacy AOA Calibration Overview

The calibration of the Legacy AOA has **3 simple steps**

- 1.) (On the Ground) **Zero** calibration
- 2.) (In-flight) Optimum Alpha Angle (**OAA**) calibration
- 3.) (In-flight) **Cruise** calibration

Once the AOA is installed, the system must be electronically calibrated to your specific aircraft. Every aircraft has a range of available flight dynamics or a range of available lift (AOA) from **Cruise AOA**, up to **Stall AOA**. The Legacy instrument must be calibrated to the specific airplane to give a colored segment representation over the aircraft's AOA full range. The display will give a smooth transition of colored segments from No segments (No differential pressure), to the **Red Chevron**, down through the **Green Circle / Doughnut**, **Yellow Chevron**, then finally, to the **Blue Bar** (Cruise / Lots of Lift). As the pilot pulls the yoke back, the Legacy display will give a representative colored bar correlating instantly to the current AOA and representative amount of available lift.

## **“Pull into Red” (Danger)..... “Push to Blue”...(Lots of Lift)** **Instantaneous AOA Readout, Repeatable.**

Included in this manual are the written definitions for each step with associated flow charts to assist the pilot for easy, step by step calibration.

### **Brightness / Mode push button**

The Brightness button is the white push button on the lower right corner of the display.

It's used for 2 functions:

- 1) Changing the brightness levels of the colored segments (**Quickly push and release**)
- 2) Operates as a **MODE** switch, enter into, change from, **OAA** to **Cruise** calibration and exit the calibration steps. (**By depressing the Brightness button for greater than 6 seconds**).

### **The “CAL” push button**

The **CAL** push button is the black button located at the bottom left corner and is recessed underneath the front case. The button can be depressed with a Pen or a PDA pointer.

**It is recommended**, to make calibration easier, that the pilot flies the aircraft and a second person follow the calibration procedure, enter the appropriate set points for the instrument. **At ALL times, flying the aircraft in a safe manner controlled by the Pilot -in- Command at safe altitude to maneuver the aircraft during slow flight.**

## **Step 1: (On the Ground) Zero Calibration (Overview)**

The first electronic calibration step after installation and electrical connections are completed is to verify and set pressure **Zero** set point. When the unit is turned on for the first time, all colored segments will flash, indication that the unit must have the (On the Ground) **Zero** calibration procedure completed.

The ground **Zero** calibration set point can be reset at any time after the initial calibration however **ALL** in-flight set points **OAA and Cruise must** be reset. The other identified in-flight values correlated to the colored segment illumination.

## Step 2 and Step 3: (In-Flight) Calibration (Overview)

The Legacy has two “Calibrated” set points, **OAA** and **Cruise**, in-flight, calibrated by the pilot at safe altitude. These 2 set points will be calibrated in-flight to the airplane by the pilot, correlating the AOA of the aircraft’s angle of attack range to match the full scale readout of the Legacy display.

### After both of the Calibration Set Points are Complete (Overview):

After the Legacy AOA has been successfully calibrated, the pilot is able to identify other in-flight reference points such as: Max climb angle, Stall, Best glide, Best climb and others to which colored segments correspond to those values using the aircrafts AOA range from Cruise up to Stall. The Legacy AOA will instantaneously respond to the changing AOA showing the amount of available lift at ALL angles of attack.

### To Match Aircraft’s AOA to a Flight Value:

i.e.) **Best Glide**, Determine aircrafts exact Best Glide airspeed number (Pilot Operating Handbook), identify aircraft’s weight and compensate for Density altitude values, add or subtract to give the pilot an accurate number. Fly aircraft to the designated Best Glide number.... When holding that calculated airspeed, The AOA (**represented by the illumination of colored segments**) will always be the same Best Glide AOA from then on, regardless of gross weight changes, density altitude, and attitude.

## Alpha Systems Legacy Calibration Procedures

- From the factory, the unit is **NOT CALIBRATED**, The installer / pilot **MUST** complete the 3 calibration steps; **1.) (On the ground) Zero Pressure, (two in-flight), 2.)OAA, 3.) Cruise** calibration procedures.
- Once installation is complete and power is applied for the first time, **ALL segments** on the Legacy display will continuously flash on and off, indicating a **non-calibrated** system.

### Step 1 Calibrating the Zero Pressure Point (On the Ground)

Ground **Zero** calibration must be done in a “zero pressure condition”, preferably in a calm environment such as a hanger or no wind environment.

Press and hold the **CAL** button on the Legacy display, then apply power to the system.

Continue depressing the **CAL** button for about 8 to 10 seconds after power has been applied.

If **NO** segments are illuminated **or** if all segments stop flashing after a few seconds, the zero offset pressure value at the sensor is good and will be stored to the system EEPROM and used as the system zero pressure point. (**See note below**)

Release the **CAL** button, the Legacy display will enter its inactive display mode which is indicated by the **Green Doughnut** and the **Blue Bar** flash on and off 5 times. The unit is not functional at this time, and no display will occur until after the “in-flight” calibration is complete. Both setpoint values must be successfully entered, and the calibration mode is exited, allowing in-flight colored segment representation of AOA or lift available for that aircraft.

## Failure to Complete Ground Calibration

If all the segments on the Legacy display continue to flash on and off, the **Zero** pressure value from the sensor is too high, which indicates something is wrong electrically or mechanically with the system, or something in the environment is affecting the system. The system will flag the bad zero offset and continue to flash **ALL** segments, even if the system is powered off and on, until an acceptable **Zero** set point has been detected by repeating the above procedure.

To isolate the failure between mechanical or electrical problems, the air hoses should be disconnected from the AOA interface module and the above operation repeated.

If the condition persists, then the failure is electrical and the AOA interface module should be returned for an authorized repair.

If the setting is successful, then the failure is mechanical such as a blockage in the air hoses, etc. Once the mechanical failure is fixed, the above operation should be repeated.

### **Note:** This is a Power On Procedure.

For calibration, the system samples power and outputs to gain accuracy, all segments on the Legacy display may flash several times before the electronics stabilize, before they stop flashing for an acceptable / valid zero pressure point, this is normal.

**Before the unit becomes functional, the operator must calibrate the 2 in-flight set points, (OAA, Cruise) of the system. Go to Step 2.**

## **Step 2) Optimum Alpha Angle (OAA) Calibration Overview**

The operator must put the system into the **Optimum Alpha Angle (OAA)** Set Point Mode. Once in the calibration mode, identified by the **Green Doughnut** blinking on and off 3 times, and will continue to blink twice, every 6 seconds until a valid **OAA** value is entered.

After successfully completing both the **OAA** and **Cruise** calibrations for the first time, entering into calibration mode again, will be identified by the **Green Doughnut** blinking 3 times, the unit will remain functional with the previous **OAA** value until a new set point is entered.

**The Calibration Mode can be entered into on the ground or in the air.**

### **To Enter the OAA Calibration Mode:**

**Press and hold the Brightness button (for greater than 6 sec.)** until the **Green Doughnut** blinks ON /OFF 3 times.

Release the **Brightness** button.

The system has entered the **Optimum Alpha Angle (OAA)** set-point calibration mode.

**NEXT**

**Pilot to Fly the Aircraft to the AOA Configuration of Optimum Alpha Angle (OAA):**

- 1.) Aircraft is at a safe altitude for slow flight maneuvers.
- 2.) Minimum controllable flight, lower power setting, (such as a down wind or landing pattern power setting).
- 3.) Able to hold altitude, as close to 0 vertical speed as possible (small climb OK), **not descending / 0 SINK**.
- 4.) Full aileron, elevator and rudder control, pilot to identify the **OAA** set point by pitching back slowly until no longer able to climb, but holding altitude with full control of the airplane, **not exhibiting any buffet or loss of control surface stability**. The pilot is to fly the aircraft at **OAA**, angle of attack, calibrating the display to correlate the **Green Doughnut** to indicate the aircrafts' AOA for minimum maneuvering (**OAA**).

**To Enter an OAA Set Point:**

Press and release the **CAL** button on the Legacy display when the aircraft is flown at **OAA**.

***Note: This operation can be repeated as many times as desired as long as the system is in the Optimum Alpha Angle (OAA) Calibration Mode.***

**If the Setting was Successful:**

The Legacy instrument will save the new set point and the display will become active illuminating the **Green Circle / Doughnut**. This set point must be verified by the pilot to identify correlation for the Optimum Alpha Angle (**OAA**) of his or her airplane to the display at the **OAA** flight dynamic of the aircraft.

The set point will be lost if power is turned off before completing the **ENTIRE** calibration procedure.

**Skip to Step 3****If the Setting is NOT Successful:**

The Legacy display returns to an inactive state, discards the attempted set point (**Values out of range**).

**AND**

The system will flash 3 times - one of 2 combinations of segments.

- 1.) **FLASHING Green Doughnut + Red Chevron 3 times: (Pressures to low, out of range)**, Indicates probe angle must be increased to allow for full scale calibration.

Or

- 2.) **FLASHING Green Doughnut + Yellow Chevron 3 times: (Pressures to high, out of range)** Indicates probe angle must be decreased to allow for full scale calibration.

## OAA Set Point Error Indications

If the **Green Doughnut** and the **Red Chevron** Flash Simultaneously 3 Times at a Rapid Rate:

Indicates the **Set Point is to Low (out of range)**.

The probe angle must be changed to an **increased angle** from the wing. If setpoint is unsuccessful after several attempts, the aircraft should be landed, the probe angle repositioned so the angle between the wing and the probe is **increased** by 10 degrees (**away from wing**), the in-flight (**OAA**) calibration procedure should be retried. **(Return to Step 2)**

**OR**

If the **Green Doughnut + Yellow Chevron** Flash Simultaneously 3 Times at a Rapid Rate:

Indicates the **Set Point is to High (out of range)**.

The probe angle must be changed to a **decreased angle** from the wing. If setpoint is unsuccessful after several attempts, the aircraft should be landed, the AOA probe angle repositioned so the angle between the wing and the AOA probe is **decreased** by 10 degrees (**toward wing**). The in-flight (**OAA**) calibration procedure should be retried. **(Return to Step 2)**

**NOTE:** If the **OAA** calibration was NOT successful and the **Brightness** button is depressed for longer than 6 sec., the **Green Doughnut** will blink ON and OFF 3 times and continue to blink twice every 6 sec.

The system will remain in the **OAA** calibration mode, until a valid **OAA** value is entered before the operator is able to continue to step 3.

### **Step 3) Cruise Set Point Calibration**

**OAA** set point must be entered successfully, Next, be put into the **Cruise** Set Point mode by holding the **Brightness** button down for (**>6 sec.**). **Cruise calibration mode** identified by **Blue Bar** blinking fast ON / OFF 3 times and continue to blink twice every 6 sec. until the calibration mode is exited.

**When at a normal cruising speed, power and straight and level attitude, holding altitude,**

Press and hold the **Brightness** button (**>6sec.**) until the **Blue Bar** blinks ON / OFF 3 times. Release the **Brightness** button. The **Blue Bar** will continue to blink twice every 6 seconds until a valid Cruise value is entered or the calibration mode is exited.

### To Enter a Cruise Set Point:

- Fly aircraft at safe altitude
- Increase power to a cruise power setting
- Allow aircraft to level off, Cruise attitude, holding altitude

Press and release the **CAL** button on the Legacy display. (Black button which is recessed in the lower left corner of the display).

### If the Setting is Successful,

The Legacy display will save the new **Cruise** set point in the system, illuminating the **Blue Bar**.

**Note:** This operation can be repeated as many times as desired as long as the system is in the **Cruise Calibration Mode** of operation.

**! NEXT STEP MUST BE COMPLETED !**

### Exiting the Calibration Mode (FINAL STEP)

When the cruise setpoint is successful, Depressing the **Brightness** button (**>6sec.**), forces the system to exit the calibration mode, entering the self test, segment illumination routine, all segments are illuminated one by one upwards and then extinguishing one by one to a fully functional Display Mode. Both set points, **OAA** and **Cruise** will be **stored**, representing the AOA range from **OAA** to **Cruise**, and the AOA range from **OAA** up to **Stall**.

**Calibrations of the set points are complete!!!! The linear range of AOA / Lift for your aircraft is represented by the colored segments illuminated on the Legacy AOA display. Instantaneously and repeatably, displaying the amount of AOA / available lift!!!!**

### If the Cruise Setting was NOT Successful:

The display discards the attempted set point and the following event occurs:

**The Blue Bar flashes 3 times at a rapid rate.  
This indicates that the set point is too low.**

**If** the cruise set point was not successful and the **Brightness** button is depressed, (**>6sec.**) the **Blue Bar** will blink ON and OFF 3 times and the system will remain in the **Cruise** set point calibration mode.

- NOTE: 1.)** Both **OAA** and **Cruise** set points **must** be entered and **must** be **valid values** before exiting from the calibration mode. The values must be stored before the system can be used.
- 2.)** **If** power is removed before completing the **ENTIRE** calibration process of; **OAA**, **Cruise** and **STORING** the in-flight values, by depressing the **Brightness** button (**>6 sec.**).  
All previous in-flight values are lost and the in-flight calibration procedures must be re-done.

## Presetting Brightness of the Display While on the Ground (optional)

Since the colored segments will only be active when differential pressure is present, (in-flight), Alpha Systems has created a way to force ALL colored segments **ON** for calibration purposes allowing the installer to preset both the daytime and nighttime display brightness levels.

**Before Power is turned ON**, depress and hold the **Brightness button** on the Legacy display, turn power **ON**. Continue to depress the **Brightness button** for about 6 seconds after power has been applied.

### **Release button**

The system will enter its self test causing the colored segment illumination routine. All segments are illuminated one by one upwards and then one by one downwards ending with all the segments being illuminated.

### **The system is now in Brightness calibration mode.**

With a light applied directly to the photo diode on the Legacy display, press and release the **Brightness** button until the display is at its maximum brightness. You'll know when it's max because going past it will cause the brightness of the colored segments to return to the minimum level. There are 16 brightness steps that are sequenced through, increasing brightness at each step.

### **Wait 5 seconds for the unit to store the setting then remove the light from the Display.**

The display's brightness will change to the lower brightness level unless the low light setting was set to maximum brightness or the cockpit is in daylight.

Next, cover the photo diode on the display with your thumb or a piece of black electrical tape, quickly press and release the **Brightness** button on the display unit until it's at a minimum or lowest level.

### **Wait 5 seconds for the unit to store the setting than remove your thumb or tape.**

Observe that the display's brightness level changes from dim to bright when light is applied and removed from the photo diode.

Remove power, wait a few seconds and re-apply power.

The system will enter its self test, display illumination routine in which all colored segments are illuminated one by one upwards and then one by one downwards. The system enters the active mode if calibration has been completed or the in-active display mode, needing **OAA** and **Cruise** calibration.

## Display Brightness Adjustment when Active

To change brightness when the unit is active, quickly push and release the **Brightness** button until the desired brightness level is reached, there are 16 brightness levels and a photo cell to detect “**Night Time**” and “**Day Time**” ambient light levels and automatically switches to the stored level. The new brightness levels will be stored on powered off.

- Notes:**
- 1.) If The power is turned off during the **OAA** or **Cruise** calibration procedures, the pilot must re-enter the calibration mode and start over with **OAA** setpoint calibration.
  - 2.) It is not necessary to do the ground calibration once a successful value was entered.
  - 3.) If both the **OAA** and the **Cruise** set points have been previously set and the **Brightness** button is depressed for (**>6 sec.**), (entering calibration mode) you can **exit** the calibration mode without changing the previously set **OAA** and **Cruise** values by simply depressing the **Brightness** button again for (**>6 sec.**) returning the unit to functional mode.
  - 4.) If the **CAL** button is pushed, **when in the calibration mode**, the operator must complete the **ENTIRE** calibration process, the system deletes the previous values, both valid **OAA** and **Cruise** set points, (aircraft must be flown, set points entered), then exiting to functional mode by depressing the **Brightness** button for (**>6 sec.**) storing the new values and putting the unit in operational mode.

## Legacy Display and In-flight Relationship

The Display, once calibrated, will give a linear transition of illuminated segments from Cruise (**Blue Bar**) up through to the **Red Chevron** (Stall). As the pilot increases angle of attack, pulling back on the control stick / yoke, the pilot will see a direct response, transitioning into the **Red Chevron** on the Legacy display.

**“Pulling into the Red” (Danger)..... “Pushing to the Blue”....(Lots of Lift)**

### Optimum Alpha Angle (OAA)

The pilot will calibrate during an in-flight maneuver on a nice calm day, taking the aircraft to altitude.

**A.)** At minimum controllable flight, (slow flight) and at a lower power setting. **B.)** Pilot able to hold altitude, **not in a decent**, ZERO SINK, as close to 0 vertical speed as possible. **C.) FULL** aileron, elevator and rudder authority, the aircraft is not in the buffet. The pilot is to fly the aircraft at **OAA**, angle of attack calibrating the display to correlate the **Green Doughnut** to the aircrafts AOA.

### Cruise Indication

After entering of the “**Cruise**” set point is indicated by the **Blue Bar**, which is when the aircraft is in cruise angle of attack or Lots of Lift.

### Max Climb Angle

Is when only the **bottom of the Green Ark** is illuminated, which is an indication of the aircraft's maximum angle of attack that allows a slow continued climb.

### Stall Indication

After calibration is complete, the pilot will identify which colored segment or combinations of segments identify the “Stall” angle of attack for his or her aircraft. The Stall is dependant on the coefficient of lift and the angle of attack for each airplane. Once identified, the illuminated segment will always indicate the aircrafts stall AOA. Typically, the Legacy will either just be transitioning into or the **Red Chevron** will be illuminated.

**Other Flight Reference Values:** Other flight values such as **Stall, Vx, Vy**, can be identified after the AOA has completed the calibration of **OAA** and **Cruise** set points. The pilot then flies the aircraft at the exact airspeed value from the pilot operating handbook that references ie: (**Vx**), the corresponding illuminated segment that equal the associated angle of attack (**VX**) from that day on, regardless of gross weight changes, density altitude.

### Legacy Display Segment Definitions ( In Calibration Mode )

**- All Segments flash continuously**

- The system is not calibrated.
- The attempted zero pressure offset value at the sensor is too high, which indicates something is wrong electrically or mechanically with the system or something in the environment is affecting the system.

**- The GREEN DOUGHNUT + BLUE BAR flash simultaneously 5 times at a rapid rate**

- The (**OAA**) Optimum Alpha Angle and **Cruise** set points must be calibrated.

**- The GREEN DOUGHNUT + RED CHEVRON flash simultaneously 3 times at a rapid rate**

- The attempted (**OAA**) Optimum Alpha Angle set point is too low (Out of Range), reposition AOA probe away from the wing (larger angle). Re-enter **OAA** calibration mode.

**- The GREEN DOUGHNUT + YELLOW CHEVRON flash simultaneously 3 times at a rapid rate**

- An attempted (**OAA**) Optimum Alpha Angle set point is too high (Out of Range), reposition AOA Probe toward the wing (smaller angle). Re-enter OAA calibration mode.

**- The BLUE BAR flashes 3 times at a rapid rate**

- The attempted **Cruise** set point is too low (Out of Range)

**- The GREEN DOUGHNUT blinks on and off 3 times and continues to blink every 6 sec.**

- Initial calibration, the system has entered the (**OAA**) Optimum Alpha Angle Set Point Calibration Mode and is waiting for a valid OAA value to become functional.

**-The GREEN DOUGHNUT blinks on and off 3 times and is functional**

- A previous calibration value is used for OAA and the system is waiting for a new set point which can be reset by pushing Cal button.

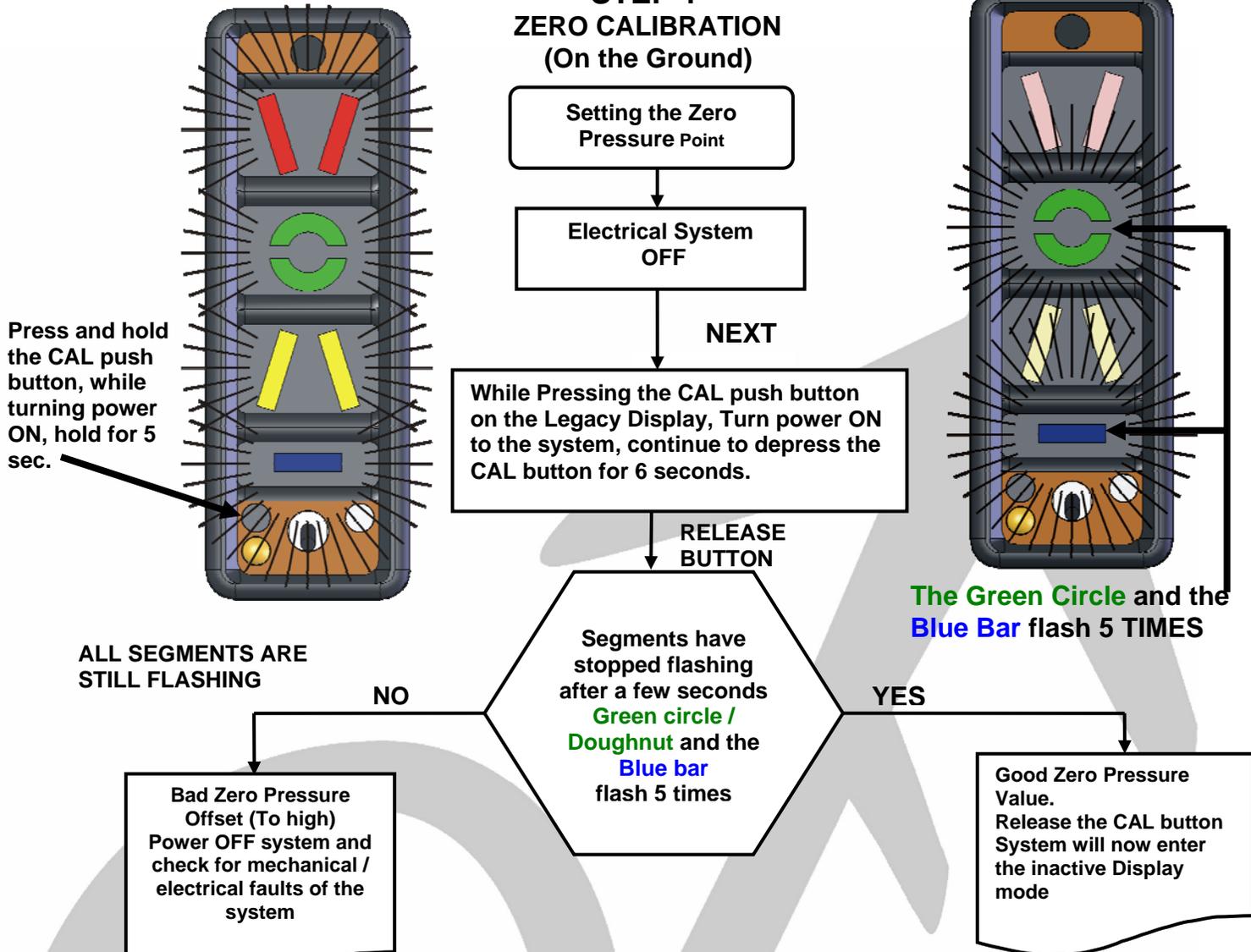
**The BLUE BAR blinks on and off 3 times and continues to blink every 6 sec.**

- The system has entered the **Cruise** Set Point Calibration Mode and is waiting for a new set point.

**Notes:** 1.) If The power is turned **OFF** during the **OAA** or **Cruise** Set Point procedures, the pilot must enter the **Calibration mode** again and start over with **OAA** calibration then re-enter **Cruise set point** calibration value.

2.) It is not necessary to do the (on the ground) **Zero offset** calibration once a successful value was entered.

**STEP 1  
ZERO CALIBRATION  
(On the Ground)**



**Causes:**

- Air Hose is kinked
- Air Hose is obstructed by foreign matter
- Electrical failure with the system

**To isolate failure:**

Disconnect the air hoses from the AOA Interface Module and repeat the procedure. If the condition is gone, the failure is mechanical. If the condition persists, the failure is probably electrical related.

**Step 1: Zero Calibration (Overview)**

After installation and electrical connections are completed, electrical and pressure zero set points must be calibrated. From the factory, the first time power is applied, **all segments** will flash indicating the unit must have the **Zero** calibration procedure completed. The Zero calibration set point can be reset at any time after the initial calibration however **ALL** in-flight set points **must** be reset and identified.

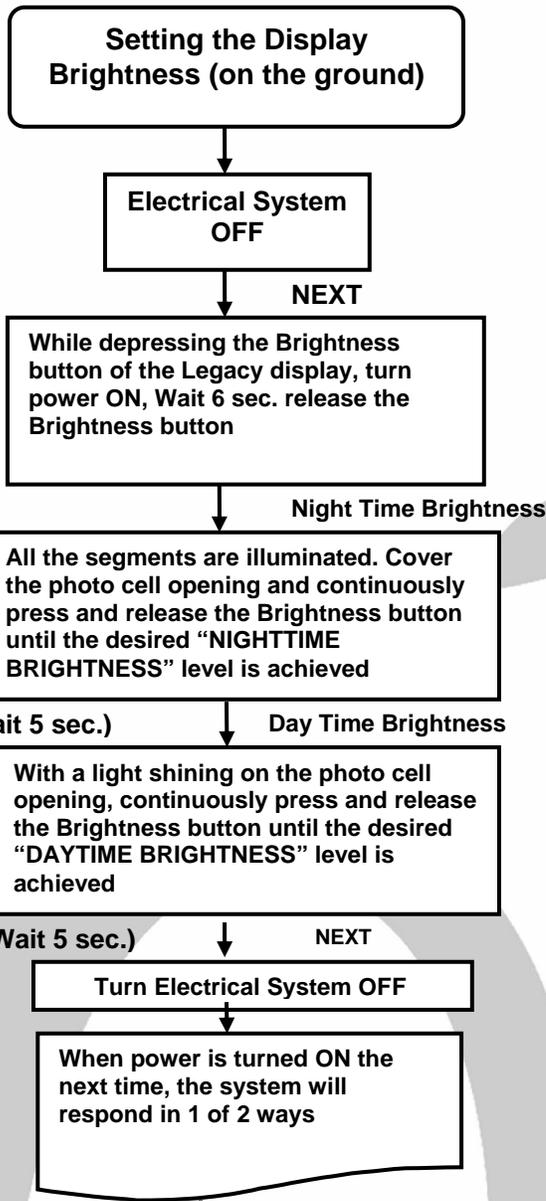
**Figure 3.1**

**Step 1: Complete**

After the unit has accepted the Zero calibration value, the **Green Circle / doughnut** and the **Blue Bar** of the Legacy Display will flash 5 times to indicate the **OAA and Cruise** set points must be calibrated. The Display is set **INACTIVE** until In-Flight Calibration is complete.

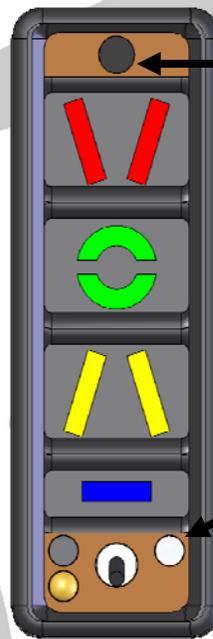
# Display Brightness Procedure (optional)

## LEGACY CALIBRATION PROCEDURES REV B Page 12 of 14



The brightness levels on the display **CAN** be set when on the ground. All the LED's forced **ON** by following this procedure. Both the "day time" and "night time" brightness levels can be adjusted and set.

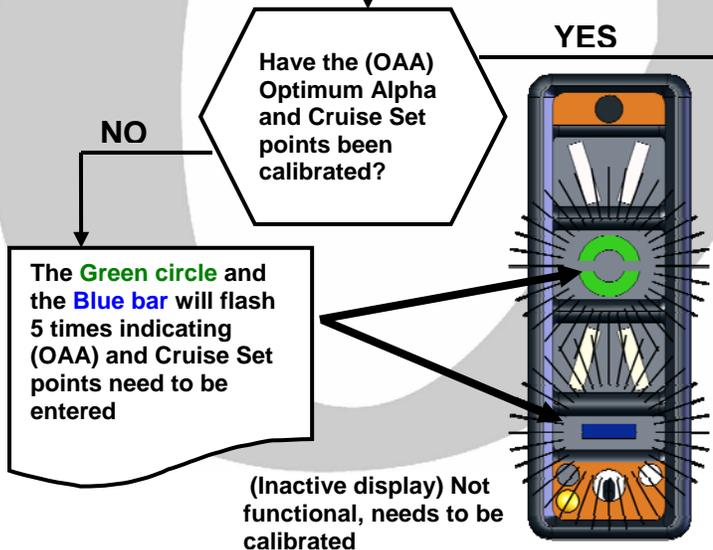
**Both levels can be changed, in the cockpit, in flight, at any time.** There are 16 brightness levels, cycling through to the maximum, then starts over from the lowest light setting.



Cover Photo Cell here to simulate "DARK" setting or shine light to simulate "DAYTIME" setting.

Quickly press and release brightness button until desired brightness is reached.

**Figure 3.2**



**(COMPLETELY FUNCTIONAL)** Set points have been entered and when in-flight will display the AOA of the aircraft as previously set.

**STEP 2  
(OPTIMUM ALPHA ANGLE SET TPOINT)**

Setting the Alpha Systems (OAA) Set point

Press and hold the Brightness button (>6 sec.) until the **Green circle** blinks 3 times, then twice every 6 sec. until valid value is entered and OAA calibration mode is exited. Optimum Alpha Angle (OAA) Setpoint Calibration mode entered. Climb to altitude / pitch to OAA

Aircraft is flying at OAA

To set a Optimum Alpha Angle (OAA), quickly press and release CAL button

BAD

Good OAA Set point?

SET AGAIN

GOOD

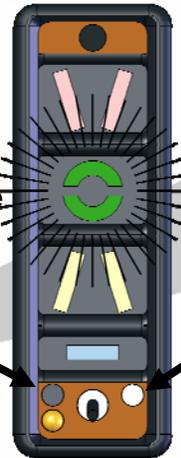
Once a good OAA Set point has been achieved, the pilot continues to STEP 3 and MUST enter into the Cruise Calibration Mode or repeat the OAA Set point Operation

**Note 1**

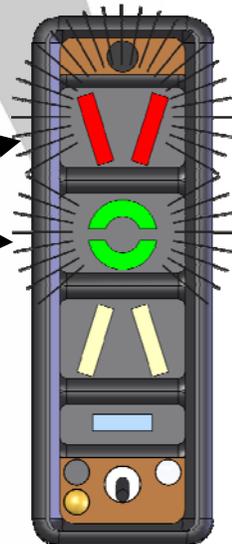
If in the (OAA) Calibration mode, and the **Brightness** button is depressed and held (>6sec.) with no (OAA) value entered, the **Green Doughnut** will blink 3 times then continue to flash twice every 6 seconds indicating (OAA) has **NOT** been set. The system will remain at (OAA) Set Point Mode until a valid value has been entered.

- In-Flight calibration requires the pilot to climb to a safe altitude for slow flight maneuvers. The pilot will fly the aircraft to the condition of Optimum Alpha Angle (OAA): Aircraft is at the **Optimum Alpha Angle (OAA)**, when:
- 1.) Aircraft is at a safe altitude for slow flight maneuvers.
  - 2.) Minimum controllable flight, lower power setting, (such as a down wind or landing pattern power setting).
  - 3.) Able to hold altitude, 0 Vertical Speed, **not descending, zero sink (5 to 10 fpm climb OK if your aircraft loses fight control stability at 0 VS).**
  - 4.) Full aileron, elevator and rudder control, **not in a buffet**, pilot to identify the set point by pitching back slowly to a pitch no longer able to climb but able to hold altitude with full control of the airplane.

**Step 2**  
Press and release to calibrate when flying at (OAA)



**Step 1**  
Press and hold Brightness button (>6 sec.) until the **Green circle (Doughnut)** blinks 3 times



**Set point too low (out of range):**

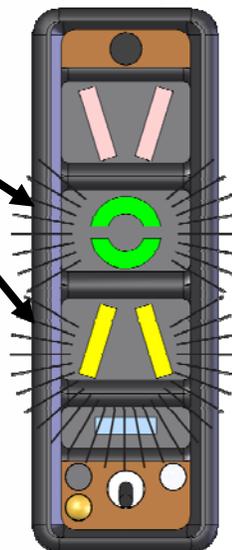
Set point too low – the **Red Chevron** and the **Green Doughnut** flash ON and OFF 3 times, the display will remain inoperative.

The probe angle must be changed so the angle between the wing and the probe is increased by 10 degrees (toward vertical)

**Set point too high (out of range):**

Set point too high – the **Green Doughnut** and the **Yellow Chevron** flash ON and OFF 3 times. The display will remain inoperative.

The probe must be repositioned so the angle between the wing and the probe is decreased by 10 degrees (toward horizontal)



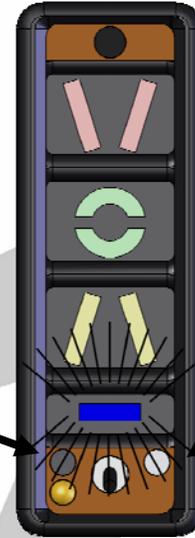
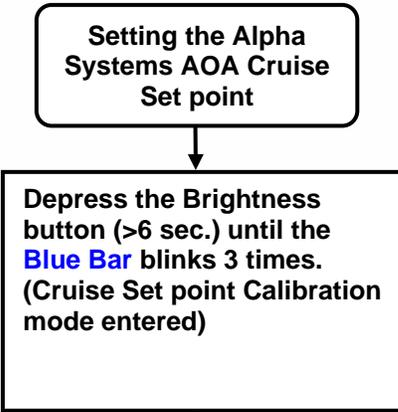
**Figure 5.1a**

# Cruise Calibration

## Step3 (CRUISE SETPOINT) IN- FLIGHT CALIBRATION

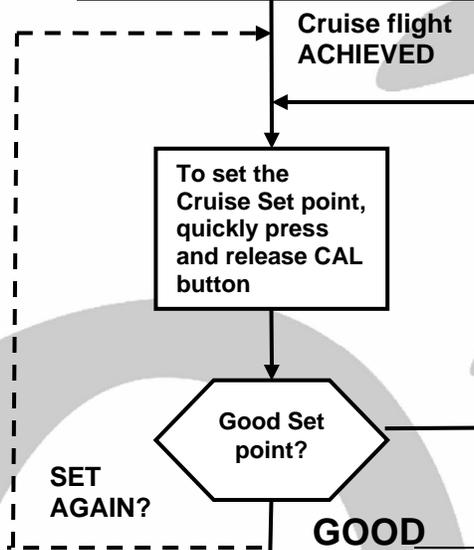
The pilot must fly the aircraft at a "Cruise" In-flight condition, straight and level, holding altitude at Cruise power. This procedure sets the display to indicate "Cruise" AOA for the aircraft.

**NOTE:**  
The **Blue Bar** will flash twice every 6 seconds until a valid cruise setting is entered and Cruise calibration mode is exited.



**STEP 1**  
Press and Hold brightness / Mode Button (>6 sec.) until the **Blue Bar** blinks 3 times

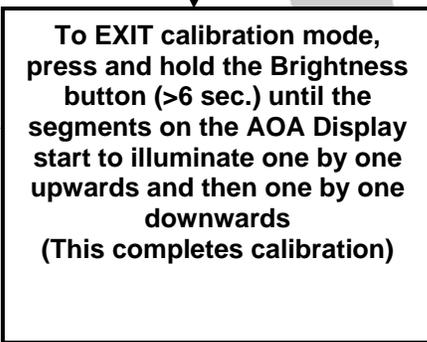
**STEP 2**  
Quickly press and release when flying at "Cruise"



**BAD** Bad Set point:  
Set point too low – the **Blue Bar** will flash ON and OFF 3 times. Either the aircraft is not in Cruise or value out of range.

Good Set point:  
The display will change to represent the new **Cruise** set point, illuminating the **Blue Bar**. The operator can set it again or exit calibration Mode, storing the values, putting the system in functional mode.

**Note:** this sub-step must be taken in order to complete the calibration process **storing** the values, and put the AOA system in an operational display mode when powered on.



**Note:** If in **Cruise** Calibration mode, if the Brightness button is pressed and held (>6 sec.) **AND** a good **Cruise** set point has **NOT** been entered, The **Blue Bar** will flash ON and OFF 3 times. The AOA system will remain at the **Cruise** Calibration mode. The system forces the operator to enter the valid value for Cruise. The operator must exit the calibration sequence to have the AOA system store the identified values for the display to give the appropriate AOA / Lift references and corresponding display readings.

Operational Mode  
Pilot to identify other aircraft in-flight values



Figure 5.1b

**TO RE-CALIBRATE ALL IN-FLIGHT SET POINTS (RE-ENTER STEP 2) (OAA), PRESS AND HOLD THE BRIGHTNESS BUTTON (>6sec.) UNTIL THE GREEN DOUGHNUT BLINKS ON / OFF 3 TIMES. ( GO TO STEP 2 FLOWCHART)**