LIFT MONITOR
www.lift-mgt.com

INSTALLATION AND OPERATING INSTRUCTIONS

CONGRATULATIONS ON THE PURCHASE OF YOUR LIFT MONITOR SYSTEM. The simplest, most intuitive, easiest to install, and by far least expensive means of managing lift available to your aircraft. By following the simple instructions below, you will significantly increase your awareness of your aircraft's capabilities while providing a constant reference to the relative lift available to you in any flight configuration.

1) This Lift Management System falls, for the purpose of FAA oversight, into the category of an Angle of Attack device although it does not directly measure an aircraft's angle of attack. Your Lift Monitor system conforms to the requirements of ASTM Specification F3011-13 (July 2013 Edition) and is produced under authority granted by the Federal Aviation Agency in its Letter of Authorization pursuant to FAA Memo AIR100-14-110-PM01 issued 02/05/2014.

2) The Lift Monitor is a differential air pressure gauge which measures the same low air pressure your airspeed indicator responds to. Inlets on the probe compare the air pressure from two angles to give a RELATIVE indication of lift being experienced at any angle of attack as compared with level cruise flight. FOR THIS REASON, THE DIAL FACE DOES NOT CONTAIN ABSOLUTE VALUES.

PLEASE NOTE: DO NOT RELY UPON GAUGE INDICATIONS UNTIL YOU CALIBRATE YOUR INSTRUMENT THROUGH VERY SIMPLE FLIGHT TESTING ON YOUR PARTICULAR AIRCRAFT. THIS INSTRUMENT IS NOT INTENDED TO REPLACE OR DUPLICATE THE FUNCTION OF ANY OTHER SYSTEM INSTALLED IN THE AIRPLANE INCLUING ANY STALL WARNING APPARATUS. NOR IS THE SYSTEM DESIGNED TO ACT AS A PRIMARY FLIGHT INSTRUMENT.

INSTALLATION

3) The Panel Mount Lift Monitor system consists of a gauge with a mounting hole diameter of 2-5/8" which nearly fits a standard 2-1/4" instrument hole cutout. A template for expanding a punched 2-1/4" hole or hand-cutting a hole is included in the kit. Install the gauge in a position where it does not interfere with the view of any primary flight instrument or cause distraction. When filling an existing 3-1/8" diameter instrument hole, the blank adapter plate included in the kit may be used to mount the gauge and painted to match your instrument panel color.

4) The Lift instrument is meant to be used as a momentary reference while primary attention is focused outside the aircraft or on standard flight instrumentation. Locate the gauge within or

immediately adjacent to the field of your normal instrument scan without obscuring your view of any other instrument. You may use the available aluminum top-of-the-glareshield bracket if you wish.

5) The probe should be mounted under the wing from just aft of the termination of the leading edge curve up to 40% of the wing chord. Also position it laterally well away from propwash and turbulent air around wing support struts. The location must allow for the drilling of a hole of sufficient diameter to allow comfortable passage of the paired 3/16" i.d. , 5/16" o.d. vinyl air hoses linking the probe to the gauge. Position the mount so the hoses enter the mount at the aft end of the slot. Note: Angular adjustment of the probe during calibration will result in only a small angular variation which this hole location will accommodate.

6) Using the two hole locations marked on the underside of the probe mount, drill holes to accept suitable mechanical fasteners of your choice and conforming to the requirements of AC43.13-1. Fasteners must present a flat contact surface with the mount.

&) BE SURE THE PROBE IS ALIGNED WITH THE CENTERLINE OF THE AIRCRAFT WHICH MAY NOT NECESSARILY BE PERPENDICULAR TO THE LEADING EDGE OF THE WING.

8) Attach the hoses to the probe with the RED and GREEN lines attached to the hose barbs as indicated on the provided drawing. IT IS IMPORTANT THAT THESE TWO LINES BE ATTACHED AS INDICATED AND NOT REVERSED BETWEEN PROBE AND INSTRUMENT IN ORDER TO PROVIDE FOR THE PROPER FUNCTIONING OF THE SYSTEM. Route the hoses through the wing to the instrument panel and attach to the gauge. ENSURE HOSES ARE PRESSED ONTO THE PROBE AND GAUGE TO THE FULL DEPTH OF THE HOSE BARBS. Ty wraps are not necessary as the vinyl hose so solidly grips the barbs that removal requires slitting the hose over the barbs.

SYSTEM CALIBRATION

1. The Lift Monitor probe and mount are pre-assembled with a starting angle of incidence preset such that the trailing edge of the probe is parallel with the trailing edge of the probe mount.

2. After assembly is completed and documented in the aircraft log as required, it is now necessary to fly the aircraft to complete the system calibration.

In-Flight Calibration Procedure

A) Establish level flight at an airspeed just above activation of your stall warning system. For aircraft without a stall warning system, fly the aircraft at a comfortable margin above the stall.

B) Note: It is not necessary or desirable to stall the aircraft to perform this calibration. Care should be taken not to stall the aircraft. In case of inadvertent stall, perform a recovery per the Aircraft Flight Manual requirements and limitations.

C) You are not trying to identify the stall speed, just a relatively small bet comfortable margin above stall where you are confident the aircraft can still climb slightly at the current power setting. In this flight configuration, note the gauge reading with a mark on the printed dial face on this instruction sheet.

3. The calibration objective is to have the instrument needle positioned at the junction between the red and white arcs in this flight condition. Once calibrated, this needle position will show you for any flight condition where either increasing angle of attack at the current power setting, or reducing power at the current angle of attack will result in loss of lift sufficient to sustain your altitude. You will have to fly the calibrated system to see where on the gauge your aircraft will actually stall.

4. On the ground, loosen the probe attachment bolt and rotate the probe slightly (about 3-5°) to change the instrument calibration: Rotate the leading edge of the probe **forward/upward** to bring the needle **down** the scale toward the red segment, or **aft/downward** to move the needle further up the scale. Retighten the bolt and go fly our aircraft. The two internal star lock washers between the probe and mount dig into the ABS plastic to endure a strong grip to resist accidental impact on the probe.

5. Continue calibration flights until the objective needle position is achieved. You may use different power settings in this process to see for yourself that the system works the same way for any power setting. At whatever power setting you choose, increase angle of attack until the aircraft no longer climbs and note the needle position.

6. Continue to familiarize yourself with the system by flying at different bank angles and experiencing G-force acceleration and the resulting instrument indications. For aircraft equipped with flaps, fly the same calibration procedure with flaps extended and note the gauge indications for future reference. You may wish to apply a small strip of instrument tape to the face of your gauge at the point where the needle rests with full flaps and no further climb is possible.

7. You may also wish to experiment with noting the needle position on takeoff roll when you achieve sufficient lift to enter into and maintain altitude in ground effect to facilitate short field takeoffs.

8. Using your Lift Monitor as a reference (periodic glances toward it will do), you should develop the ability to achieve a more stabilized approach and shorten your landing roll beyond your current capabilities. You will find your Lift Monitor a valuable tool for

monitoring your departures, especially when seeking the most efficient climb angle. Experiment AT ALTITUDE to establish your comfort level operating on climb within the white arc. Your best angle of climb (V_x) should fall within this area regardless of atmospheric conditions.

WARNING; THIS INSTRUMENT IS NOT TO BE RELIED UPON WHILE EXPERIENCING OR ANTICIPATING ICING CONDITIONS. CONFIRM OPERATION BY OBSERVING APPROPRIATE NEEDLE MOVEMENT WITH PITCH CHANGES.

9. After experiencing your aircraft's performance over time referring to your Lift Monitor, you may wish to readjust the probe angle for a lower margin of available lift at the target needle position. Conversely, when introducing a new pilot to your aircraft, as in a sale situation, you may increase the margin of indicated available lift by rotating the probe downward slightly to enhance safe operation during the transition experience.

THE SUPPLIER OF THIS SYSTEM AND THE UNDERLYING GAUGE ASSUME ABSOLUTELY NO RESPONSIBILITY OR LIABILITY FOR THE PROPER USE AND CALIBRATION OF THIS SYSTEM. IT IS ENTIRELY WITHIN THE EXCLUSIVE RESPONSIBILITY OF THE INSTALLER, OWNER, AND INDIVIDUAL OPERATOR OF THE AIRCRAFT TO THOROUGHLY UNDERSTAND THE OPERATON AND LIMITATIONS OF THIS NON-CERTIFIED AUGMENTATION TO SITUATIONAL AWARENESS. SHOULD THERE BE A DEFECT IN THE GAUGE WITHIN ONE YEAR OF PURCHASE, IT WIL BE REPLACED AT NO COST ASSUMING IT HAS NOT BEEN SUBJECTED TO DAMAGING AIR PRESSURE (AS FROM BLOWING INTO AN INLET OR INLET HOSE).

SYSTEM MAINTENANCE

It is up to the owner(s) and operator(s) individually to assure that the probe angle achieved after calibration is maintained from flight to flight. The star washers used to mount the probe should provide excellent gripping power when the probe bolt is tightened. To monitor alignment, you may wish to place a pencil or marker line along the probe body where it intersects the outboard probe mount leg. Any displacement will be evident during your preflight inspection.

LIMITATIONS

"This AOA system has not been determined to be suitable for installation in any specific aircraft by Lift Management, LLC. It may be installed in a type-certificated aircraft, provided that it has been determined suitable for installation by an appropriately rated mechanic by means such as field approval or as a minor alteration."

The Lift Monitor cannot be placed in the cockpit in such a manner as to obstruct the pilot's view or cause distraction.

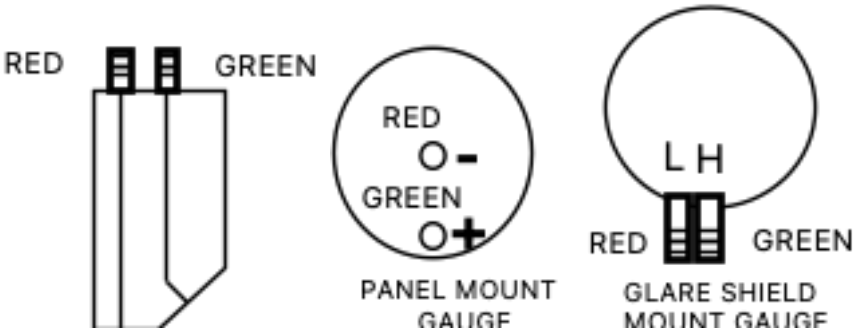
Installation of this system in a commuter or transport category aircraft is prohibited.

Installation of the Lift Monitor system as a replacement for or modification to an existing approved stall warning system is prohibited.

The system is non-required and is to be used only as supplemental information to the pilot.

No operational credit is claimed for the Lift Monitor system for such results as an absolute or percentage reduction in approach speed or landing distance as it is to be used simply to enhance the pilot's situational awareness and understand of the capabilities of his or her particular aircraft and their skill level.

AIR HOSE CONNECTIONS & INITIAL PROBE ALIGNMENT





TARGET NEEDLE POSITION

