

# SETTING THE SUPERAWOS ALTIMETER

## WHAT IS THE DIFFERENCE BETWEEN 'PRESSURE' AND 'ALTIMETER?'

Imagine you are standing in Denver Colorado at 5,000 ft above sea level, at the edge of a cliff that goes all the way down to the ocean below, sea level, or 0 feet 'Mean Sea Level' (MSL). The raw atmospheric pressure at the top of the cliff might be 24.92 InHg, while at the bottom of the cliff, the air is denser, more like 29.92 InHg.

While the RAW PRESSURE varies when measured at different ELEVATIONS along the cliff, the ALTIMETER VALUE remains the same; which is any raw pressure 'corrected,' or referenced down to it's equivalent at MEAN SEA LEVEL (MSL).

Therefore, an aircraft flying over our little ocean front example would have their onboard AIRCRAFT ALTIMETER set to the ALTIMETER VALUE of 29.92 InHg, and it would indicate they are flying at 10,000 above MEAN SEA LEVEL (MSL), regardless of the raw pressures that could be measured at various elevations in between them and the sea.

The heights of all potentially hazardous obstructions, mountains, antennas, etc, are all measured referenced to MEAN SEA LEVEL. If there is a 9,000 ft mountain, it is 9,000 above sea level; so as long as the aircraft has the right ALTIMETER VALUE set into their onboard AIRCRAFT ALTIMETER, by staying above 10,000 feet, they will remain clear of the obstructions below.

## HOW TO SET THE SUPERAWOS ALTIMETER VALUE

SuperAWOS incorporates two redundant, independent and continually cross-checking PRESSURE sensors. You use other FAA acceptable traceable standards to determine your airport's current ALTIMETER, such as the altimeters in a number of aircraft, and then you SET that current ALTIMETER into the SuperAWOS.

The SuperAWOS then saves the offset between the raw PRESSURE seen by its sensors, and the correct ALTIMETER VALUE, which you just gave it, which is always referenced to MEAN SEA LEVEL. Simple!

**At large airports, one end of the runway can be hundreds of feet different from the other. When you are setting the ALTIMETER using aircraft altimeters, make sure that the altimeters are either at the same height as the SuperAWOS, or if not, at a known and surveyed height somewhere on the airport.**

The following is an excerpt from our FAA APPROVED Operator's Maintenance Manual.

If you have any questions, feel free to call us at 800 207 8999

Thanks for your support!

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**SUPERAWOS®**  
**SU-2000**

**OPERATIONS  
&  
MAINTENANCE  
MANUAL**

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**For the latest updates, go to:**

***www.SUPERAWOS.COM***

***800 207 - 8999***

# SETTING THE ALTIMETER

The *SUPERAWOS*® will initially wake-up with its altimeter disabled, requiring initial field setting as follows:

Using any certified altimeter reference source acceptable to the FAA, as specified in Advisory Circular 91-14D (included below), or equivalent, determine the correct current Altimeter setting for the airport. **The altimeter reference must be adjusted to the airfield elevation.**



Figure 1

*Verify the current altimeter value with the airport manager or a knowledgeable pilot.*

Using the knobs on the front of the *SUPERAWOS*® set the SuperAWOS to the current altimeter value (Figure 57). It is similar to setting a digital watch, one digit at a time.

On the CONTROL PANEL (Figure 58) move the upper FUNCTION SELECT knob to its *LIST* position until you hear over the system's speaker "*SET ALTIMETER,*" then rotate the knob to its *SELECT* position.



Figure 2

Use the lower ADJUST knob to adjust each value spoken over the speaker *UP*, *DOWN* or *CONFIRM*, one value at a time. After you let the system repeat any value 3 times, it will save that value, and then automatically move on to the next step. (It's actually quite simple).

After you have saved the last digit, the system will say "*Set Altimeter, 29.92 (or whatever) confirmed.*" When done, return both knobs to their *RUN/CONFIRM* positions.

ONCE SET, THE SYSTEM WILL ONLY GIVE ALTIMETER TO PILOTS WHEN IT HAS 100% CONFIDENCE BETWEEN ITS TWO INTERNAL, CROSS-CHECKING PRESSURE SENSORS.

**THE SUPERAWOS DUAL INTERNAL PRESSURE SENSORS  
ARE THEREAFTER MONITORED CONTINUOUSLY  
VIA SATELLITE COMMUNICATIONS**

# ADVISORY CIRCULAR



DEPARTMENT OF TRANSPORTATION  
Federal Aviation Administration  
Washington, D.C.

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**Subject:** ALTIMETER SETTING SOURCES

1. PURPOSE. This advisory circular provides the aviation public and industry with guidelines for setting up reliable altimeter setting sources.
2. CANCELLATION. Advisory Circular (AC) 91-14C, dated 6/14/78 is canceled.
3. GUIDELINES. An altimeter setting source should either:
  - a. Consist of the Standard Altimeter Setting Indicator (ASI); or
  - b. Meet the minimum technical requirements specified in paragraphs (1) and (2) below and be operated in accordance with paragraph (3).

(1) Instrumentation. Two aircraft-type sensitive altimeters should meet the specifications of Technical Standard Order C10b or meet the standards of Federal Aviation Regulation (FAR) Part 43, Appendix E. One aircraft-type sensitive altimeter meeting these specifications may be utilized at locations where a Part 121 or 135 operator has established a procedure for periodic cross-checking of the altimeter as specified in paragraph 3b(2)(iii). The height (of the instruments) above mean sea level, surveyed accurately within one foot, is marked on the instruments or posted immediately adjacent to them. Outside venting of the altimeter or altimeters is necessary only when the room in which the instruments are located is shown to be subject to a pressure differential compared to ambient atmospheric pressure.

(2) Calibration. The instruments should be calibrated and recertified to the specifications of Part 43, Appendix E, by an appropriately certificated, FAA-approved instrument repair station:

(i) Within 30 days prior to initial installation or retention as a spare, and every 24 months thereafter.

(ii) At stations utilizing two altimeters, anytime a difference of more than .05 of an inch of mercury exists between the two

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instruments with indicator hands set to the instrument elevation. Immediately after calibration, the difference between the two instruments should not exceed .02 of an inch of mercury.

(iii) At stations utilizing one altimeter, any time a difference of more than .04 of an inch of mercury exists on two successive cross-checks between the station reference altimeter and the mean of the readings obtained from the two altimeters installed in an aircraft maintained under the provisions of Part 121 or the continuous airworthiness maintenance provisions of FAR Part 135.

(iv) The instruments should be calibrated to achieve maximum accuracy in the altitude range at which they will be used. (Instruments so calibrated should be marked "not for use in aircraft.") All readings should be adjusted as required by the altimeter correction card furnished by the calibration station. The instrument should be kept in a temperature-controlled environment similar to the temperature at which the instrument was calibrated.

(3) Procedures. The operator should establish procedures to ensure that responsible persons are competent to obtain accurate altimeter settings.

(i) At stations employing two altimeters, a tested method is as follows:

(A) Set both instruments to the posted height, tap or vibrate each to remove friction effects, then reset if necessary.

(B) Adjust the readings as required by the altimeter correction card.

(C) The altimeter setting, in inches of mercury, appears in the small window. The difference between instrument readings may not exceed .05 of an inch. The lower of the two readings is the official altimeter setting.

(D) The difference between instrument readings should be logged in a permanent record at least once a day.

(ii) At stations using one altimeter, a tested method is as follows:

(A) Set the instrument to posted height, tap or vibrate to remove friction effects, then reset if necessary.

(B) Adjust the reading as required by the altimeter correction card, and record the reading.

(C) From a Part 121 or 135 aircraft parked on a designated ramp area of known elevation, secure altimeter readings from both captain's and first officer's altimeters which should be adjusted to indicate the actual elevation of the ramp plus the height of the instruments above the ramp before the altimeters are read.

(D) Determine the mean of the two aircraft altimeter readings and compare the mean with the reading from the station altimeter. If the difference between the mean and the station altimeter exceeds .04 of an inch, the altimeter setting should be reported as "missing," and if the difference exceeds .04 of an inch on two successive cross-checks, the altimeter should be recalibrated before further use.

(E) The cross-check should be done daily, if an aircraft is available, but not less than three times a week. The difference between the reference instrument and the mean of the aircraft altimeter readings should be logged in a permanent record.

(4) System Approvals. Altimeter setting sources installed in accordance with this AC and intended for use with approved instrument approach procedures will require initial approval and periodic inspection by the FAA. Initial approval and annual inspections should be accomplished by the appropriate FAA district office (General Aviation District Office, Air Carrier District Office or Flight Standards District Office).

(5) Future Systems. The FAA and private industry are developing automatic altimeter setting reporting systems that may include wind and other weather elements. Automatic weather reporting systems will be required to meet FAA and National Weather Service accuracy and reliability standards before they can be used to support instrument flight rule operations.

  
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