



Expect Service

Radiation Products Design Inc

INSTRUCTIONS

RPD INFORMATION

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RPD PRODUCT INFORMATION

Item Number	Barometer
469-021	Aneroid Precision, 700mm-820mm,+/- 0.3" HG

INTRODUCTION

This Precision Barometer has a "knife-edge" pointer and reflector ring that eliminates parallax error when taking a reading. It also has a superb rack and pinion movement with polished steel shafts, fine bushings, and a stainless steel frame to assure sensitive and smooth motion of the pointer with minimal stick or "hysteresis". This movement is one of the very best available, comparable to those costing two to five times as much.

At the heart of every aneroid barometer is a capsule that expands during periods of low pressure and contracts with high pressure. A mechanical linkage between the capsule and the dial pointer amplifies very small changes in cell dimension into noticeable pointer movement. Barometers like Item 469-021, whose aneroid capsule is made of special alloys to minimize the effects of temperature change, are said to be "temperature compensated," and thus move accurately over a range of temperatures.

ADJUSTMENT BEFORE USE

To find the local barometric pressure, contact a nearby airport, National Weather Service, or similar authority for the most recent barometric pressure reading. Ask if the reading is compensated for the difference between sea level and your altitude. Decide if you want the barometer to read actual ("station") pressure at your altitude, or whether you want it to read what barometers at sea level would read. For accurate setting, make this adjustment during stable weather conditions. The most accurate adjustment involves taking your barometer to a weather station, airport, or laboratory for direct comparison to an instrument of greater accuracy like a mercury barometer.

Pressure decreases with altitude. This barometer should operate effectively up to about 2500 feet of altitude. Now refer to the following Table. "Geopotential feet" is altitude above sea level. If sea level pressure is 29.92 in., and your altitude is 200 feet, the actual pressure at 200 feet is .216 in. lower, or 29.704 in. (round to 29.70 in.) The corrections in the table for inch, millimeter, and millibar scales should be rounded to eliminate the last numeral. Thus, the corrections for 500 feet are: .537 in. (round to .54 in.), 13.63 mm (round to 13.6 mm), and 18.17 mb (round to 18.2 mb).

To adjust the pointer on this barometer, use a screwdriver that fits the slotted screw in the center of the back, and turn the screw

either left or right until the pointer shows the correct pressure from a National Weather Service or mercury barometer. Turning the screw clockwise will make the pointer move clockwise. When finished, tap the glass lightly to overcome any friction. You may have to tweak the adjustment slightly after this.

Periodic checking should show that your barometer is tracking properly, with only minor variations due to distance from the station, or time elapsed since the broadcast.

HOW ALTITUDE AFFECTS BAROMETERS

Pressure decreases with altitude. The only problem occurs when you are at such an altitude that your barometer cannot accommodate the much lower pressure, with the mechanism beyond its range to respond. The 469-021 Precision Barometer should be usable up to about 2500 feet.

HANDLING, MAINTENANCE AND STORAGE

Barometers are delicate instruments. Avoid shock, except for light tapping on the case or glass to help the instrument overcome any residual lag. It is normal for the pointer to move slightly with tapping. Avoid heat or direct sunlight. No maintenance or lubrication is required. Just wipe clean with a soft dry cloth or one dampened slightly with a glass cleaner.

WARRANTY

Radiation Products Design warrants the mechanism of the 469-021 Precision Barometer to be free from defects in material and workmanship for a period of one year from date of purchase. This warranty does not cover damages due to improper installation or use, or to damage attributable to unauthorized service. Any defective barometer, which is returned to Radiation Products Design during the warranty period, will be repaired or replaced, at the option of Radiation Products Design, free of charge. The foregoing is in lieu of all other express warranties.

BAROMETRIC SEA LEVEL DIFFERENTIAL

For standard conditions, based on the ICAO standard atmosphere.

Geopotential Feet*	Inch	mm	mb
0	0.0	0.0	0.0
10	.011	.27	.37
20	.022	.55	.73
30	.032	.82	1.10
40	.043	1.10	1.46
50	.054	1.37	1.83
60	.065	1.65	2.20
70	.076	1.92	2.56
80	.086	2.19	2.93
90	.097	2.47	3.29
100	.108	2.74	3.66
200	.216	5.48	7.30
300	.323	8.20	10.94
400	.430	10.92	14.56
500	.537	13.63	18.17
600	.643	16.33	21.78
700	.749	19.03	25.37
800	.855	21.72	28.95
900	.960	24.39	32.52
1000	1.066	27.07	36.08
2000	2.100	53.35	71.12
2624	2.731	69.37	92.49

Geopotential Meters*	Inch	mm	mb
0	0.0	0.0	0.0
10	.035	.90	1.20
20	.071	1.80	2.40
30	.106	2.70	3.60
40	.142	3.60	4.80
50	.177	4.49	5.99
60	.212	5.39	7.19
70	.247	6.29	8.38
80	.283	7.18	9.57
90	.318	8.07	10.77
100	.353	8.97	11.96
200	.703	17.85	23.80
300	1.049	26.65	35.52
400	1.392	35.36	47.14
500	1.732	43.99	58.64
600	2.068	52.53	70.03
700	2.401	60.99	81.31
800	2.731	69.37	92.49

*The geopotential of a position in the lower atmosphere is very nearly equal to the elevation above seal level