

PRECISION ANEROID BAROMETER

TYPES FA-112
FA-139
FA-160
FA-185

This Wallace & Tiernan Barometer is a precision aneroid instrument. It gives mercury-column accuracy as well as durability and high sensitivity.

Because its primary element is an evacuated capsule, the W&T Barometer is more sensitive to pressure changes than a mercurial instrument: There is no large mass of mercury to resist movement. Scale length is approximately five times that of a mercury instrument of comparable range. The W&T Barometer may be supplied to cover a wide pressure range or a narrow, selected range. It is also available with different accuracies and sensitivities, different scale lengths, and in permanent-installation or portable types. It fills a wide variety of needs.

It is ideal for use in meteorological stations, industrial laboratories, airplane and engine test facilities, instrument repair shops, airports, and power plants. A model is available calibrated as an altimeter setting indicator.



FA-112 Barometer

FEATURES

CUSTOM-CALIBRATED DIAL

- The dial of each **W&T** Barometer is individually calibrated over its complete range. Calibration is against a U-tube Sonar Manometer (accurate to better than 0.001 inch Hg over a range of 0-32 inches Hg). Barometers may be calibrated in any desired pressure unit. Calibration is traceable to NIST (Formerly NBS).

TEST PERFORMANCE HAS TO EXCEED ACCURACY RATING

- Custom dial calibration, precision mechanism construction, and matched dials and mechanisms give accuracies to 0.1 % and sensitivities to 0.01% of full scale. After rigorous tests, and **W&T** Barometer which fails to perform better than the rated accuracy is rejected.

DURABLE AND CONVENIENT IN USE

- Although sensitive, **W&T** Barometer mechanisms are not fragile; they resist damage by on-the-job handling. The shock-mounted, portable Type FA-185 will withstand vibrations between 500 and 1,000 cycles per minute at an amplitude of 0.156 inch. Overpressuring these barometers up to 25% above full scale range will not damage the mechanism nor affect accuracy. Built-in temperature compensation makes errors due to temperature changes almost negligible.

EXCELLENT READABILITY

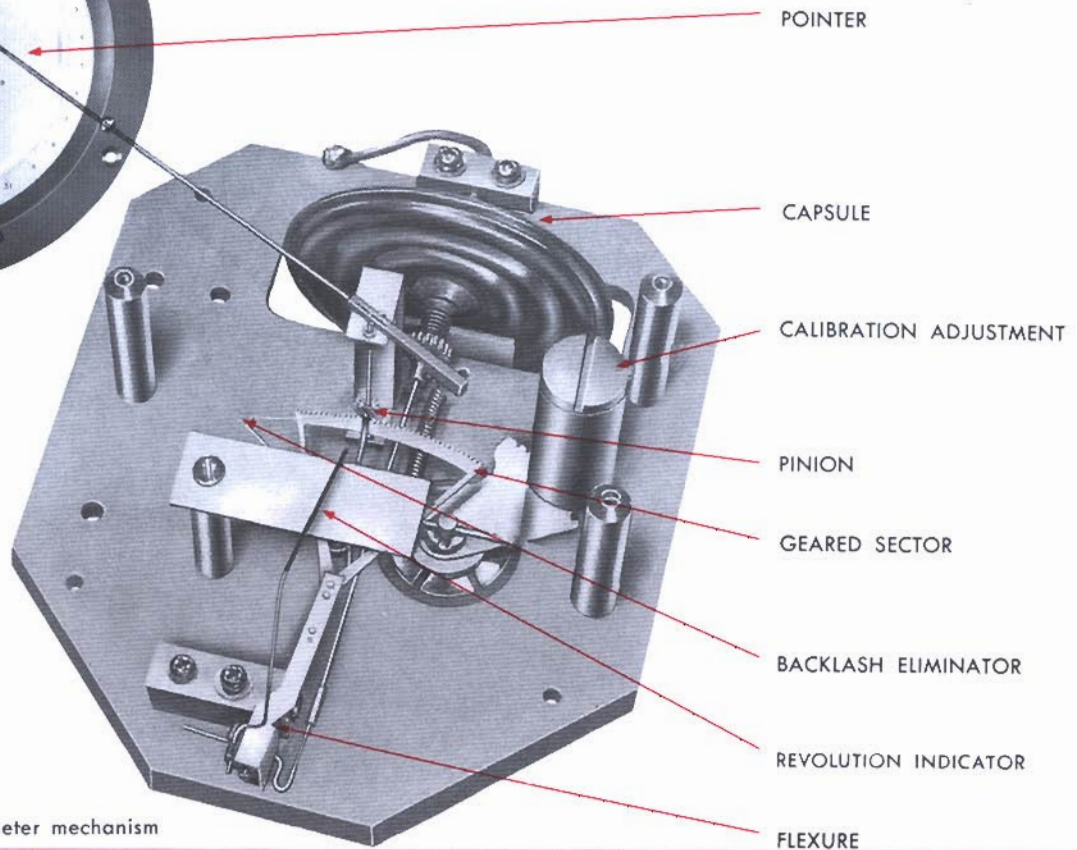
- **W&T** Barometers have scales from 16 to 35 inches long. Long scales mean many graduations can be used to cover full range. In the highest range (13 to 30.5" Hg), the minimum graduation represents 0.02". And the graduations are widely spaced. With a knife-edge pointer, this allows readings to better than 0.02% of full scale. A mirror ring eliminates parallax errors.

PRECISION CONSTRUCTION

- A small, sensitive capsule responds to minute pressure changes. The almost frictionless linkage contains flexures and jewel bearings and is not lubricated. Low-inertia parts throughout give **W&T** Barometers fast response speed and high sensitivity.



FA-139 Barometer



W&T Barometer mechanism

CONSTRUCTION, DESIGN and OPERATION

DESIGN AND CONSTRUCTION

Wallace & Tiernan Barometers come in several standard ranges and calibrations. But calibration may be in other pressure units, including metric. Types FA-139 and FA-160 Barometers can have two sets of graduations on a single dial at extra cost.

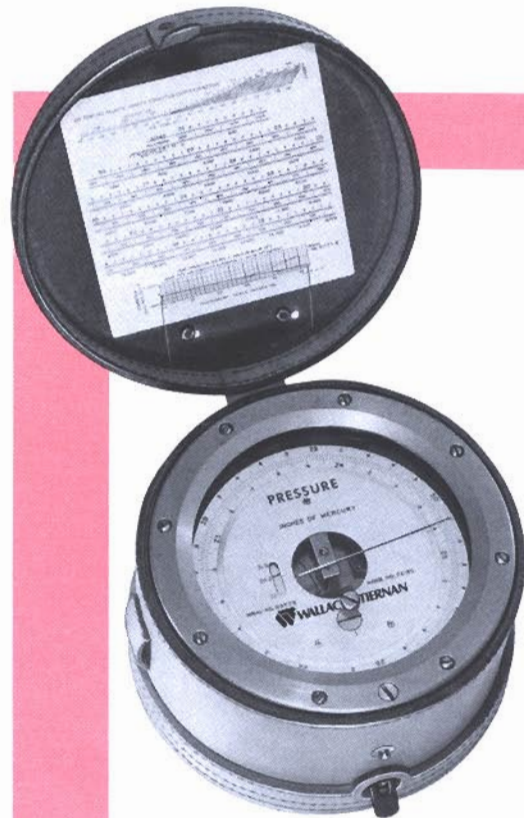
The pressure element is an evacuated capsule. A mechanical linkage amplifies capsule movement and transmits it to the pointer. An anti-backlash device maintains uniform tension between the parts, virtually eliminates lost motion. The pointer is balanced to minimize position error. Hysteresis and drift over long periods of time are negligible. Capsule stops are included to protect the mechanism: Overpressuring or underpressuring these barometers up to 25% more than full scale range will not damage the mechanism nor affect accuracy.

W&T Barometer cases are anodized aluminum with tempered glass or lucite dial covers. Pressure connections are 1/8-inch NPT female. The portable barometer has its mechanism shock mounted. Its aluminum case is 7 1/2 inches in diameter by 3 3/4 inches deep and is mounted in a leather carrying case with a latched leather cover. A conversion chart can be attached to the inside of the cover. For convenience, an armored thermometer, in Fahrenheit or Celsius, threads into the case just below the cover latch.

Barometer cases are easily sealed. This prevents damage to the mechanism during storage or air shipment. All W&T Barometers, except the portable FA-185, are designed for flush-panel mounting.

OPERATION

Atmospheric or absolute pressure is admitted to the W&T Barometer by leaving the case connection open to atmosphere or connecting it to a pressure source. Pressure causes the evacuated capsule to deflect. The linkage transmits this capsule movement to the pointer, which indicates the pressure directly.



FA-185 Portable Barometer



FA-160 Barometer

