If you are flying straight and level for an extended period of time and it appears as if you are doing an exceptional job of holding altitude, it is a good rule of thumb to gently tap the instrument; you may be in for a surprise! If you know the altimeter has "hung up" but a gentle tap doesn't release the pointer, simply twist the altimeter setting knob. Hard-to-twist knobs may indicate internal instrument corrosion, probably the result of static source moisture. If the pointer still doesn't move, static-source blockage, especially icing, would be the next logical suspect.

Mechanical error would be the result of misalignment of gears or slippage of gears or linkage. For the most part, if the altimeter gives accurate indications on the ground during preflight, it probably will be mechanically sound during flight. Actual in-flight mechanical failure is rare, provided the pilot follows up on problems found during preflight. Occasionally the setscrew in one of the altimeter's hands will work loose and the needle will drop straight down. If it is the long needle (one revolution is 1000 feet), the medium needle will provide a reasonable indication of altitude within 200 feet. It is not a good idea to be flying low approaches in this situation. If the medium-length fat needle works loose, you only need to keep track of the revolutions of the long needle to assure knowledge of altitude in thousands of feet. In case of a complete altimeter failure, there are two ways of getting a rough idea of your altitude.

If you have a constant-speed prop, you can set the friction lock on the throttle and prop so they won't accidentally move, and use the manifold pressure gauge as a crude altimeter. That's about as rough as crossing the Atlantic in a life raft, but any port in a storm... In a pressurized aircraft, you can depressurize the cabin and use the cabin pressure indicator for a fairly effective altimeter.

Hysteresis is a result of the elastic quality of the aneroids. After maintaining a constant altitude for an extended time, the aneroids require a little time to respond to quick changes in altitude. While it was never a very significant problem, it has essentially been eliminated in modern altimeters.

Absolute altitude is the altitude above the terrain directly below the aircraft. Pressure altitude is for reference purposes and is the altitude above a standard datum plane (sea level, standard).

Density altitude is pressure altitude corrected for temperature and will be the same as pressure altitude only when ambient conditions are standard. Indicated altitude is whatever is displayed on the altimeter, while calibrated altitude is indicated altitude corrected for installation error. Then we have true altitude, which is calibrated altitude corrected for nonstandard atmospheric conditions; theoretically, it is your actual height above mean sea level.

Confused yet? There's one more: flight level is an altitude of constant atmospheric pressure, which relates to the standard datum plane. All aircraft at or above 18,000 feet fly flight levels by adjusting their altimeters to 29.92 in. Hg. The practical application of all this isn't that difficult to understand. When flying below 18,000 feet, use the current altimeter setting from a reliable source within 100 miles of your location. When flying at high altitude, you simply set your altimeter to 29.92 in. Hg. as you pass through 18,000 feet. One last note: If you are going to fly IFR, both the altimeter and static system must have been inspected within the preceding 24 months.