

Vertical Velocity Indicator (VVI) or Vertical Speed Indicator (VSI)

This instrument measures your vertical speed in feet per minute (fpm). It is the best instrument to register a trend when you deviate from level flight attitude. However, it will not give you an accurate reading for several seconds. Due to its construction, there is a six to nine second lag before the needle settles down.

This built-in lag can cause you to over-correct or "chase the needle." To avoid this, make a small correction and wait. Example: the VVI needle drops from its zero position (pointing to 9 o'clock) into the lower half of the case. We know we are descending, but we don't know how fast. Look at the Attitude Indicator (AI) and make a small, nose-up attitude correction. Next check the altimeter to see how far we've descended. Recheck the VVI, by now it should have settled down. Let's say it reads 600 fpm descent. Go back to the AI. A one bar width adjustment on the AI should give us about a 500 fpm correction -- raise the nose. Go through the process again: VVI for initial indication, AI for another change, if needed, recheck the altimeter and back to the VVI.

One bar-width correction - By "bar" -- I'm referring the vertical height of the bar that is the "little airplane" in the AI -- making an adjustment of the little airplane up or down an amount of equal to the bar's vertical height. In the image, below left, we are in level flight. In the image, below right, we've made a one bar-width nose up adjustment.



Make small corrections on your instruments and you won't be porpoising through the sky trying to catch up with that Vertical Velocity Indicator needle.

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