

The Stabilized Descent on Non-precision Approaches

By Richard Bertoli, CSIP

The awesome avionics package installed in the Cirrus provides its pilot with position information that was the stuff of fantasy ten years ago. With this new level of sophistication, the methods of the “old school” have been reevaluated and the proficient pilot should be aware of new techniques that have evolved as a result. One of these is the stabilized descent profile flown on the non-precision instrument approach. In other words, a technique for flying *all* approaches in a manner formerly reserved for only the ILS.

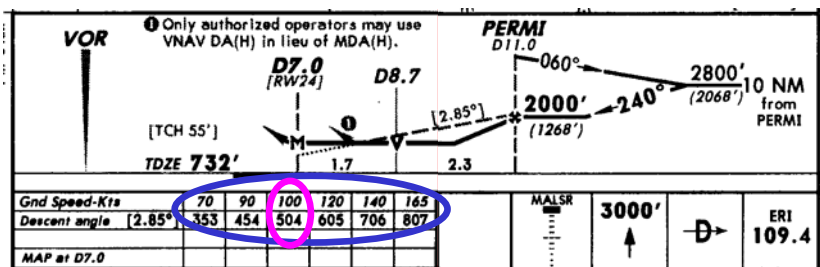
Prior to the recent developments in small aircraft avionics, the typical non-precision approach was flown in a “dive and drive” manner; the pilot reaches a fix, yanks out the power and descends rapidly to the MDA or an intermediate altitude (a step down), adds power, levels off, and either proceeds to the next fix for another power reduction and descent, or prepares to land, if one’s lucky enough to see the runway over the nose. While this method has its use for descending through a potential icing layer quickly, there is a safer way of flying the vertical profile that’s been used by transport category aircraft for some time.

A stabilized approach to land is defined by the following criteria, as listed in the UND Cirrus training guide:

- Proper airspeed
- Correct flight path
- Correct landing configuration
- Power setting appropriate for aircraft configuration
- Sink rate is not abnormal
- All checklists are complete

Ultimately, a stabilized approach eases the work load of intermediate level offs, allows for better airspeed control, and minimizes the risk of a descent below MDA by reducing the downward momentum of the aircraft. The nose down attitude may also allow for a better view of an elusive runway.

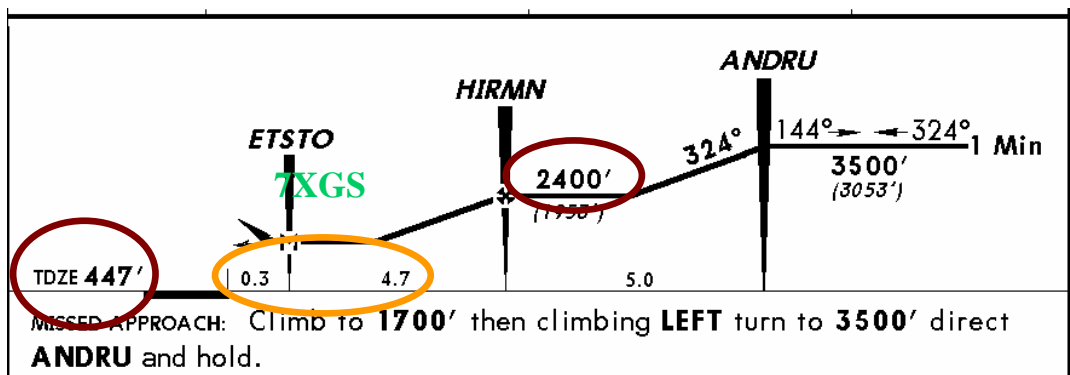
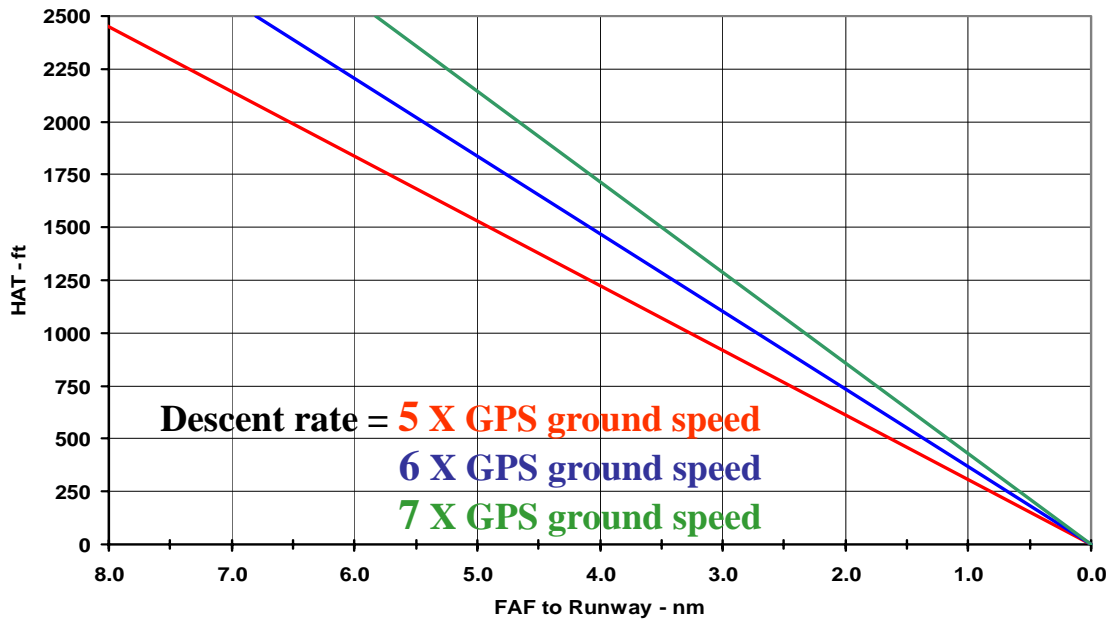
Jeppesen instrument approach charts have reflected this change in the paradigm for several years by including a descent angle and required rate-of-descent table on all of their straight-in approaches. The FAA charts also include a descent angle on many non-precision charts, with a rate-of-descent table printed inside the rear cover. In theory, the aircraft following the charted descent angle can be safely let down from the final approach fix to a point at the MDA from which a normal landing can be made. Transport category aircrafts’ flight management computers can be



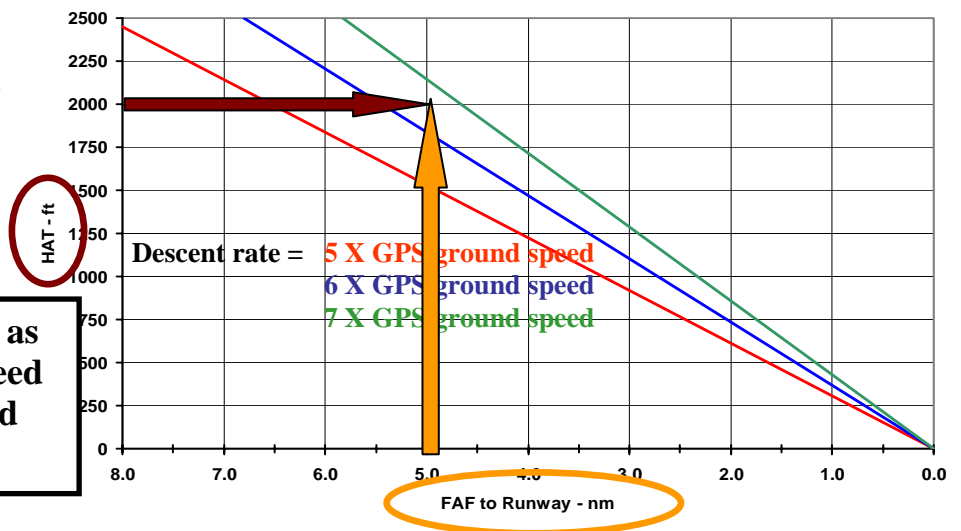
programmed to fly this profile automatically. The Cirrus pilot has the autopilot vertical speed control, an accurate GPS ground-speed reading, particular items from the instrument approach chart, and a neat little graph printed on the next page to compute and fly a stabilized descent rate for most non-precision approaches.

Practice in VFR conditions first and never descend below MDA without the runway environment in sight. Enjoy!

Stabilized Descent Rate Calculator



FAF to runway = 5.0nm
 FAF altitude - TDZE = HAT
 (2400 - 447 = approx. 2000)



Read required descent rate as multiple of GPS ground speed directly from graph ("round up"): ~ 7 X GS