

ABS/BPPP Guide to Initial Pilot Checkout: Demonstrating the Power-Off Glide

There is potential of engine damage if the engine is idle to an extended period in flight. The instructor must take care to control engine temperatures and avoid prolonged flight at idle power. This technique is usually adequate to meet those goals, but the instructor should discontinue the demonstration any time he or she feels the engine may be adversely affected.

The purpose of this demonstration is not to “surprise” the pilot under instruction with an engine failure. Instead, it is designed to demonstrate engine-out control and the performance, and to highlight the reduction in performance if the pilot does not follow checklist procedures.

Demonstration technique

- Begin the demonstration at a safe altitude at cruise airspeed in a “clean” configuration. Conduct the demonstration within gliding range of an airport if possible. Clear the area around and beneath the airplane before beginning the demonstration.
- Set power at 15-18” MP, with mixture at or near full rich for a few minutes before initiating a simulated engine failure to allow engine temperatures to stabilize near the bottom of the CHT green arc.
- Close the throttle to simulate the engine failure. Do not use the mixture to fail the engine. Note the landing gear warning horn sounds and, in airplanes so equipped, the GEAR UP annunciator flashes.
- Excepting the throttle and propeller control, do not move any other engine-related control from the configuration in which the engine was running normally.
- Have the pilot verbalize the engine failure procedure, and touch but not move the engine and fuel controls.
- Establish glide airspeed and trim. Be alert to airspeed reductions below glide speed.
- Determine surface wind and select a forced landing site, maneuvering to glide to that site.
- Note the pitch attitude and vertical speed at glide speed with gear and flaps up and the propeller control remaining in the cruise position.
- Simulate an engine air start using POH Emergency section Air Start procedure. The pilot under instruction should verbally identify each air start step but do not move any engine control.
- Assuming the simulated air start failed, transition from memory to the Maximum Glide Configuration checklist.
- Position the propeller to full low RPM to demonstrate the effect on descent rate (reduced by approximately ½).
- Note the pitch attitude and vertical speed at glide speed with gear and flaps up and the propeller in the low rpm position.

- If engine temperatures and altitude permit, extend the landing gear. Note the pitch attitude and vertical speed at glide speed with flaps up and gear down, with the propeller in the low rpm position.
- Compare the pitch attitude and vertical speed with the gear down to those seen with the gear up but before reducing propeller rpm. The purpose of this part of the demonstration is to show the drag from the propeller in the cruise position in a glide is roughly the same as the drag of the extended landing gear. This point is made to demonstrate the need to reduce propeller speed to low rpm in order to obtain maximum glide performance.
- Retract the landing gear. Advance the propeller rpm. Slowly advance manifold pressure and recover to level flight or a climb.
- Review actions, performance and required pitch attitudes in the post-flight briefing.