

DEMONSTRATING VMC IN A TWIN

Yes, you can do a minimum controllable airspeed demonstration in a twin, with both engines running. It'll be a lot different than in a single, and balancing power between the two engines can be critical. But it's no fun. To do it right, you need to either secure or zero-thrust the "critical" engine, which usually is the left one in a typical twin. If yours has counter-rotating engines, neither is critical. The following presumes a twin with a critical left engine



CONFIGURATION

The landing gear should be retracted and the flaps set to the takeoff position. As the airplane is slowed to approximately 10 knots above V_{SSE} or V_{YSE} (whichever is higher), trim it for takeoff. Don't touch the trim until we're recovering.

Once settled on the selected heading, run both props up to their high rpm setting. Start reducing power on the left engine as you increase power on the right, "good" one. Don't confuse any gear-warning horn for the stall warner. Establish your five-degree bank into the "good," right engine (raise the dead!).

DOING IT

While maintaining heading, slowly increase the pitch attitude to decelerate no faster than one knot per second. The increasing yaw you'll encounter as the airplane slows requires additional right rudder. Use some rudder trim to help. You'll also need to crank in some additional aileron.

The demonstration is reached when airspeed decays sufficiently that full right rudder travel and the bank no longer help maintain directional control and the airplane begins to yaw left.

RECOVERY

At the first recognition of the yaw or an approach to a stall, reduce the right (operating) engine's power and lower the nose. Full recovery, accord to the FAA, "is made with a minimum loss of altitude to straight flight on the entry heading at V_{SSE} or V_{YSE} , before setting symmetrical power. Note that recovery should not be attempted by increasing power on the windmilling engine alone."

LESSONS LEARNED

- Rudder pressure during the demonstration can be quite high.
- Maintaining altitude is not important. The V_{MC} demonstration focuses on controllability, not performance.
- Instead of the 3000-plus feet agl we recommend for a high-performance single, the demonstration should be planned to conclude before descending to 3000 feet agl.
- If your twin has normally aspirated engines, V_{MC} decreases with altitude while V_S doesn't change. Published V_{MC} is almost always higher than V_S , but the margin decreases with altitude. At some altitude, V_{MC} and V_S are the same
- **Remember:** The V_{MC} demonstration only depicts losing directional control in an engine-out situation. It never should be allowed to develop into a stall, which never should be performed in an asymmetrical thrust configuration.