Trim Stall
The Fries Technique
CAUTION

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In the October 1995 issue of AOPA Pilot (p. 132) Barry Schiff discusses and recommends applying full nose up trim upon engine failure during cruise flight. He calls this the Fries Technique after Ian Fries who first described it to him. **DO NOT USE THIS TECHNIQUE IN A BONANZA**. Furthermore, use **extreme** caution if you attempt to practice this technique.

The Fries Technique was flight tested in an E33A model Bonanza. At the time of the flight test the aircraft weight was approximately 2950 lbs with the center of gravity at approximately 80 inches. Ground temperature at sea level was 32 degrees Fahrenheit and the air was smooth at 5500 feet.

Starting from cruise flight (23/2300) power was slowly reduced to idle while slowly applying nose up trim and maintaining level flight. The stall warning horn activated at approximately 80 mph indicated airspeed well **before** full nose up trim had been applied. Nose up trim continued to be applied. Upon reaching full nose up trim of 25 degrees the aircraft stabilized at an indicated airspeed of approximately 60 mph. The aircraft was fully stalled, wings level, ailerons **neutral**, descending at approximately 1000 fpm with a gentle 'bobbing' motion, i.e., the nose would lower, the aircraft accelerate slightly, the nose come up slowly and the aircraft decelerate etc. Small rudder deflections were used to maintain directional control. Control forces, particularly pitch (elevator) control, were very light. The yoke was full aft.

To determine the effects of adding power (as in normal stall recovery), approximately **three** turns of the throttle were rolled in. To prevent the aircraft from severely pitching up and deepening the stall it was necessary to apply a very **large** forward force on the yoke. The aircraft also had a distinct tendency to roll. Recovery was initiated by immediately reducing power to idle. The test was repeated with similar results. If full power had been applied, as in a normal recovery from a practice stall, the aircraft would have departed controlled flight and rolled with the very real possibility of entering a spin. Although these tests were conducted in a Model 33 it is likely that similar results would be obtained for other Bonanza models.

Based on this test, the Fries Technique is **not** recommended if the engine fails during cruise flight and it is **not** recommended that this technique be practiced in Bonanza aircraft. Furthermore, because of the trim requirements needed to satisfy the wide range of speeds associated with high performance single engine, single propeller retractable gear aircraft it is not recommended for any aircraft of this type.