D. Elevator Trim Stalls

1 . Describe an elevator trim stall.

An elevator trim stall is a stall that occurs when full power is applied to an airplane configured with excessive nose-up trim. Positive control of the airplane is not maintained resulting in a stall. These type of stalls usually occur during a go-around procedure from a normal landing approach or a simulated forced landing approach, or immediately after takeoff.

2. Why should a flight instructor demonstrate an elevator trim stall?

This maneuver shows what can happen when full power is applied for a go-around and positive control of the airplane is not maintained. The objective of this maneuver is to show the importance of making smooth power applications, overcoming strong trim forces and maintaining positive control of the airplane to hold safe flight attitudes, and using proper and timely trim techniques.

3. How is an elevator trim stall demonstrated?

a. Establish a minimum safe altitude (recovery by 1,500 feet AGL).
b. Perform clearing turns,
c. Slowly retard the throttle and extend landing gear if retractable.
d. Extend one-half to full flaps.
e. Close throttle.
f. Maintain altitude until airspeed approaches normal glide speed.
g. When normal glide is established, the airplane should be retrimmed just as would be done during a normal landing approach.
h. Advance throttle to maximum power as in a go-around procedure. The combined forces of thrust, torque, and back elevator trim will tend to make the nose rise sharply and turn to the left. To demonstrate what could occur if positive control of the airplane were not maintained, no immediate attempt should be made to correct these forces.
i. When a stall is imminent, forward pressure must be applied to return the airplane to normal climbing attitude.
j. Trim should then be adjusted to relieve the heavy control pressures and the normal go-around and level-off procedures should be completed.

4. What are some common errors associated with elevator trim stalls?

a. Failure to establish selected configuration prior to entry.

b. Failure to establish the thrust, torque, and up elevator trim conditions that will result in a realistic demonstration.
   i. Not establishing a final approach configuration.
   ii. Not applying maximum power, as in a go-around situation.

c. Improper or inadequate demonstration of the recognition of and recovery from an elevator trim stall.
   i. Not allowing the pitch attitude to increase above the normal climbing attitude;
   ii. Reducing power during recovery; not maintaining control of aircraft while retrimming and retracting flaps.

d. Failure to present simulated student instruction that adequately emphasizes the hazards of poor correction for torque and up elevator trim during go-arounds and other maneuvers. Not explaining the "what, why, and how" of elevator trim stalls adequately.

Practical Test Standards (FAA-S-8081-6AS)

The following is an excerpt from the flight instructor Practical Test Standards set by the FAA for demonstration of the elevator trim stall:

The applicant exhibits instructional knowledge of the elements of elevator trim stalls, in selected landing gear and flap configurations, by describing the:
a. Aerodynamics of elevator trim stalls.
b. Hazards of inadequate control pressures to compensate for thrust, torque, and up-elevator trim during go-arounds and other related maneuvers.
c. Entry technique and minimum entry altitude.
d. Recognition of elevator trim stalls.
e. Importance of recovering from an elevator trim stall immediately upon recognition.
f. Flight situations where elevator trim stalls occur.
g. Recovery technique and minimum recovery altitude.