

sideslip where the aerodynamic model remains valid for training. For stall recovery training tasks, satisfactory aerodynamic model fidelity must be shown through at least 10 degrees beyond the stall identification angle of attack. For the purposes of determining this validity range, the stall identification angle of attack is defined as the angle of attack where the pilot is given a clear and distinctive indication to cease any further increase in angle of attack where one or more of the following characteristics occur:

- i. No further increase in pitch occurs when the pitch control is held at the full aft stop for 2 seconds, leading to an inability to arrest descent rate;
- ii. An uncommanded nose down pitch that cannot be readily arrested, which may be accompanied by an uncommanded rolling motion;
- iii. Buffeting of a magnitude and severity that is a strong and effective deterrent to further increase in angle of attack; and
- iv. Activation of a stick pusher.

The model validity range must also be capable of simulating the airplane dynamics as a result of a pilot initially resisting the stick pusher in training. For aircraft equipped with a stall envelope protection system, the model validity range must extend to 10 degrees of angle of attack beyond the stall identification angle of attack with the protection systems disabled or otherwise degraded (such as a degraded flight control mode as a result of a pitot/static system failure).

- c. Model Characteristics: Within the declared range of model validity, the SOC must address, and the aerodynamic model must incorporate, the following stall characteristics where applicable by aircraft type:
  - i. Degradation in static/dynamic lateral-directional stability;
  - ii. Degradation in control response (pitch, roll, yaw);
  - iii. Uncommanded roll acceleration or roll-off requiring significant control deflection to counter;
  - iv. Apparent randomness or non-repeatability;
  - v. Changes in pitch stability;
  - vi. Stall hysteresis;
  - vii. Mach effects;
  - viii. Stall buffet; and
  - ix. Angle of attack rate effects.

An overview of the methodology used to address these features must be provided.

5. Statement of Compliance (Subject Matter Expert Pilot Evaluation): The sponsor must provide an SOC that confirms the FSTD has been subjectively evaluated by a subject matter expert (SME) pilot who is knowledgeable of the aircraft's stall characteristics. In order to qualify as an acceptable SME to evaluate the FSTD's stall character-

istics, the SME must meet the following requirements:

- a. Has held a type rating/qualification in the aircraft being simulated;
- b. Has direct experience in conducting stall maneuvers in an aircraft that shares the same type rating as the make, model, and series of the simulated aircraft. This stall experience must include hands on manipulation of the controls at angles of attack sufficient to identify the stall (*e.g.*, deterrent buffet, stick pusher activation, etc.) through recovery to stable flight;
- c. Where the SME's stall experience is on an airplane of a different make, model, and series within the same type rating, differences in aircraft specific stall recognition cues and handling characteristics must be addressed using available documentation. This documentation may include aircraft operating manuals, aircraft manufacturer flight test reports, or other documentation that describes the stall characteristics of the aircraft; and
- d. Must be familiar with the intended stall training maneuvers to be conducted in the FSTD (*e.g.*, general aircraft configurations, stall entry methods, etc.) and the cues necessary to accomplish the required training objectives. The purpose of this requirement is to ensure that the stall model has been sufficiently evaluated in those general aircraft configurations and stall entry methods that will likely be conducted in training.

This SOC will only be required once at the time the FSTD is initially qualified for stall training tasks as long as the FSTD's stall model remains unmodified from what was originally evaluated and qualified. Where an FSTD shares common aerodynamic and flight control models with that of an engineering simulator or development simulator that is acceptable to the FAA, the FAA will accept an SOC from the data provider that confirms the stall characteristics have been subjectively assessed by an SME pilot on the engineering or development simulator.

An FSTD sponsor may submit a request to the Administrator for approval of a deviation from the SME pilot experience requirements in this paragraph. This request for deviation must include the following information:

- a. An assessment of pilot availability that demonstrates that a suitably qualified pilot meeting the experience requirements of this section cannot be practically located; and
- b. Alternative methods to subjectively evaluate the FSTD's capability to provide the stall recognition cues and handling characteristics needed to accomplish the training objectives.