

The ATTCS incorporated on Embraer Model ERJ-170 series airplanes allows the pilot to use the same power setting procedure during a go-around, regardless of whether or not an engine fails. In either case, the pilot obtains go-around power by moving the throttles into the forward (takeoff/go-around) throttle detent. Since the ATTCS is permanently armed for the go-around phase, it will function automatically following an engine failure and advance the remaining engine to the ATTCS thrust level. This design adequately addresses the concerns about pilot workload which were discussed in the preamble to Amendment 25-62.

The system design allows the pilot to enable or disable the ATTCS function for takeoff. If the pilot enables ATTCS, a white "ATTCS" icon will be displayed on the Engine Indication and Crew Alerting System (EICAS) beneath the thrust mode indication on the display. This white icon indicates to the pilot that the ATTCS function is enabled. When the throttle lever is put in the TO/GA (takeoff/go-around) detent position, the white icon turns green, indicating to the pilot that the ATTCS is armed. If the pilot disables the ATTCS function for takeoff, no indication appears on the EICAS.

Regardless of whether the ATTCS is enabled for takeoff, it is automatically enabled when the airplane reaches the end of the take-off phase (that is, the thrust lever is below the TO/GA position and the altitude is greater than 1,700 feet above the ground, 5 minutes have elapsed since lift-off, or the airplane speed is greater than 140 knots).

During climb, cruise and descent, when the throttle is not in the TO/GA position, the ATTCS indication is inhibited. During descent and approach to land, until the thrust management system go-around mode is enabled—either by crew action or automatically when the landing gear are down and locked and flaps are extended—the ATTCS indication remains inhibited.

When the go-around thrust mode is enabled, unless the ATTCS system has failed, the white "ATTCS" icon will again be shown on the EICAS, indicating to the pilot that the system is enabled and in an operative condition in the event a go-around is necessary. If the thrust lever is subsequently placed in the TO/GA position, the ATTCS icon turns green, indicating that the system is armed and ready to operate.

If an engine fails during the go-around or during a one-engine-inoperative go-around in which an engine had been shut down or otherwise made inoperative earlier in the flight, the

EICAS indication will be GA RSV (go-around reserve) when the thrust levers are placed in the TO/GA position. The GA RSV indication means that the maximum go-around thrust under the ambient conditions has been commanded.

The propulsive thrust used to determine compliance with the approach climb requirements of § 25.121(d) is limited to the lesser of (i) the thrust provided by the ATTCS system, or (ii) 111 percent of the thrust resulting from the initial thrust setting with the ATTCS system failing to perform its uptrim function and without action by the crew to reset thrust. This requirement limits the adverse performance effects of a failure of the ATTCS and ensures adequate all-engines-operating go-around performance.

These special conditions require a showing of compliance with the provisions of § 25.904 and Appendix I applicable to the approach climb and go-around maneuvers.

The definition of a critical time interval for the approach climb case is of primary importance. During this time it must be extremely improbable to violate a flight path derived from the gradient requirement of § 25.121(d). That gradient requirement implies a minimum one-engine-inoperative flight path with the airplane in the approach configuration. The engine may have been inoperative before initiating the go-around, or it may become inoperative during the go-around. The definition of the critical time interval must consider both possibilities.

#### Discussion of Comments

Notice of proposed special conditions No. 25-03-03-SC for the Embraer Model ERJ-170 series airplane was published in the **Federal Register** on April 23, 2003 (68 FR 19958) and a Supplemental notice of proposed special conditions was published on June 5, 2003 (68 FR 33659). No comments were received after publication of the initial notice or the supplemental notice, and the special conditions are adopted as proposed.

#### Applicability

As discussed above, these special conditions are applicable to the Embraer Model ERJ-170 series airplanes. Should Embraer apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design features, these special conditions would apply to that model as well under the provisions of § 21.101(a)(1), Amendment 21-69, effective September 16, 1991.

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the **Federal Register**; however, as the certification date for the Embraer Model ERJ-170 series airplane is imminent, the FAA finds that good cause exists to make these special conditions effective upon issuance.

#### Conclusion

This action affects only certain novel or unusual design features on the Embraer Model ERJ-170 series airplanes. It is not a rule of general applicability, and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

#### List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

■ The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

#### The Special Conditions

■ Accordingly, the Federal Aviation Administration (FAA) issues the following special conditions as part of the type certification basis for Embraer Model ERJ-170 series airplanes.

##### I. Electronic Flight Control System

In addition to compliance with §§ 25.143, 25.671 and 25.672, when a flight condition exists where, without being commanded by the crew, control surfaces are coming so close to their limits that return to the normal flight envelope and (or) continuation of safe flight requires a specific crew action, a suitable flight control position annunciation shall be provided to the crew, unless other existing indications are found adequate or sufficient to prompt that action.

**Note:** The term suitable also indicates an appropriate balance between nuisance and necessary operation.

##### II. Automatic Takeoff Thrust Control System (ATTCS)

To use the thrust provided by the ATTCS to determine the approach climb performance limitations, the Embraer Model ERJ-170 series airplane must comply with the requirements of § 25.904 and Appendix I, including the following requirements pertaining to the go-around phase of flight:

##### 1. Definitions

(a) *TOGA—(Take Off/Go-Around).* Throttle lever in takeoff or go-around position.