—25.729(e)(2) of the FAR, Landing Gear Aural Warning
—25.811(d)(2) of the FAR, Emergency Exit Marking, Over Wing Exits
—25.1182 of the FAR, Nacelle areas behind firewalls, and
—Part 34 of the FAR effective September 10, 1990, and
—Part 36 of the FAR effective December 1, 1969, including Amendments 36–1 through 36–18, including Appendices A, B, and C.

If the Administrator finds that the applicable airworthiness regulations (i.e., part 25 as amended) do not contain adequate or appropriate safety standards for Jetstream Model 4101 series airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16 to establish a level of safety equivalent to that established in the regulations.

Special conditions, as appropriate, are issued in accordance with § 11.49 after public notice, as required by §§ 11.28 and 11.29(b), and become part of the type certification basis in accordance with § 21.101(b)(2).

Novel or Unusual Design Features

The Jetsteam 4101 is a twin turbopropeller airplane equipped with electronic engine controls that protect against exceeding the engine temperature and torque limits. It also incorporates an ATTCS system that can automatically add power to the operating engine in the event one engine fails. This system benefits engine life by allowing the normal all-engines-operating power to be set at less than the maximum available power when the airplane operation is limited only by one-engine-inoperative performance considerations. If an engine fails, the ATTCS is armed and the operating engine is above 65% torque, the ATTCS automatically increases the Exhaust Gas Temperature (EGT) limit by 40° C and the torque by 11%, but does not allow the torque to exceed either the 100% torque limit or the higher EGT limit. Therefore, the Jetstream 4101 ATTCS only provides an increase in power at temperatures above the normal flat rate limit temperature.

The part 25 standards for ATTCS, contained in § 25.904 and Appendix I, specifically restrict performance credit for ATTCS to takeoff. Expanding the scope of the standards to include other phases of flight, including go-around, was considered at the time the standards were issued, but flightcrew workload issues precluded further consideration. As stated in the preamble to Amendment 25–62:

In regard to ATTCS credit for approach climb and go-around maneuvers, current regulations preclude a higher thrust for the approach climb (§ 25.121(d)) than for the landing climb (§ 25.119). The workload required for the flightcrew to monitor and select from multiple in-flight thrust settings in the event of an engine failure during a critical point in the approach, landing, or go-around operations is excessive. Therefore, the FAA does not agree that the scope of the amendment should be changed to include the use of ATTCS for anything except the takeoff phase. (52 FR 43153, November 9, 1987)

The ATTCS incorporated on the Jetstream 4101 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 advancing the power levers until reaching either 100% torque or the EGT limit. If ATTCS is operating (i.e., one engine is inoperative), the EGT limit computed by the electronic engine control and displayed to the pilot is 40° C higher than when all engines are operating. For a go-around in which an engine fails after go-around power has been set, the ATTCS operates exactly as it does during takeoff to automatically boost power.

The definition of a critical time interval for the approach climb case, during which time it must be extremely improbable to violate a flight path based on the § 25.121(d) gradient requirement is of primary importance. The § 25.121(d) gradient requirement implies a minimum one-engine-inoperative flight path capability 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.

As discussed above, these special conditions are applicable to the Jetstream Model 4101. Should Jetstream Aircraft Limited apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well under the provisions of § 21.101(a)(1).

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 Jetstream Model 4101 is imminent, the FAA finds that good cause exists to make these special conditions effective upon issuance.

Conclusion

This action affects only certain design features on the Jetsteam Model 4101 airplane. It is not a rule of general applicability and affects only the manufacturer who applied to the FAA for approval of these features on the airplane.

The substance of these special conditions has been subject to the notice and public comment procedure in a recent instance with no comment. For this reason and because a delay would significantly affect the applicant's installation of the system and certification of the airplane, which is imminent, the FAA has determined that good cause exists for adopting these special conditions without notice. Therefore, special conditions are being issued for this airplane and made effective upon issuance.

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. app. 1344, 1348(c), 1352, 1354(a), 1355, 1421 through 1431, 1502, 1651(b)(2), 42 U.S.C. 1857f–10, 4321 et seq.; E.O. 11514; and 49 U.S.C. 106(g).

The Special Conditions

According, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Jetstream Model 4101 airplane.

(a) *General:* An ATTCS is defined as the entire automatic system, including all devices, both mechanical and electrical, that sense engine failure, transmit signals, actuate fuel controls or power levers, or increase engine power by other means on operating engines to achieve scheduled thrust or power increases and furnish cockpit information on system operation.

(b) *Automatic takeoff thrust control system (ATTCS).* The engine power control system that automatically resets the power or thrust on the operating engine (following engine failure during the approach for landing) must comply with the following requirements:

(1) *Performance and System Reliability Requirements.* The probability analysis must include consideration of ATTCS failure occurring after the time at which the fightcrew last verifies that the ATTCS is in a condition to operate until the beginning of the critical time interval.

(2) *Thrust Setting.* The initial takeoff thrust set on each engine at the beginning of the takeoff roll or go-around may not be less than: