Decompression resulting in cabin altitudes above the 37,000-foot limit depicted in Figure 4 approaches the physiological limits of the average person; therefore, every effort must be made to provide the pilots with adequate oxygen equipment to withstand these severe decompressions. Reducing the time interval between pressurization failure and the time the pilots receive oxygen will provide a safety margin against being incapacitated and can be accomplished by the use of mask-mounted regulators. These special conditions therefore require pressure demand masks with mask-mounted regulators for the flightcrew. This combination of equipment will provide the best practical protection for the failures covered by the special conditions and for improbable failures not covered by the special conditions, provided the cabin altitude is limited.

As discussed above, these special conditions are applicable to the IAI Model Galaxy. Should IAI Ltd. 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).

Conclusion

This action affects only certain design features on the IAI Ltd. Model Galaxy 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.

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 Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the IAI Ltd. Model Galaxy series airplanes:

Operation to 45,000 Feet

1. *Pressure Vessel Integrity.*

(a) The maximum extent of failure and pressure vessel opening that can be demonstrated to comply with paragraph 4 (Pressurization) of this special condition must be determined. It must be demonstrated by crack propagation and damage tolerance analysis supported by testing that a larger opening or a more severe failure than demonstrated will not occur in normal operations.

(b) Inspection schedules and procedures must be established to ensure that cracks and normal fuselage leak rates will not deteriorate to the extent that an unsafe condition could exist during normal operation.

2. *Ventilation.* In lieu of the requirements of § 25.831(a), the ventilation system must be designed to provide a sufficient amount of uncontaminated air to enable the crewmembers to perform their duties without undue discomfort or fatigue, and to provide reasonable passenger comfort during normal operation conditions and also in the event of any probable failure of any system that could adversely affect the cabin ventilating air. For normal operations, crewmembers and passengers must be provided with at least 10 cubic feet of fresh air per minute per person, or the equivalent in filtered, recirculated air based on the volume and composition at the corresponding cabin pressure altitude of not more than 8,000 feet.

3. *Air Conditioning.* In addition to the requirements of § 25.831, paragraphs (b) through (e), the cabin cooling system must be designed to meet the following conditions during flight above 15,000 feet mean sea level (MSL):

(a) After any probable failure, the cabin temperature-time history may not exceed the values shown in Figure 1.

(b) After any improbable failure, the cabin temperature-time history may not exceed the values shown in Figure 2.

4. *Pressurization.* In addition to the requirements of § 25.841, the following apply:

(a) The pressurization system, which includes for this purpose bleed air, air conditioning, and pressure control systems, must prevent the cabin altitude from exceeding the cabin altitude-time history shown in Figure 3 after each of the following:

(1) Any probable malfunction or failure of the pressurization system. The existence of undetected, latent malfunctions or failures in conjunction with probable failures must be considered.

(2) Any single failure in the pressurization system, combined with the occurrence of a leak produced by a complete loss of a door seal element, or a fuselage leak through an opening having an effective area 2.0 times the effective area that produces the maximum permissible fuselage leak rate approved for normal operation, whichever produces a more severe leak.

(b) The cabin altitude-time history may not exceed that shown in Figure 4 after each of the following:

(1) The maximum pressure vessel opening resulting from an initially detectable crack propagating for a period encompassing four normal inspection intervals. Mid-panel cracks and cracks through skin-stringer and skin-frame combinations must be considered.

(2) The pressure vessel opening or duct failure resulting from probable damage (failure effect) while under maximum operating cabin pressure differential due to a tire burst, engine rotor burst, loss of antennas or stall warning vanes, or any probable equipment failure (bleed air, pressure control, air conditioning, electrical source(s), etc.) that affects pressurization.

(3) Complete loss of thrust from all engines.

(c) In showing compliance with paragraphs 4(a) and 4(b) of these special conditions (Pressurization), it may be assumed that an emergency descent is made by approved emergency procedure. A 17-second crew recognition and reaction time must be applied between cabin altitude warning and the initiation of an emergency descent.

Note: For the flight evaluation of the rapid descent, the test article must have the cabin volume representative of what is expected to be normal, such that IAI Ltd. must reduce the total cabin volume by that which would be occupied by the furnishings and total number of people.