12-7-6

TITLE 14 - AERONAUTICS AND SPACE

CHAPTER I - FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION

[Docket No. 10068; Amendment No. 5]

AMENDMENT TO SPECIAL CONDITIONS FOR THE SOCIETE NATIONALE INDUSTRIELLE AEROSPATIALE/BRITISH AIRCRAFT CORPORATION CONCORDE MODEL AIRPLANE

Special Conditions (No. 25-19-EU-2), were issued for the type certification of the Societe Nationale Industrielle Aerospatiale/British Aircraft Corporation (SNIAS/BAC) Concorde Model airplane on January 16, 1970. In the preamble to those special conditions, the FAA stated that an advanced airplane such as the Concorde would undergo extensive development and testing, which could necessitate changes in the type design. As a result, it was expected that those special conditions would be revised and amended from time to time, and that additional special conditions would be issued.

Subsequently, Special Conditions No. 25-43-EU-12 were issued on June 21, 1972, and at that time the FAA stated that additional special conditions for the Concorde would be issued as amendments to Special Conditions No. 25-43-EU-12. The amendment being issued herein to Special Conditions No. 25-43-EU-12 is necessary to cover the existence of contingency thrust ratings and to make other revisions to those Special Conditions found to be necessary during the Concorde's type certification program.

The applicant and other interested persons have been given an opportunity to participate in the making of these Special Conditions and all comments received have been fully considered.

This amendment is made under the authority of Sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1423) and of Section 6(c) of the Department of Transportation Act [49 U.S.C. 1655(c)].

In consideration of the foregoing, Special Conditions No. 25-43-EU-12, as amended, issued for the type certification of the SNIAS/BAC Concorde Model airplane are amended as follows:

SPECIAL CONDITIONS

SPECIAL GENERAL CONDITIONS

1. By revising the definition of V_{MIN} in Special General Condition G-1(d) to read as follows:

G-1 Definitions and Symbols.

* * * * *

(d) * * *

V_{MIN} means minimum speed in rectilinear flight.

* * * * *

SPECIAL FLIGHT CONDITIONS

2. By revising Special Flight Condition F-1 to read as follows:

F-1 Proof of compliance.

In lieu of the requirements in § 25.21(e), if compliance with the flight characteristics requirements is dependent upon a stability augmentation system or upon any other automatic or power-operated system, compliance must be shown with §§ 25.671 (a) and (b), in effect on May 8, 1970, Special Airframe Conditions A-34 and A-35, and Special Systems Condition S-2.

3. By amending the lead-in of Special Flight Condition F-5(b) by deleting the reference, "F-12(a)(1)," and by revising Special Flight Condition F-5(b) (3) to read as follows:

F-5 Takeoff speeds.

* * * * *

(b) * * *

(3) 1.125 V_{ZRC} established in accordance with Special Flight Condition F-4 (b), or if the takeoff is scheduled for contingent thrust, the greater of 1.125 V_{ZRC} established in accordance with Special Flight Condition F-4(b) using available maximum contingency thrust or 1.07 V_{ZRC} with available takeoff thrust.

* * * * *

4. By adding new Special Flight Conditions F-6 (b) and (c) to read as follows:

F-6 Accelerate-stop distance.

* * * * *

(b) Thrust reversers may be used in determining scheduled accelerate-stop distance to the extent prescribed in paragraph (c) of this Special Condition if they are -

(1) Shown to be safe and reliable;

(2) Shown to be capable of being used so that consistent results can be expected for operation in service without requiring exceptional skill, attention, or alertness on the part of the flight crew; and

(3) Such that the airplane is controllable under the most unfavorable conditions expected for operation in service using normal piloting skill.

(c) If thrust reversers are used to decelerate the airplane, the following apply:

(1) The maximum reverse thrust that may be used on any engine to establish the accelerate-stop distance may not exceed that with which satisfactory directional control is demonstrated in accordance with paragraphs (e) and (f) of Special Flight Condition F-34.

(2) The accelerate-stop distance data must include appropriate correction factors for operation on dry runways and runways having wet friction characteristics equivalent to the wet runway used during certification tests.

(3) The thrust reversers must be used in accordance with procedures established by the applicant for operation in service.

5. By adding a new Special Flight Condition F-7(f) to read as follows:

F-7 Takeoff path.

* * * * *

(f) In addition to the requirements in § 25.111(d), if contingency thrust is used for the takeoff, the following apply:

(1) The scheduled takeoff path data based upon use of contingency thrust must be checked by demonstrated continuous takeoffs up to the end of the takeoff path specified in § 25.111(a).

(2) It must be demonstrated that the takeoff path, with all engines operating at not greater than the available takeoff thrust, does not fall below the one-engine-inoperative takeoff path determined by § 25.111 and paragraph (f) (1) of this Special Condition.

6. By revising Special Flight Condition F-8(a)(1) to read as follows:

F-8 Scheduled takeoff distance and takeoff run.

* * * * *

(a) * * *

(1) The horizontal distance along the takeoff path from the start of the takeoff to the point at which the airplane is 35 feet above the takeoff surface determined in accordance with the requirements of § 25.111 and Special Flight Condition F-7, except as provided in paragraph (a)(1)(i) of this Special Condition.

(i) If the scheduled takeoff distance and takeoff run are based upon use of contingency thrust, the one-engine-inoperative portion may be established with maximum contingency thrust applied automatically on all operating engines following failure of the critical engine, and with the airplane rotated at scheduled V_R using the rotation technique established for operation in service, provided that failure of the engine control system to provide contingency thrust on all operating engines automatically upon failure of any one engine is shown to be improbable.

* * * * *

7. By revising Special Flight Condition F-9(a) to read as follows:

F-9 Takeoff flight path.

* * * * *

(a) The takeoff path begins at 35 feet above the takeoff surface at the end of the takeoff distance determined in accordance with Special Flight Condition F-8.

* * * * *

8. By revising Special Flight Condition F-11 to read as follows:

F-11 Landing climb: all-engines-operating.

In lieu of the requirement of § 25.119, the following apply:

(a) Continued Approach. In the approach configuration corresponding to the all-engines-operating procedure, the steady gradient of climb performance in rectilinear flight and turning flight must be determined at the all-engines-operating reference landing approach speed, V_{REF}, with the weight equal to the maximum landing weight, and with all engines operating at the available maximum continuous thrust. In addition -

(1) In rectilinear flight, the steady gradient of climb along the flight path may not be less than 0 percent; and

(2) In turning flight with an angle of bank not less than 18 degrees, the gradient of descent may not be greater than 1.0 percent.

(b) Landing Climb. In the landing configuration, at a speed not greater than the scheduled V_{REF} [established in accordance

(2) The accelerate-stop distance data must include appropriate correction factors for operation on dry runways and runways having wet friction characteristics equivalent to the wet runway used during certification tests.

(3) The thrust reversers must be used in accordance with procedures established by the applicant for operation in service.

5. By adding a new Special Flight Condition F-7(f) to read as follows:

F-7 Takeoff path.

* * * * *

(f) In addition to the requirements in § 25.111(d), if contingency thrust is used for the takeoff, the following apply:

(1) The scheduled takeoff path data based upon use of contingency thrust must be checked by demonstrated continuous takeoffs up to the end of the takeoff path specified in § 25.111(a).

(2) It must be demonstrated that the takeoff path, with all engines operating at not greater than the available takeoff thrust, does not fall below the one-engine-inoperative takeoff path determined by § 25.111 and paragraph (f) (1) of this Special Condition.

6. By revising Special Flight Condition F-8(a)(1) to read as follows:

F-8 Scheduled takeoff distance and takeoff run.

* * * * *

(a) * * *

(1) The horizontal distance along the takeoff path from the start of the takeoff to the point at which the airplane is 35 feet above the takeoff surface determined in accordance with the requirements of § 25.111 and Special Flight Condition F-7, except as provided in paragraph (a)(1)(i) of this Special Condition.

with Special Flight Condition F-16(a)], climb performance in rectilinear flight and in turning flight must be determined without ground effect and with all engines operating at the thrust that is available eight seconds after initiation of movement of the thrust levers from the minimum flight idle to the takeoff position. In addition -

(1) In rectilinear flight, the steady gradient of climb along the flight path may not be less than 3.2 percent; and

(2) In turning flight with an angle of bank not less than 18 degrees, the gradient of climb along the flight path may not be less than 2.2 percent.

9. By revising Special Flight Condition F-12 to read as follows:

F-12 Climb: one-engine-inoperative.

In lieu of the requirements in § 25.121, the following apply:

(a) Takeoff: landing gear extended. In the takeoff configuration selected by the applicant in accordance with § 25.101(d), or in the most unfavorable configuration existing later along the flight path, whichever is more critical -

(1) Climb performance must be determined out of ground effect, with the weight equal to the weight existing when retraction of the landing gear is initiated in accordance with § 25.111 and Special Flight Condition F-7, with the critical engine inoperative, and with remaining engines operating at the thrust appropriate to the most critical propulsion condition existing along the flight path after retraction of the landing gear is initiated but prior to completion of the particular flight path segment; and

(2) The steady gradient of climb between lift-off and complete retraction of the landing gear may not be less than 0.5 percent at the speed V_{LOF} that results from rotation initiated at the scheduled V_R, with the rotation technique established for use in service with one engine inoperative.

(b) Takeoff - landing gear retracted. In the takeoff configuration existing at the point in the takeoff path at which the landing gear is fully retracted (determined in accordance with § 25.111 and Special Flight Condition F-7) -

(1) Climb performance in rectilinear flight and turning flight must be determined without ground effect at V_2, with the weight equal to the weight existing at that point, with

the critical engine inoperative, and with the remaining engines operating at the thrust appropriate to the most critical propulsion condition existing along the flight path after such point but prior to the point where the airplane reaches a height of 400 feet;

(2) In rectilinear flight, the steady gradient of climb along the flight path may not be less than 3.0 percent; and

(3) In turning flight with an angle of bank not less than 18 degrees, the gradient of climb along the flight path may not be less than 2.0 percent.

(c) Final takeoff. In the en-route configuration existing at the end of the takeoff path (determined in accordance with § 25.111 and Special Flight Condition F-7) -

(1) Climb performance in rectilinear flight and in turning flight must be determined at a speed not less than V_2, with the weight equal to the weight existing at the end of the takeoff path determined under § 25.111 and Special Flight Condition F-7, with the critical engine inoperative and the remaining engines operating at the maximum continuous thrust available at that point;

(2) In rectilinear flight, the steady gradient of climb along the flight path may not be less than 1.7 percent; and

(3) In turning flight with an angle of bank not less than 18 degrees, the gradient of climb along the flight path may not be less than 0.7 percent.

(d) Approach. In the approach configuration corresponding to the normal all-engines-operating procedures -

(1) Climb performance in rectilinear flight and in turning flight must be determined at a speed not greater than the scheduled one-engine-inoperative approach speed [determined in accordance with Special Flight Condition F-16(b)], with the landing gear retracted, the weight equal to the maximum landing weight, the critical engine inoperative, and the remaining engines at the maximum thrust permitted for the particular flight condition;

(2) In rectilinear flight, the steady gradient of climb along the flight path may not be less than 2.7 percent, and

(3) In turning flight with an angle of bank not less than 18 degrees the gradient climb along the flight path may not be less than 1.7 percent.

(e) Continued approach: one engine inoperative. In the landing configuration corresponding to the one engine inoperative procedure -

(1) The climb performance in rectilinear flight and in turning flight must be determined at a speed not greater than the scheduled one-engine inoperative approach speed V_{REF-1} [determined in accordance with Special Flight Condition F-16(b)(1)] with the weight equal to the maximum landing weight, the critical engine inoperative, and the remaining engines at the maximum continuous thrust;

(2) In rectilinear flight the steady gradient of descent along the flight path may not be greater than 1.6 percent; and

(3) In turning flight with an angle bank of not less than 18 degrees, the gradient of descent along the flight path may not be greater than 2.6 percent.

(f) Takeoff: contingency thrust. If the takeoff is scheduled for contingency thrust, the gradient of climb in rectilinear flight along the flight path may not be less than the net gradient of Special Flight Condition F-9(b)(2) in the takeoff configuration existing at the point in the takeoff path at which the landing gear is fully retracted (determined in accordance with § 25.111 and Special Flight Condition F-7), determined without ground effect at V_2 , with the weight equal to the weight existing at that point, with the critical engine inoperative, and with the remaining engines operating at the maximum takeoff thrust existing along the flight path after such point, but prior to the point where the airplane reaches a height of 400 feet.

10. By revising Special Flight Conditions F-15(a)(1), (a)(4), (b), (d)(1), (d)(3)(iii), (d)(7), and (e)(1) to read as follows:

F-15 Landing.

* * * * *

(a) * * *

(1) For all weights and altitudes within the operational limits established by the applicant for the airplane.

* * * * *

(4) For smooth hard-surface dry and wet runways. The wet runway used during certification tests must have friction characteristics acceptable to the Administrator

and the results therefrom must be used to establish the scheduled wet runway landing distances. (See Appendix A to Special Flight Conditions). At the option of the applicant, data may be presented for additional runway surface types and conditions that can be defined and identified sufficiently to enable operation of the airplane in accordance with applicable limitations, and for which compatibility with the airplane has been established in accordance with Special Flight Condition F-45.

(b) The reference approach path angle must be selected by the applicant and may not exceed 3 degrees.

* * * * *

(d) * * *

(1) The landings must be conducted on a representative smooth, hard-surface dry runway, and on a smooth, hard-surface wet runway with surface friction characteristics acceptable to the Administrator.

* * * * *

(3) * * *

(iii) The rate of sink at touchdown may not exceed a maximum of 5 feet per second with a mean value for the demonstration landings not exceeding 3 feet per second.

* * * * *

(7) The wheel brake system pressure may not exceed the pressure specified by the brake manufacturer. The brakes may not be used so as to cause excessive wear of brakes or tires. In addition, retardation due to wheel braking may not exceed that obtainable with tires representative of the most unfavorable state of wear intended for operation in service.

(e) * * *

(1) For a smooth, hard surface wet runway with friction characteristics equivalent to the wet runway used during certification tests; and

* * * * *

11. By revising Special Flight Conditions F-16(a)(1), (a)(3), and (b)(3) to read as follows:

F-16 Landing approach speeds.

* * * * *

(a) * * *

(1) 1.3 V_{MIN}, or 1.25V_{MIN} if the airplane has an operating automatic speed control system for approach and landing that under realistic environmental conditions, [including the wind model described in Appendix 1 of FAA Advisory Circular 20-57A, Automatic Landing Systems] will maintain the airspee during the approach and at the 50-foot threshold point such that the standard deviation of airspeed from the reference approach speed does not exceed 3 knots for wind speed up to 15 knots, and does not exceed 20 percent of the wind speed for wind speeds greater than 15 knots;

* * * * *

(3) A speed at which compliance is shown with the climb requirements of Special Flight Conditions F-11(a) and (b);

* * * * *

(b) * * *

(3) A speed at which compliance is shown with the one-engine-inoperative climb requirements of Special Flight Conditions F-12 (d) and (e);

12. By revising Special Flight Condition F-18(a)(1) to read as follows:

F-18 Scheduled landing runway lengths.

(a) * * *

(1) The reference landing distances must be increased in length by the distance increments shown to result from deviations in landing approach speed to V_{REF} plus 10 knots, for all-engine landings, and to V_{REF-1} plus 5 knots, for one-engine-inoperative landings, with the approach path angle equal to 0.5 degree less than the reference approach path angle, or two degrees greater than the reference approach path angle if this two degree angular deviation results in longer scheduled landing runway lengths; and

* * * * *

13. By revising Special Flight Conditions F-22(a)(1) and (b)(2) to read as follows:

F-22 Minimum control speed.

* * * * *

(a) * * *

(1) The maximum thrust scheduled for use on the operating engine during takeoff;

* * * * *

(b) * * *

(2) Maximum thrust scheduled for use on the operating engines during takeoff;

* * * * *

14. By revising Special Flight Condition F-23(c)(1)(iv) to read as follows:

F-23 Trim.

* * * * *

(c) * * *

(1) * * *

(iv) Descent with the minimum all-engine-operating thrust expected for operation in service, at a speed not greater than the minimum scheduled performance speed determine in accordance with Special Flight Condition F-16; with the landing gear extended and with the most favorable center of gravity position approved for -

* * *

15. By revising Special Flight Conditions F-29(a) lead-in and paragraph (b) to read as follows:

F-29 Minimum speed demonstration.

* * * * *

(a) The minimum flight speed V_{MIN} must be demonstrated in rectilinear flight, and the minimum speed in turning flight must be demonstrated in 30 degree banked turns -

* * *

(b) When demonstrating minimum speed for turning flight in accordance with paragraph (a) of this special condition, the angle of attack may not be less than the angle of attack corresponding to V_{MIN} in rectilinear flight or, if the airplane is equipped with an effective angle of attack limiting system, the demonstration need not proceed beyond the angle of attack at which the system provides effective deterrent to further increase in angle of attack.

* * * * *

16. By revising Special Flight Conditions F-34(d) lead-in paragraphs (e)(1), (e)(4), and (e)(6), and the lead-in of F-34(e) to read as follows:

F-34 Ground handling - directional stability and control

* * * * *

(d) If the thrust reversers are used to decelerate the airplane during accelerate-stop or landing, satisfactory procedures must be established for their use with -

* * *

(e) Using the procedures in paragraph (d) of this Special Condition, it must be possible to maintain satisfactory directional control without excessive lateral deviation following a failure of the critical thrust reverser at the most critical point during landing, and following failure of the critical engine at the most critical point during takeoff, with

(1) The landings made on a smooth, hard-surface wet runway with surface friction characteristics acceptable to the Administrator, in a crosswind with a 90-degree component of not less than 10 knots from the unfavorable direction, and corresponding headwind component not exceeding 10 knots. (See Appendix A to Special Flight Conditions);

* * *

(4) The most unfavorable configuration selected for takeoff or landing as applicable;

* * *

(6) The most unfavorable weight within the range of weights scheduled for takeoff or landing, as applicable.

* * *

17. By revising Special Flight Condition F-35(b) to read as follows:

F-35 Demonstrated Crosswind Capability.

* * * * *

(b) The approximate variation in the maximum permissible 90-degree cross component of wind velocity established in accordance with paragraph (a) of this special condition must be established on a smooth, hard-surface wet runway with surface friction characteristics acceptable to the Administrator, and extrapolating by any suitable method, for moisture contaminated runways exhibiting lower friction conditions provided no anti-skid braking system anomalies are experienced on the lower friction surfaces. (See Appendix A to Special Flight Conditions).

18. By revising Special Flight Condition F-37(a)(1) and (a)(2) to read as follows:

F-37 Low speed characteristics.

* * * * *

(a) * * *

(1) All engines operating at an approach speed not greater than 0.90 V_{REF}, or if the automatic speed control provisions of Special Flight Condition F-16(a)(1) are applicable, V_{REF} minus 10 knots.

(2) One-engine-inoperative at an approach speed not greater than 0.95 V_{REF}, or if the automatic speed control provisions of Special Flight Condition F-16 (a)(1) are applicable, V_{REF-1} minus 5 knots.

* * * * *

19. By adding a new Special Flight Condition F-38 to read as follows:

F-38 High speed characteristics.

In lieu of the requirements in § 25.253(a)(1), operating conditions and characteristics likely to cause inadvertent speed increases (including upsets in pitch and roll) must be simulated with the airplane trimmed at any likely cruise speed up to V_{MO} /M_{MO}. These conditions and characteristics include gust upsets, inadvertent control movements, low stick force gradient in relation to control friction, passenger movement, leveling off from climb, descent from Mach to airspeed limited altitudes, and descent at constant Mach to airspeed limited altitudes. For descent at constant Mach number, recovery may be initiated upon high-speed warning irrespective of whether warning occurs prior to or after reaching altitudes at which airspeed becomes limiting.

20. By adding a new Special Flight Condition F-41 to read as follows:

F-41 Maximum operating limit speed.

In addition to the requirements of § 25,1505 for subsonic flight, the following apply for the supersonic flight:

(a) The maximum operating limit speed (V_{MO} /M_{MO}, airspeed, or Mach number, whichever is critical at a particular altitude) is a speed that may not be deliberately

exceeded in any regime of flight (climb, cruise, or descent), unless a higher speed is authorized for flight test or pilot training operations. V_{MO}/M_{MO} must be established so that it is not greater than the design cruising speed V_C and so that it is sufficiently below V_D/M_D or V_{DF}/M_{DF} to make it highly improbable that the latter speeds will be inadvertently exceeded in operations, taking into consideration atmospheric variations (such as horizontal gusts and penetration of jet streams or cold fronts), instrument errors, and airframe production variations.

(b) The speed margin between V_{MO}/M_{MO} and V_{DF}/M_{DF} may not be less than the speed margin found in establishing compliance with paragraph (b)(1) of this Special Condition, nor less than the margin found in establishing compliance with the provisions of § 25.253 and Special Condition F-38. However, the margin at altitudes where Mach number is limiting may not be less than 0.15M, unless a smaller margin can be substantiated.

(1) In supersonic flight from initial conditions in climb and cruise at V_{MO}/M_{MO}, the airplane is subject to a push-over at a load factor of 0.5g (minus 0.5g acceleration increment) for 12 seconds, and then recovered by a pull-up at a load factor of not more than 1.5g (plus 0.5g acceleration increment). The throttle setting for the initial condition may not be changed until the pull-up is initiated, at which time thrust reduction and any pilot-controlled drag devices may be used. The timing of the push-over begins at the start of the maneuver, provided the reduction to a load factor of 0.5g occurs as quickly as is practicable.

21. By revising Special Flight Condition F-48(a)(4) by deleting paragraphs (i) through (vii) inclusive and substituting in place thereto new paragraphs (i) through (v) inclusive to read as follows:

F-48 Performance information.

* * * * *

(a) * * *

(4) Landing

* * *

(i) Reference landing approach speeds as prescribed in Special Flight Condition F-16.

(ii) Scheduled landing runway lengths as prescribed in Special Condition F-18.

(iii) Reference landing distances, with all engines operating, using all deceleration devices except wheel brakes.

(iv) Height for initiation of the landing flare associated with the reference landing distance, as prescribed in Special Flight Condition F-15(c).

(v) The maximum reverse thrust used for determining the reference landing distances and scheduled landing runway lengths, determined in accordance with Special Flight Condition F-15(d)(5).

22. By adding an Appendix A to read as follows:

APPENDIX A TO SPECIAL FLIGHT CONDITIONS

FRICTION CHARACTERISTICS OF THE TEST WET SURFACE

The friction characteristics of the wet runway surface used during certification are acceptable when - (i) the average surface texture depth is less than 0.5 mm as determined by the NASA grease smear technique; (ii) it is wetted to such an extent that it is saturated and has an average depth of water above the surface asperities of not less than 0.5 mm (0.02 in.); and (iii) it exhibits friction characteristics equivalent to a Diagonal-Brake Vehicle (DBV) average wet/dry stopping distance ratio of 2.2* or higher. This average ratio is determined by obtaining DBV stop distance data from 60 mph to a stop on a minimum of three zones in the test area utilized by the aircraft.

*When ASTM E-524 smooth tread tire is used.
When ASTM S-249 smooth tread tire is used, SDR of 2.0 is equivalent.

SPECIAL AIRFRAME CONDITIONS

23. By revising Special Airframe Conditions A-6(b)(1) and (2) to read as follows:

A-6 Design airspeeds.

* * * * *

(b) * * *

(1) From an initial condition of stabilized subsonic flight at V_c /M_c , the airplane is assumed to be upset, flown for 20 seconds along a flight path of 7.5 degrees below the initial path, and then pulled up at a load factor not to exceed 1.5 (0.5g acceleration increment). Calculate the speed increase occurring in this maneuver using reliable or conservative aerodynamic data. Cruise power is assumed until the pull-up is initiated, at which time power reduction and the use of pilot controlled drag devices may be assumed. For supersonic speeds, the upset may be assumed to be a 0.5 g pushover held for 12 seconds and then pulled up at a load factor not to exceed 1.5 g (0.5 acceleration increment).

(2) A minimum speed margin not less than a delta Mach number of 0.05 for all subsonic speeds up to a Mach number equal to 0.95 and a delta Mach number equal to 0.20 at supersonic Mach numbers equal to or greater than 1.5 with a straight line variation of delta Mach number between

Mach numbers 0.95 and 1.5, unless a smaller margin can be substantiated. In determining this speed, atmospheric variations (such as horizontal gusts, penetration of jet stream or cold front), instrument errors, and airframe production variations must be taken into consideration.

* * * * *

24. By revising Special Airframe Condition A-14 to read as follows:

A-14 Engine air inlet loads.

The engine air inlet and all affected structures of the airplane must be substantiated for the following loads, considering that the inlet control system is actually a combination of inlet, engine, and nozzle control systems functioning as a single system:

(a) The loads occurring within the prescribed design flight envelope including the effects of engine failure and malfunctions combined with probable inlet control system failures or malfunctions.

(b) The loads occurring within the normal flight envelope including the effects of engine failure and malfunctions combined with inlet control system malfunctions which are not shown to be extremely improbable.

25. By revising Special Conditions A-55(a)(3) and (c) to read as follows:

A-55 Compartment Interiors.

* * * * *

(a) * * *

(3) Acrylic windows and signs, parts constructed in whole or in part of elastomeric materials, edge lighted instrument assemblies, seat belts, shoulder harnesses, and cargo and baggage tie-down equipment including containers, bins, pallets, etc., used in passenger or crew compartments, may not have an average

burn rate greater than 2.5 inches per minute when tested horizontally in accordance with the applicable portions of paragraph (e) of this special condition, or other approved equivalent methods.

* * * * *

(c) Insulation blankets and covering used to protect cargo must be constructed of materials that at least meet the requirements of paragraph (a)(2) of this special condition, and tie-down equipment (including that for containers, bins, and pallets) must be constructed of materials that at least meet the requirements set forth in paragraph (a)(4) of this special condition except as provided in paragraph (a)(3) of this special condition.

* * * * *

SPECIAL PROPULSION CONDITIONS

26. By adding new Special Propulsion Condition P-31 to read as follows:

P-31 Contingency thrust verification and automatic activation.

In addition to the requirements in § 25.1143 and Special Propulsion Condition P-15, if engine maximum contingency thrust ratings are used in establishing Takeoff Distance and Takeoff Run in accordance with Special Flight Condition F-8, means must be provided to -

(a) Produce maximum contingency thrust on all operating engines automatically upon failure of any one engine during takeoff at any point in the all-engine takeoff path prior to the first reduction in thrust scheduled in accordance with procedures established by the applicant for operation in service; and

(b) Verify to appropriate flight crew members prior to takeoff that maximum contingency thrust will be available if needed.

27. By adding new Special Propulsion Condition P-32 to read as follows:

P-32 Powerplant instruments.

In addition to the requirement of § 25.1549, if engine maximum contingency thrust rating is used, each maximum contingency thrust limit must be marked distinctively and in a manner that will preclude confusion with other required markings.

J. E. Ferrarese

Acting Director
Flight Standards Service

Issued in Washington, D.C. on January 9, 1978