- Consistency in analytical assumptions,
- Peaking factor increases,
- Power upratings, and
- Relaxation of post-LOCA sump boron requirements to maintain core subcriticality with all rods out, and requirements for the related potential for sump dilution that could lead to recriticality.

Scope

The petitioner points out that the petition retains the LOCA as a design basis event, but redefines the maximum break-size that may be used in a design basis evaluation. If a licensee adopts the alternate break-size, the existing large break LOCA analysis will be retained as a historical document, and the plant-specific PRA will continue to include LOCAs of all sizes, including a rupture of the large primary system piping. Moreover, the petitioner continues, a licensee will still retain capability to mitigate the extremely unlikely break of the largest pipe in the reactor system, since most of the major equipment is also needed to mitigate other design basis events. NEI states that the major components of the current ECCS, such as the head pumps (high, intermediate, and low) will be retained.

NEI warns, however, that the system capability and associated requirements and acceptance criteria of these components may be revised, based on the revised maximum LOCA break size, or other design basis accidents, whichever is more limiting. The petitioner states that if the NRC grants the proposed petition, licensees wishing to apply to use the alternative break-size criteria will amend the applicable safety analyses associated with licensee or owners' group applications. The amended analyses will be the basis for the application-specific LOCA-related safety analysis assumptions, including control rod insertion following a LOCA and associated post-LOCA sump boron requirements to maintain core subcriticality, containment sump debris generation, and the ultimate heat sink heat removal requirements.

The petitioner explains that plants requesting approval for use of an alternate maximum break size model will determine the alternate maximum break size by estimating the appropriate initiating event frequencies for LOCA events and the contribution to overall risk of equivalent break sizes greater than or equal to the alternate maximum break size. The petitioner also states that evaluation of the alternate maximum break size will include consideration of defense-in-depth, safety margins, and performance monitoring. The petitioner states that the risk significance of the changes will be assessed, and such changes will be subject to the change control provisions of 10 CFR 50.59 and may result in a license amendment, if required, in accordance with 10 CFR 50.90.

Finally, the petitioner notes that the proposed amendment may result in changes to containment analyses, including the calculation of peak containment accident pressure, subcompartment pressure transients, containment support system requirements, or the environmental qualification temperature profile from a LOCA. NEI adds that environmental qualification temperature profiles shall continue to consider other design basis breaks in addition to the LOCAs. The petitioner assures that it is not the intent of this rulemaking petition to be the basis for changing containment structural integrity.

Conclusion

The petitioner asserts the proposed request is consistent with and supports the NRC Strategic and Performance Goals, and the Commission's policy on PRA and risk-informed, performance-based regulation. NEI contends that approval of the petition will improve nuclear safety because a major regulation will be updated to reflect industry experience and improvements in PRAs and engineering knowledge. The petitioner concludes that this petition will result in plant design, operations, activities, and associated regulatory oversight that will be more focused on events that are more probable and of higher safety significance, while reducing unnecessary regulatory burden.

Dated at Rockville, Maryland, this 2nd day of April, 2002.

For the Nuclear Regulatory Commission.

Annette Vietti-Cook,

Secretary of the Commission.

[FR Doc. 02–8386 Filed 4–5–02; 8:45 am]

BILLING CODE 7590–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM213; Notice No. 25–02–05–SC]

Special Conditions: Airbus Industrie, Model A340–500 and –600 Series Airplanes; Interaction of Systems and Structure; Electronic Flight Control System, Longitudinal Stability and Low Energy Awareness; and Use of High Incidence Protection and Alpha-floor Systems

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Airbus Industrie Model A340–500 and –600 series airplanes. These airplanes will have novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes associated with the systems that affect the structural performance of the airplane; the electronic flight control system (EFCS); and the use of high incidence protection and alpha-floor systems. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for these design features. These proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: Comments must be received on or before May 8, 2002.

ADDRESSES: Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM–113), Docket No. NM213, 1601 Lind Avenue SW., Renton, Washington, 98055–4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked: Docket No. NM213. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4:00 p.m.

FOR FURTHER INFORMATION CONTACT: Tim Backman, FAA, ANM–116, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055–4056; telephone (425) 227–2797; facsimile (425) 227–1149.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these proposed special conditions. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change this proposal for special conditions in light of the comments we receive.

If you want the FAA to acknowledge receipt of your comments on this proposal, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Background

On November 14, 1996, Airbus Industrie applied for an amendment to U.S. type certificate (TC) A43NM to include the new Models A340–500 and –600. These models are derivatives of the A340–300 airplane that is approved under the same TC.

The Model A340–500 fuselage is a 6-frame stretch of the Model A340–300 and is powered by 4 Rolls Royce Trent 553 engines, each rated at 53,000 pounds of thrust. The airplane has interior seating arrangements for up to 375 passengers, with a maximum takeoff weight (MTOW) of 820,000 pounds. The Model A340–500 is intended for long-range operations and has additional fuel capacity over that of the Model A340–600.

The Model A340–600 fuselage is a 20-frame stretch of the Model A340–300 and is powered by 4 Rolls Royce Trent 556 engines, each rated at 56,000 pounds of thrust. The airplane has interior seating arrangements for up to 440 passengers, with a MTOW of 804,500 pounds.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Airbus Industrie must show that the Model A340–500 and –600 airplanes meet the applicable provisions of the regulations incorporated by reference in TC A43NM or the applicable regulations in effect on the date of application for the change to the type certificate. The regulations incorporated by reference in the type certificate are commonly referred to as the ''original type certification basis.'' The regulations incorporated by reference in TC A43NM are 14 CFR part 25, effective February 1, 1965, including Amendments 25–1 through 25–63, and Amendments 25–64, 25–65, 25–66, and 25–77, with certain exceptions that are not relevant to these proposed special conditions.

In addition, if the regulations incorporated by reference do not provide adequate standards with respect to the change, the applicant must comply with certain regulations in effect on the date of application for the change. The FAA has determined that the Model A340–500 and –600 airplanes must be shown to comply with Amendments 25–1 through 25–91, and with certain FAA-allowed reversions for specific part 25 regulations to the part 25 amendment levels of the original type certification basis.

Airbus has also chosen to comply with part 25 as amended by Amendments 25–92, –93, –94, –95, –97, –98, and –104. In addition, Airbus has elected to redefine the reference stall speed as the 1-g stall speed as proposed in Notice No. 95–17 (61 FR 1260, January 18, 1996).

If the Administrator finds that the applicable airworthiness regulations (i.e., part 25 as amended) do not contain adequate or appropriate safety standards for the Airbus Industrie Model A340–500 and –600 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Airbus Industrie Model A340–500 and –600 must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with § 21.101(b)(2).

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, or should any other model already included on the same type certificate be modified to incorporate the same novel or unusual design feature, the special conditions would also apply to the other model under the provisions of § 21.101(a)(1).

Novel or Unusual Design Features

The Airbus Model A340–500 and A340–600 airplanes will incorporate the following novel or unusual design features.

1. Interaction of Systems and Structure

The Model A340–500 and –600 airplanes will have systems that affect the structural performance of the airplane, either directly or as a result of a failure or malfunction. These novel or unusual design features are systems that can serve to alleviate loads in the airframe and, when in a failure state, can create loads in the airframe. The current regulations do not adequately account for the effects of these systems and their failures on structural performance. The proposed special conditions provide the criteria to be used in assessing the effects of these systems on structures.

2. Electronic Flight Control System: Longitudinal Stability and Low Energy Awareness

The EFCS of the Model A340–500 and –600, as with its predecessors, will result in the airplanes having neutral static longitudinal stability. This condition, when combined with the 3 automatic trim feature of the EFCS, could result in insufficient feedback cues to the pilot of speed excursions below normal operating speeds. The longitudinal flight control laws provide neutral static stability within the normal flight envelope; therefore, the proposed novel or unusual design features for these new airplane model designs will make them unable to show compliance with the static longitudinal stability requirements of §§ 25.171, 25.173, and 25.175.

The unique features of the Model A340–500 and –600 airplanes could cause an unsafe condition if the airspeed becomes too slow near the ground and results in the airplane stalling. The flightcrew would be unaware of the flight condition and would not be able to intervene and recover before stall. The French Direction Generale De L'Aviation Civile (DGAC) took action for this condition by introducing a special condition for predecessor airplanes with the same design features that required adequate awareness of the flightcrew to unsafe low speed conditions. This awareness may be provided by an appropriate warning in the cockpit to allow for recovery. There was no corresponding special condition developed by the FAA. This proposed special condition will provide for an appropriate warning in the cockpit of the A340–500 and –600 airplanes to allow for recovery.

Subsequent to certification of the predecessor Model A330 and A340 airplanes and in establishing the certification requirements for the A340–500 and –600, the French DGAC decided to combine two special conditions from the A330 into a new special condition titled ''Static Longitudinal Stability and Low Energy Awareness.'' Since the FAA did not take action on the introduction of the low energy awareness requirement during the A330 and A340 certification, this proposed special condition for the Model A340–500 and –600 airplane certification will harmonize to the French DGAC special condition for static longitudinal stability and low energy awareness. The purpose of the new proposed low energy awareness special condition item 2(a)(2) is to provide awareness to the pilot of a low speed (or low energy state) of flight when the flight control laws provide neutral static longitudinal stability significantly below the normal operating speeds, and offer no cues to the pilot through the side stick controller. The proposed special condition item 2(a)(1) addresses the fact that the airplane has neutral stability and does not meet regulatory requirements for positive dynamic and static longitudinal stability (§§ 25.171, 25.173, and 25.175, and 25.181(a)).

3. High Incidence Protection and Alpha-floor Systems

The Model A340–500 and –600 airplanes will have a novel or unusual feature to accommodate the unique features of the high incidence protection and the alpha-floor systems. The high incidence protection system replaces the stall warning system during normal operating conditions by prohibiting the airplane from stalling. The high incidence protection system limits the angle of attack at which the airplane can be flown during normal low speed operation, impacts the longitudinal airplane handling characteristics, and can not be over-ridden by the crew. The existing regulations do not provide adequate criteria to address this proposed system.

The function of the alpha-floor system is to automatically increase the thrust on the operating engines under unusual circumstances where the airplane pitches to a predetermined high angle of attack or bank angle. The regulations do not provide adequate criteria to address this proposed system.

Discussion

1. Interaction of Systems and Structure

The Model A340–500 and –600 will have systems that affect the structural performance of the airplane, either directly or as a result of failure or malfunction. These proposed special conditions provide the criteria to be used in assessing the effects of these systems on structures. The applicant, Airbus Industrie, acknowledges that advancements in technology led to the development of these novel and unusual design features. These criteria are now in the regulatory process and will become a new regulation, § 25.302, ''Interaction of systems and structures,'' and a new appendix to part 25. Until the rule is adopted, it is necessary to apply these proposed special conditions. Airbus accepts and embraces these special conditions and has every intent of complying with them as they are presented here.

The criteria defined herein are similar to those previously applied by special conditions to other fly-by-wire airplanes, including the Airbus A340, in Special Conditions No. 25–ANM–69, Docket No. NM–75, published in the **Federal Register** on April 15, 1993, (58 FR 19553), item 4. Since the issuance of the Airbus A340 special condition item 4, advancements in technology have occurred leading to the proposed § 25.302, which will address the interaction of systems and structures, and to a revised version of the original special condition item 4. The FAA proposes that this new special condition apply to the Airbus A340–500 and –600 airplanes, in lieu of the original special condition.

2. Electronic Flight Control System: Longitudinal Stability and Low Energy Awareness

The following special conditions are proposed in lieu of compliance with §§ 25.171, 25.173, 25.175, and 25.181(a), and in lieu of the previously issued Special Conditions No. 25–ANM–69, Docket No. NM–75, published in the **Federal Register** on April 15, 1993 (58 FR 19553), item 11(b), ''Flight Characteristics—Longitudinal Stability.''

Static longitudinal stability on conventional airplanes means that a pull force on the controller in the pitch axis (airplane nose up) will result in a reduction in speed relative to the trim speed for straight flight, and a push force (airplane nose down) will result in higher than trim speed. This required characteristic of the flight control system, as specified in §§ 25.171, 25.173, and 25.175, is intended to provide the pilot with a predictable, tactile feeling for increased pitch forces on the controller and to maintain trim speed during straight flight.

The Model A340–500 and –600 EFCS with fly-by-wire technology has unique and novel design features, relative to those envisioned by current regulations, for controlling the airplane pitch attitude and flight path. Movement of the elevator surfaces in conjunction with movement of the cockpit controllers, is accomplished by ''electrical flight control laws'' contained in the flight control computer. The pitch control law (C*) utilizes feedback from normal load factor and pitch rate to provide a load factor (g) demand such that displacement of the controller results in a constant g maneuver where a pull force (nose up) is positive g, and a push force (nose down) is negative g. The net result of the C* law, with the integration of the automatic pitch trim function on the horizontal stabilizer, is that the pilot can command a rate of climb or descent with displacement of the controller and release the controller to its neutral position. The airplane rate of climb or descent will remain until a new command to the controller is given by the pilot. Furthermore, a stick-free (controller remains in the neutral position) deceleration/acceleration away from ''trim'' will result in constant 1 g straight flight with no stick forces (neutral static stability). As a result of this neutral stability, the Model A340–500 and –600 does not meet the part 25 requirements for static longitudinal stability as described above.

In addition, past experience on airplanes with EFCS providing neutral longitudinal stability shows that there is insufficient feedback cue of excursion below operational speeds. Pitch limit protection systems of this design protect the airplane against stall but are not sufficient to prevent potentially hazardous low speed excursions because they intervene far below normal operational speeds. Until intervention, there are no stability cues since the airplane remains trimmed. Additionally, the pitching moment due to thrust variation is reduced by the flight control laws. Recovery from a low speed excursion may become hazardous when the low speed situation is associated with a low altitude and with the engines at idle. These low energy situations (low speed and low engine thrust) must be avoided and therefore, the pilots must be given adequate cues when approaching such situations. An acceptable method of compliance to this requirement may be provided by an appropriate warning with the following characteristics:

(a) Warning must be unique, unambiguous and unmistakable.

(b) Warning must be active at appropriate altitudes and in appropriate configurations.

(c) Warning must be sufficiently timely to allow pilot intervention, without recourse to any aircraft automatic protection system.

(d) Warning must not be triggered during normal operations, including operation in moderate turbulence for recommended maneuvers at recommended speeds.

(e) Warning must not be cancelable by the pilot other than by achieving a higher energy state.

(f) Various warnings must have an adequate hierarchy so that the pilot will not be confused and lead to take inappropriate recovery action in the event that multiple warnings occur.

3. High Incidence Protection and Alpha-floor Systems

An initial review of the Airbus Model A330 and A340 special condition item 12(b), issued in Special Conditions No. 25–ANM–69, Docket No. NM–75, published in the **Federal Register** on April 15, 1993 (58 FR 19553), compared with the corresponding French DGAC special condition finds that the FAA special condition item 12(b) did not adequately address the high incidence protection and alpha-floor systems, and the automatic trim feature on the A330 and A340 and on the Model A340–500 and –600 airplanes. Furthermore, the requirements for the 1-g stall speeds, which are now an equivalent safety finding (ESF), were embedded in the same special conditions (No. 25–ANM–69), item 12(b), addressing high incidence protection limits. Current FAA procedures do not allow combining a special conditions and an ESF in the manner previously done for the Model A330 and A340 series airplanes. Therefore, this special condition addresses the high incidence protection and alpha-floor systems, while the requirements for the 1-g stall will be addressed separately as an ESF. The Model A330 and A340 airplanes, special condition item 12(b), therefore does not apply to the Model A340–500 and –600 certification program.

The proposed special condition parallels that of the French DGAC for the A340–500 and –600 in presenting amendments to the appropriate regulations to accommodate the unique features of the high incidence protection systems and the alpha-floor system. The high incidence protection systems replaces the stall warning system during normal operating conditions by prohibiting the airplane from stalling.

Applicability

As discussed above, these special conditions are applicable to the Model A340–500 and –600 airplanes. Should Airbus Industrie apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well under the provisions of § 21.101(a)(1).

Conclusion

This action affects only certain novel or unusual design features on the Model A340–500 and –600 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 Proposed Special Conditions

Accordingly, the FAA proposes the following special conditions as part of the type certification basis for Airbus Industrie Model A340–500 and –600 series airplanes.

1. Interaction of System and Structures

The following special conditions are proposed in lieu of the compliance with previously issued Special Conditions No. 25–ANM–69 (Docket No. NM–75), published in the **Federal Register** on April 15, 1993 (58 FR 19553) item 4, ''Interaction of Systems and Structure.''

(a) *General.* For airplanes equipped with systems that affect structural performance, either directly or as a result of a failure or malfunction, the influence of these systems and their failure conditions must be taken into account when showing compliance with the requirements of subparts C and D of part 25. The following criteria must be used for showing compliance with these special conditions for airplanes equipped with flight control systems, autopilots, stability augmentation systems, load alleviation systems, flutter control systems, and fuel management systems. If these special conditions are used for other systems, it may be necessary to adapt the criteria to the specific system.

(1) The criteria defined herein only address the direct structural consequences of the system responses and performances and cannot be considered in isolation but should be included in the overall safety evaluation of the airplane. These criteria may in some instances duplicate standards already established for this evaluation. These criteria are only applicable to structures whose failure could prevent continued safe flight and landing. Specific criteria that define acceptable limits on handling characteristics or stability requirements when operating in the system degraded or inoperative mode are not provided in these special conditions.

(2) Depending upon the specific characteristics of the airplane, additional studies that go beyond the criteria provided in these special conditions may be required in order to demonstrate the capability of the airplane to meet other realistic conditions such as alternative gust or maneuver descriptions for an airplane equipped with a load alleviation system.

(3) The following definitions are applicable to these special conditions.

Structural performance: Capability of the airplane to meet the structural requirements of part 25.

Flight limitations: Limitations that can be applied to the airplane flight conditions following an in-flight occurrence and that are included in the flight manual (e.g., speed limitations, avoidance of severe weather conditions, etc.).

Operational limitations: Limitations, including flight limitations that can be applied to the airplane operating conditions before dispatch (e.g., fuel, payload, and Master Minimum Equipment List limitations).

Probabilistic terms: The probabilistic terms (probable, improbable, extremely improbable) used in these special conditions are the same as those used in § 25.1309.

Failure condition: The term failure condition is the same as that used in § 25.1309; however, these special conditions apply only to system failure conditions that affect the structural performance of the airplane (e.g., system failure conditions that induce loads, lower flutter margins, or change the response of the airplane to inputs such as gusts or pilot actions).

(b) *Effects of Systems on Structures.* The following criteria will be used in determining the influence of a system and its failure conditions on the airplane structure.

(1) System fully operative. With the system fully operative, the following apply:

(i) Limit loads must be derived in all normal operating configurations of the system from all the limit conditions specified in subpart C, taking into account any special behavior of such a system or associated functions, or any effect on the structural performance of the airplane that may occur up to the limit loads. In particular, any significant nonlinearity (rate of displacement of control surface, thresholds or any other system nonlinearities) must be accounted for in a realistic or conservative way when deriving limit loads from limit conditions.

(ii) The airplane must meet the strength requirements of part 25 (static strength, residual strength), using the specified factors to derive ultimate loads from the limit loads defined above. The effect of nonlinearities must be investigated beyond limit conditions to ensure the behavior of the system presents no anomaly compared to the behavior below limit conditions. However, conditions beyond limit conditions need not be considered when it can be shown that the airplane has design features that will not allow it to exceed those limit conditions.

(iii) The airplane must meet the aeroelastic stability requirements of § 25.629.

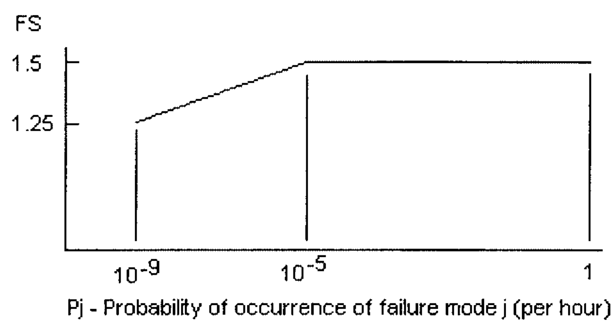
(2) *System in the failure condition.* For any system failure condition not shown to be extremely improbable, the following apply:

(i) At the time of occurrence. Starting from 1-g level flight conditions, a realistic scenario, including pilot corrective actions, must be established to determine the loads occurring at the time of failure and immediately after failure.

(A) For static strength substantiation, these loads multiplied by an appropriate factor of safety that is related to the probability of occurrence of the failure are ultimate loads to be considered for design. The factor of safety (FS) is defined in Figure 1.

Figure 1

Factor of safety at the time of occurrence



(B) For residual strength substantiation, the airplane must be able to withstand two thirds of the ultimate loads defined in subparagraph (b)(1)(i).

(C) Freedom from aeroelastic instability must be shown up to the speeds defined in § 25.629(b)(2). For failure conditions that result in speed increases beyond Vc/Mc, freedom from aeroelastic instability must be shown to increased speeds, so that the margins intended by § 25.629(b)(2) are maintained.

(D) Failures of the system that result in forced structural vibrations (oscillatory failures) must not produce loads that could result in detrimental deformation of primary structure.

(ii) *For the continuation of the flight.* For the airplane in the system failed state and considering any appropriate reconfiguration and flight limitations, the following apply:

(A) The loads derived from the following conditions at speeds up to Vc, or the speed limitation prescribed for the remainder of the flight, must be determined:

(*1*) The limit symmetrical maneuvering conditions specified in § 25.331 and in § 25.345.

(*2*) The limit gust and turbulence conditions specified in § 25.341 and in § 25.345.

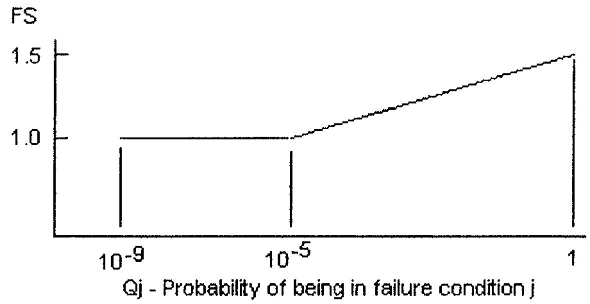
(*3*) The limit rolling conditions specified in § 25.349 and the limit unsymmetrical conditions specified in § 25.367 and § 25.427(b) and (c).

(*4*) The limit yaw maneuvering conditions specified in § 25.351.

(*5*) The limit ground loading conditions specified in § 25.473 and § 25.491.

(B) For static strength substantiation, each part of the structure must be able to withstand the loads defined in subparagraph (ii)(A), multiplied by a factor of safety depending on the probability of being in this failure state.The factor of safety is defined in Figure 2.

Figure 2
Factor of safety for continuation of flight



$Q_j = (T_j)(P_j)$ where:

T_j = Average time spent in failure condition j (in hours).

P_j = Probability of occurrence of failure mode j (per hour).

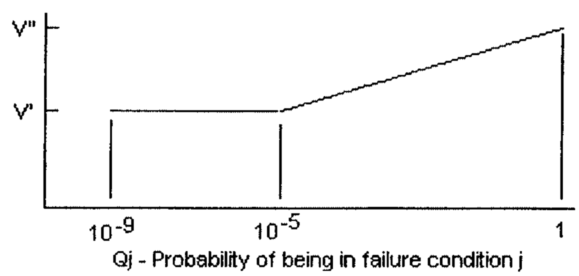
Note to paragraph (B): If P_j is greater than 10^{-3} per flight hour, then a 1.5 factor of safety must be applied to all limit load conditions specified in subpart C.

(C) For residual strength substantiation, the airplane must be able to withstand two thirds of the ultimate loads defined in subparagraph (2)(ii)(B).

(D) If the loads induced by the failure condition have a significant effect on fatigue or damage tolerance, then their effects must be taken into account.

(E) Freedom from aeroelastic instability must be shown up to a speed determined from Figure 3. Flutter clearance speeds V^I and V^{II} may be based on the speed limitation specified for the remainder of the flight using the margins defined by § 25.629(b).

Figure 3
Clearance speed



V^I = Clearance speed as defined by § 25.629(b)(2).

V^{II} = Clearance speed as defined by § 25.629(b)(1).

$Q_j = (T_j)(P_j)$ where:

T_j = Average time spent in failure condition j (in hours).

P_j = Probability of occurrence of failure mode j (per hour).

Note to paragraph (E): If P_j is greater than 10^{-3} per flight hour, then the flutter clearance speed must not be less than V^{II}.

(F) Freedom from aeroelastic instability must also be shown up to V^I in Figure 3 above for any probable system failure condition combined with any damage required or selected for investigation by § 25.571(b).

(iii) Consideration of certain failure conditions may be required by other sections of part 25, regardless of calculated system reliability. Where analysis shows the probability of these failure conditions to be less than 10^{-9}, criteria other than those specified in this paragraph may be used for structural substantiation to show continued safe flight and landing.

(3) Warning considerations. For system failure detection and warning, the following apply:

(i) The system must be checked for failure conditions, not extremely improbable, that degrade the structural capability below the level required by part 25 or significantly reduce the reliability of the remaining system. The flightcrew must be made aware of these failures before flight. Certain elements of the control system, such as mechanical and hydraulic components, may use special periodic inspections, and electronic components may use daily checks, in lieu of warning systems, to achieve the objective of this requirement. These certification maintenance requirements must be limited to components that are not readily detectable by normal warning systems and where service history shows that inspections will provide an adequate level of safety.

(ii) The existence of any failure condition, not extremely improbable, during flight that could significantly affect the structural capability of the airplane, and for which the associated reduction in airworthiness can be minimized by suitable flight limitations, must be signaled to the flightcrew. For example, failure conditions that result in a factor of safety between the airplane strength and the loads of subpart C below 1.25, or flutter margins below V^{II}, must be signaled to the crew during flight.

(4) Dispatch with known failure conditions. If the airplane is to be dispatched in a known system failure condition that affects structural performance, or affects the reliability of the remaining system to maintain structural performance, then the provisions of these special conditions must be met for the dispatched

condition and for subsequent failures. Flight limitations and expected operational limitations may be taken into account in establishing Qj as the combined probability of being in the dispatched failure condition and the subsequent failure condition for the safety margins in Figures 2 and 3. These limitations must be such that the probability of being in this combined failure state and then subsequently encountering limit load conditions is extremely improbable. No reduction in these safety margins is allowed if the subsequent system failure rate is greater than 10^{-3} per hour.

2. Electronic Flight Control System: Longitudinal Stability and Low Energy Awareness

(a) The following special conditions are proposed in lieu of compliance with 14 CFR §§ 25.171, 25.173, 25.175, and 25.181(a), and in lieu of the previously issued Special Conditions No. 25–ANM–69 (Docket No. NM–75), published in the **Federal Register** on April 15, 1993 (58 FR 19553) item 11(b) ''Flight Characteristics—Longitudinal Stability.''

(1) The airplane must be shown to have suitable dynamic and static longitudinal stability in any condition normally encountered in service, including the effects of atmospheric disturbance.

(2) The airplane must provide adequate awareness to the pilot of a low energy state when flight control laws provide neutral longitudinal stability significantly below the normal operating speeds.

3. High Incidence Protection and Alpha-floor Systems

(a) The following special conditions are proposed in lieu of compliance with certain 14 CFR sections (listed below), and in lieu of compliance with previously issued Special Conditions No. 25–ANM–69 (Docket No. NM–75) published in the **Federal Register** on April 15, 1993 (58 FR 19553) item 12(b), ''Flight Envelope Protection, Angle-of-Attack Limiting.''

(1) The following definitions are applicable to these special conditions.

High Incidence Protection System. A system that operates directly and automatically on the airplane's flying controls to limit the maximum incidence that can be attained to a value below that at which an aerodynamic stall would occur.

Alpha-floor System. A system that automatically increases thrust on the operating engines when incidence increases through a particular value.

Alpha-limit. The maximum steady incidence at which the airplane stabilizes with the High Incidence Protection System operating and the longitudinal control held on its aft stop.

V_{min}. The minimum steady flight speed, for the airplane configuration under consideration and with the High Incidence Protection System operating, is the final stabilized Calibrated Airspeed obtained when the airplane is decelerated at an entry rate not exceeding 1 knot per second until the longitudinal pilot controller is on its stop.

$V_{min}1g$. V_{min} corrected to 1g conditions. It is the minimum Calibrated Airspeed at which the airplane can develop a lift force normal to the flight path and equal to its weight when at an angle of attack not greater than that determined for V_{min}.

(2) *Capability and Reliability of the High Incidence Protection System:* In lieu of compliance with previously issued Special Conditions No. 25–ANM–69, this special condition requires that acceptable capability and reliability of the High Incidence Protection System must be established by flight test, simulation, and analysis as appropriate. The capability and reliability required are as follows:

(i) It shall not be possible during pilot induced maneuvers to encounter a stall and handling characteristics shall be acceptable, as required by Section 5 of this special condition.

(ii) The airplane shall be protected against stalling due to the effects of windshears and gusts at low speeds as required by Section 6 of this special condition.

(iii) The ability of the High Incidence Protection System to accommodate any reduction in stalling incidence resulting from residual ice must be verified.

(iv) The reliability of the system and the effects of failures must be acceptable in accordance with § 25.1309, and the associated policy.

(3) *Minimum Steady Flight Speed and Reference Stall Speed.* In lieu of § 25.103 the following special conditions is proposed:

(i) V_{min}. The minimum steady flight speed, for the airplane configuration under consideration and with the High Incidence Protection System operating, is the final stabilized Calibrated Airspeed obtained when the airplane is decelerated at an entry rate not exceeding 1 knot per second until the longitudinal control is on its stop.

(ii) The Minimum Steady Flight Speed, V_{min}, must be determined with:

(A) The High Incidence Protection System operating normally.

(B) Idle thrust and Alpha-floor System inhibited.

(C) All combinations of flap settings and landing gear positions.

(D) The weight used when V_{SR} is being used as a factor to determine compliance with a required performance standard.

(E) The most unfavorable center of gravity allowable, and

(F) The airplane trimmed for straight flight at a speed achievable by the automatic trim system.

(iii) $V_{min}1$ g. V_{min} corrected to 1 g conditions. It is the minimum calibrated airspeed at which the airplane can develop a lift force normal to the flight path and equal to its weight when at an angle of attack not greater than that determined for V_{min}. $V_{min}1g$ is defined as follows:

$$V_{min}1g = \frac{V_{min}}{\sqrt{n_{ZW}}}$$

Where:

n_{ZW} = load factor normal to the flight path at V_{min}

(iv) The Reference Stall Speed, V_{SR}, is a calibrated airspeed defined by the applicant. V_{SR} may not be less than a 1-g stall speed. V_{SR} is expressed as:

$$V_{SR} \geq \frac{V_{CL_{MAX}}}{\sqrt{n_{ZW}}}$$

Where:

$V_{CL_{MAX}}$ = Calibrated airspeed obtained when the load factor-corrected lift coefficient

$$\left(\frac{n_{ZW}W}{qS}\right)$$

is first a maximum during the maneuver prescribed in paragraph (v)(H) of this section.

n_{ZW} = Load factor normal to the flight path at $V_{CL_{MAX}}$

W = Airplane gross weight;

S = Aerodynamic reference wing area; and

q = Dynamic pressure.

Note: Unless Angle of Attack (AOA) protection system (stall warning and stall identification) production tolerances are acceptably small, so as to produce insignificant changes in performance determinations, the flight test settings for stall warning and stall identification should be set at the low AOA tolerance limit; high AOA tolerance limits should be used for characteristics evaluations.

(v) V_{SR} must be determined with the following conditions:

(A) Engines idling, or, if that resultant thrust causes an appreciable decrease in stall speed, not more than zero thrust at the stall speed.

(B) The airplane in other respects (such as flaps and landing gear) in the condition existing in the test or performance standard in which V_{SR} is being used.

(C) The weight used when V_{SR} is being used as a factor to determine compliance with a required performance standard.

(D) The Center of gravity position that results in the highest value of reference stall speed.

(E) The airplane trimmed for straight flight at a speed achievable by the automatic trim system, but not less than 1.13 V_{SR} and not greater than 1.3 V_{SR}.

(F) The Alpha-floor system inhibited.

(G) The High Incidence Protection System adjusted to a high enough incidence to allow full development of the 1g stall.

(H) Starting from the stabilized trim condition, apply the longitudinal control to decelerate the airplane so that the speed reduction does not exceed one knot per second.

(vi) The flight characteristics at the AOA for C_{LMAX} must be suitable in the traditional sense at FWD and AFT CG in straight and turning flight at IDLE power. Although for a normal production EFCS and steady full aft stick this AOA for C_{LMAX} cannot be achieved, the AOA can be obtained momentarily under dynamic circumstances and deliberately in a steady state sense with some EFCS failure conditions.

(4) Stall Warning

(i) Normal Operation. If the conditions of Paragraph 2 are satisfied, equivalent safety to the intent of § 25.207, Stall Warning, shall be considered to have been met without provision of an additional, unique warning device.

(ii) Failure Cases. Following failures of the High Incidence Protection System, not shown to be extremely improbable, such that the capability of the system no longer satisfies items (i), (ii), and (iii) of Paragraph 2, stall warning must be provided in accordance with §§ 25.207(a), (b) and (f).

(5) Handling Characteristics at High Incidence

(i) *High Incidence Handling Demonstrations.* Replace the existing § 25.201 with the following:

(A) Maneuvers to the limit of the longitudinal control, in the nose up direction, must be demonstrated in straight flight and in 30 degree banked turns with:

(*1*) The high incidence protection system operating normally.

(*2*) Initial power condition of:

(*i*) Power off

(*ii*) The power necessary to maintain level flight at 1.5 V_{SR1}, where V_{SR1} is the stall speed with the flaps in the approach position, the landing gear retracted, and the maximum landing weight. The flap position to be used to determine this power setting is that position in which the stall speed, V_{SR1}, does not exceed 110 percent of the stall speed, V_{SR0}, with the flaps in the most extended landing position.

(*3*) Alpha-floor system operating normally unless more severe conditions are achieved with alpha-floor inhibited.

(*4*) Flaps, landing gear and deceleration devices in any likely combination of positions.

(*5*) Representative weights within the range for which certification is requested, and

(*6*) The airplane trimmed for straight flight at a speed achievable by the automatic trim system.

(B) The following procedures must be used to show compliance with § 25.203 as amended by this item (5)(ii) of this special condition.

(*1*) Starting at a speed sufficiently above the minimum steady flight speed to ensure that a steady rate of speed reduction can be established, apply the longitudinal control so that the speed reduction does not exceed one knot per second until the control reaches the stop.

(*2*) The longitudinal control must be maintained at the stop until the airplane has reached a stabilized flight condition and must then be recovered by normal recovery techniques.

(*3*) The requirements for turning flight maneuver demonstrations must also be met with accelerated rates of entry to the incidence limit, up to the maximum rate achievable.

(ii) *Characteristics in High Incidence Maneuvers.* Replace the existing § 25.203 with the following:

(A) Throughout maneuvers with a rate of deceleration of not more than 1 knot per second, both in straight flight and in 30 degree banked turns, the airplane's characteristics shall be as follows:

(*1*) There shall not be any abnormal airplane nose-up pitching.

(*2*) There shall not be any uncommanded nose-down pitching, which would be indicative of stall. However, reasonable attitude changes associated with stabilizing the incidence at alpha limit as the longitudinal control reaches the stop would be acceptable. Any reduction of pitch attitude associated with stabilizing the incidence at the alpha limit should be achieved smoothly and at a low pitch rate, such that it is not likely to be mistaken for natural stall identification.

(*3*) There shall not be any uncommanded lateral or directional motion, and the pilot must retain good lateral and directional control, by conventional use of the cockpit controllers, throughout the maneuver.

(*4*) The airplane must not exhibit severe buffeting of a magnitude and severity that would act as a deterrent to completing the maneuver specified in § 25.201(a), as amended by this special condition.

(B) In maneuvers with increased rates of deceleration, some degradation of characteristics is acceptable, associated with a transient excursion beyond the stabilized Alpha-limit. However, the airplane must not exhibit dangerous characteristics or characteristics that would deter the pilot from holding the longitudinal controller on the stop for a period of time appropriate to the maneuvers.

(C) It must always be possible to reduce incidence by conventional use of the controller.

(D) The rate at which the airplane can be maneuvered from trim speeds associated with scheduled operating speeds such as V_2 and V_{ref} up to Alpha-limit shall not be unduly damped or significantly slower than can be achieved on conventionally controlled transport airplanes.

(6) Atmospheric Disturbances

Operation of the High Incidence Protection System and the Alpha-floor System must not adversely effect aircraft control during expected levels of atmospheric disturbances, nor impede the application of recovery procedures in case of windshear. Simulator tests and analysis may be used to evaluate such conditions, but must be validated by limited flight testing to confirm handling qualities at critical loading conditions.

(7) Alpha Floor

The Alpha-floor setting must be such that the aircraft can be flown at normal landing operational speed and maneuvered up to bank angles consistent with the flight phase (including the maneuver capabilities specified in § 25.143(g)) of the 1-g stall Equivalent Safety Finding without triggering Alpha-floor. In addition, there must be no Alpha-floor triggering unless appropriate when the airplane is flown in usual operational maneuvers and in turbulence.

(8) Change § 25.145 as follows:

(i) It must be possible, at any point between the trim speed prescribed in item 3(ii)(F) of this special condition and V_{min}, to pitch the nose downward so that the acceleration to this selected trim speed is prompt with:

(ii) The airplane trimmed at the trim speed prescribed in item 3(ii)(F) of this special condition.

(A) The landing gear extended;

(B) The wing flaps retracted and extended; and

(C) Power off and at maximum continuous power on the engines.

(9) Change § 25.145(b)(6), as follows:

With power off, flaps extended and the airplane trimmed at 1.3 V_{SR1}, obtain and maintain airspeeds between V_{min} and either 1.6V_{SR1} or V_{FE}, whichever is lower.

(10) Change § 25.1323(c), as follows:

(A) V_{MO} to V_{min} with the flaps retracted; and

(B) V_{min} to V_{FE} with flaps in the landing position.

Issued in Renton, Washington, on March 21, 2002.

Kalene C. Yanamura,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF THE TREASURY

Customs Service

19 CFR Parts 141 and 142

RIN 1515–AC94

Single Entry for Unassembled or Disassembled Entities Imported on Multiple Conveyances

AGENCY: Customs Service, Department of the Treasury.

ACTION: Proposed rule.

SUMMARY: This document proposes to amend the Customs Regulations to allow an importer of record, under certain conditions, to submit a single entry to cover multiple portions of a single entity which, due to its size or nature, arrives in the United States on separate conveyances. The proposed amendments would implement statutory changes made to the merchandise entry laws by the Tariff Suspension and Trade Act of 2000.

DATE: Comments must be received on or before June 7, 2002.

ADDRESSES: Written comments may be addressed to and inspected at the Regulations Branch, U.S. Customs Service, 1300 Pennsylvania Avenue, NW., 3rd Floor, Washington, DC 20229.

FOR FURTHER INFORMATION CONTACT:

For operational matters: Tom Heffernan, Office of Field Operations, (202) 927–0360.

For classification matters: Patricia Fitzpatrick, Office of Field Operations, (202) 927–1106.

For legal matters: Larry L. Burton, Office of Regulations and Rulings, (202) 927–1287.

SUPPLEMENTARY INFORMATION:

Background

Section 1460 of Public Law 106–476, popularly known as the Tariff Suspension and Trade Act of 2000, amended section 484 of the Tariff Act of 1930 (19 U.S.C. 1484) by adding a new subsection (j) in order to provide for the treatment of certain multiple shipments of merchandise as a single entry.

The amended law, 19 U.S.C. 1484(j), is concerned with two issues. First, section 1484(j)(1) addresses a problem long encountered by the importing community in entering merchandise whose size or nature necessitates shipment in an unassembled or disassembled condition on more than one conveyance. Second, section 1484(j)(2) offers relief to importers whose shipments, which they intended to be carried on a single conveyance, are divided at the initiative of the carrier. As to both these matters, the legislation is silent as to the affected modes of transportation, thus indicating that the new law is to apply to merchandise shipped by air, land or sea.

Customs determined to proceed first with proposed regulations relating only to shipments which are divided by carriers (19 U.S.C. 1484(j)(2)); these are referred to as ''split shipments.'' Separate proposals were undertaken because Customs had already begun a project to amend the regulations to provide for one entry for such split shipments prior to the present statutory amendments.

The proposed rule regarding split shipments (RIN 1515–AC91) was published in the **Federal Register** (66 FR 57688) for public comment on November 16, 2001.

Customs now proposes regulations concerning a single entry for shipments of unassembled or disassembled merchandise that arrive on more than one conveyance (19 U.S.C. 1484(j)(1)). It is noted that where the proposed regulatory text in this document affects the same sections in the Customs Regulations that the document regarding split shipments affected, this document includes the proposed regulatory text changes in those sections that were previously published for split shipments, as appropriately modified consistent with the present proposal. Accordingly, this document should be read in conjunction with that proposal. It is particularly noted that the other proposal contains in proposed § 141.57 the major requirements for split shipments. Comments with respect to the proposed amendments for split shipments should be submitted in connection with the **Federal Register** notice for split shipments, cited above. Only comments concerning the proposed amendments for single entities that are shipped unassembled or disassembled on multiple conveyances should be submitted in connection with this document.

An application to file a single entry covering an unassembled or disassembled entity as described in this proposed rulemaking must be made by the importer of record, either by appropriately annotating a CF 3461, a CF 3461 ALT, or electronic equivalent, or by submitting a letter to Customs. The required application must be made no later than 5 working days in advance of the arrival of the first conveyance. Justification for the need for more than one conveyance must be provided in the application, which must include an affirmative statement that the entity cannot, due to its size or nature, be accommodated on one conveyance. A copy of the relevant invoice or purchase order, or its electronic equivalent, must accompany the application, along with the proposed appropriate single tariff number under the Harmonized Tariff Schedule of the United States (HTSUS). The port director will notify the applicant of the approval or denial of the application within 3 working days of the receipt of the application.

Unassembled or Disassembled Entity Defined

For the purposes of this proposal, an unassembled or disassembled entity consists of merchandise which is not capable of being transported on a single conveyance, but which is purchased and invoiced as a single classifiable entity. By necessity, due to its size or nature, the entity is placed on multiple conveyances which arrive in the United States at the same port at different times. The subject arriving portions are consigned to the same person in the United States.

The Customs Regulations ordinarily require, with certain exceptions not here relevant, that all merchandise arriving on one conveyance and consigned to one consignee be included on one entry (*see* § 141.51, Customs Regulations (19 CFR 141.51)). There is no provision currently in the Customs Regulations authorizing the filing of a single entry to cover multiple portions of a single