§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

97–26–10 Raytheon Aircraft Company (Formerly Raytheon Aircraft Corporation; Beech Aircraft Corporation; Raytheon Corporate Jets, Inc.; British Aerospace, PLC; deHavilland; Hawker Siddeley): Amendment 39–10253. Docket 97–NM–140–AD.

Applicability: Model Hawker 1000 series airplanes; serial numbers 258151, 258159, and 259003 through 259052 inclusive; certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been otherwise modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (b) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

To prevent contact between the cowl sealant surface and the lever of the engine mechanical over-speed control system, which could cause the over-speed system to function improperly and consequent engine structural failure; accomplish the following:

(a) Within 150 flight hours or 3 months after the effective date of this AD, whichever occurs first, modify the aft core cowl nozzles of the left- and right-hand engine nacelles in accordance with Raytheon Service Bulletin SB.71–48–25F021B, dated May 20, 1997.

Note 2: The Raytheon service bulletin references Nordam Hawker 1000 Service Bulletin PW300 71–9, dated April 29, 1995, as the appropriate source of service information for accomplishment of the modification.

(b) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Wichita Aircraft Certification Office (ACO), FAA, Small Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Wichita ACO.

Note 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Wichita ACO.

(c) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

(d) The modification shall be done in accordance with Raytheon Service Bulletin SB.71–48–25F021B, dated May 20, 1997. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Raytheon Aircraft Company, Manager, Service Engineering, Hawker Customer Support Department, P.O. Box 85, Wichita, Kansas 67201–0085. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Small Airplane Directorate, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Mid-Continent Airport, Wichita, Kansas; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(e) This amendment becomes effective on January 23, 1998.

Issued in Renton, Washington, on December 11, 1997.

Gilbert L. Thompson,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 97–32998 Filed 12–18–97; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97–NM–46–AD; Amendment 39–10249; AD 97–26–06]

RIN 2120–AA64

Airworthiness Directives; Empresa Brasileira de Aeronautica, S.A. (EMBRAER) Model EMB–120 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to all EMBRAER Model EMB–120 series airplanes, that requires revising the Airplane Flight Manual (AFM) to include requirements for activation of the ice protection systems, and to add information regarding operation in icing conditions. This amendment also requires installing an ice detector system and revising the AFM to include procedures for testing system integrity. This amendment is prompted by reports indicating that flightcrews experienced difficulties controlling the airplane during (or following) flight in normal icing conditions, when the ice protection system either was not activated when ice began to accumulate on the airplane, or the ice protection system was never activated. These difficulties may have occurred because the flightcrews did not recognize that a significant enough amount of ice had formed on the airplane to require activation of the deicing equipment. The actions specified by this AD are intended to ensure that the flightcrew is able to recognize the formation of significant ice accretion and take appropriate action; such formation of ice could result in reduced controllability of the airplane in normal icing conditions.

DATES: Effective January 23, 1998.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of January 23, 1998.

ADDRESSES: The service information referenced in this AD may be obtained from EMBRAER, Empresa Brasileira De Aeronautica S/A, Sao Jose Dos Campos, Brazil. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Small Airplane Directorate, Atlanta Aircraft Certification Office, Campus Building, 1701 Columbia Avenue, suite 2–160, College Park, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Carla Worthey, Aerospace Engineer, Systems and Flight Test Branch, ACE–116A, FAA, Small Airplane Directorate, Atlanta Aircraft Certification Office, Campus Building, 1701 Columbia Avenue, suite 2–160, College Park, Georgia 30337–2748; telephone (770) 703–6062; fax (770) 703–6097.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to all EMBRAER Model EMB–120 series airplanes was published in the **Federal Register** on May 13, 1997 (62 FR 26258). That action proposed to require revising the Airplane Flight Manual (AFM) to include requirements for activation of the ice protection systems, and to add information regarding operation in icing conditions. That action also proposed to require installing an ice detector system and revising the AFM to include procedures for testing system integrity.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Support for the Proposal

Several commenters support the FAA's intent to revise the FAA-approved AFM procedures for flight in

icing conditions and/or to require installation of an ice detector system.

Compliance Time To Install Ice Detector

Two commenters request additional time to install the ice detector system. One of the commenters states that the manufacturers of the ice detector installations (Grimes for the cockpit indications, and Rosemount Aerospace for the ice detector) will not have kits available for all U.S. operators until the end of January 1998, although at least 120 kits were available on October 31, 1997. The other commenter states that 6 months is an unreasonable schedule for retrofitting their fleet of aircraft and requests a 24-month compliance time. Another commenter requests additional time to provide operators the opportunity to consider other options of ice detection and flightcrew response to such conditions, as proposed under the FAA's Inflight Aircraft Icing Plan. The commenter did not request a specific period of time for the extension.

The FAA concurs that the compliance time can be extended somewhat, since parts will not be available for all aircraft early enough to allow completion within 6 months. The FAA finds that, once parts are available, operators must comply with the AD prior to the next icing season. Therefore, paragraph (b) of the final rule has been revised to specify a compliance time of 10 months after the effective date of the AD. The FAA does not consider that this extension will adversely affect safety. If an operator obtains FAA design and installation approval for an alternative to the ice detector, the operator may request approval of an alternative method of compliance in accordance with paragraph (c) of the final rule.

Master Minimum Equipment List (MMEL) Requirements

One commenter requests that any ice detection equipment installed on an aircraft must be operational prior to dispatch into known or forecasted icing conditions. Two other commenters request that the MMEL grant relief for dispatch with inoperative ice detector equipment.

The FAA acknowledges the commenters' requests. However, MMEL requirements are determined by the FAA Flight Operations Evaluation Board (FOEB). The FOEB has determined that it is permissible to dispatch with an inoperative ice detection system provided that all ice protection systems are turned on (except leading edge deicing during takeoff) and AFM limitations and normal procedures for operating in icing conditions are complied with whenever operating in visible moisture at temperatures below 10 degrees Centigrade (50 degrees Fahrenheit). Revision 5c of the MMEL for EMBRAER Model EMB–120 series airplanes, dated October 9, 1997, incorporated this relief.

Additional Analysis

One commenter states that flight control difficulties of the airplanes in icing conditions were reported and known as far back as 1989, but action is only being taken now. The commenter requests that additional analysis be conducted on the previous icing events, and the proposal be revised based on the results of that analysis. The commenter believes that the proposed AD tends to fall short of what is required to preclude subsequent reports of aircraft control problems on Model EMB–120 series airplanes.

The FAA does not concur that additional analysis is required. The initial certification test data for flight into known icing approval indicate that Model EMB–120 series airplanes meet all of the certification requirements specified in Appendix C of part 25 (''Airworthiness Standards: Transport Category Airplanes'') of the Federal Aviation Regulations (14 CFR part 25), provided the ice protection systems are activated properly. In addition, available information concerning the roll upset event history of the EMB–120 has been analyzed thoroughly by the FAA; the Centro Tecnico Aeroespacial (CTA), which is the airworthiness authority for Brazil; and the airplane manufacturer. That analysis indicates that the flightcrews did not activate the de-ice boots prior to the roll upset events. Based on this analysis, the FAA has determined that sufficient data exist to require that an AD be issued to ensure that the flightcrew is able to recognize the formation of significant ice accretion and take appropriate action.

Another commenter requests that roll upset, tailplane icing, and uncommanded roll and/or pitch studies be completed prior to issuing the final rule. The commenter also suggests that additional research should be done regarding the location of ice detectors on the airframe.

The FAA does not concur that additional research is needed. Roll upset, tailplane icing, and uncommanded roll and/or pitch studies have been completed, as suggested by the commenter.

Further review of the event history revealed occurrences of controllable departures from normal flight in icing conditions after loss in airspeed when the ice protection systems of the lifting and control surfaces were not activated. Additionally, operational experience and flight testing conducted by the manufacturer indicate that maintaining proper airspeeds and the additional action of activating the ice protection system at the first detection of airframe icing will eliminate future occurrences of roll upset events.

The FAA finds that supplementing appropriate visual cues for icing with dependable detection and annunciation of encountering icing conditions by an ice detector will ensure flightcrew recognition of icing conditions. In addition, the revision of the FAA-approved AFM, as required by this final rule, will help to ensure activation of the ice protection system, regardless of whether detection of icing is from visual cues or the ice detector, and will require appropriate minimum operating speeds.

The FAA finds that additional research need not be done regarding the location of ice detectors. The FAA and CTA have already conducted a thorough review of that issue, including analysis of flight test data that show that the proposed location of the ice detector will provide early and consistent indication of ice accretion on the airframe.

''Bridging'' Phenomenon

Several commenters express concern that the FAA proposal to mandate use of the deicing equipment at the first sign of ice accretion, rather than delaying until ¼- to ½-inch ice has accumulated, could result in ice forming the shape of an inflated boot, which would make further attempts to de-ice difficult. These commenters request that this phenomenon, commonly referred to as ''bridging,'' be addressed in terms of its validity prior to mandating the change to the AFM procedures. Another commenter noted that, even though the manufacturer already issued Revision 43, dated April 23, 1996, of the AFM to indicate the ice protection systems should be activated with the first sign of ice accretion, some operators continue to caution pilots about ''prematurely'' activating the de-ice boots because of the ''bridging'' concern.

The FAA does not concur that it is necessary to withdraw the proposal until ''bridging'' is addressed further. The FAA is aware that the ''bridging'' condition continues to influence the attitudes of many pilots and operators with respect to the use of de-ice boots. However, prior to approving Revision 43 of the AFM, the FAA and CTA, along with the manufacturer, investigated activating the de-ice boots at the first sign of ice to determine whether

''bridging'' of the de-ice boots was a concern. It was noted that the de-ice system is controlled by a timer that inflates the de-ice boots in a three-minute cycle in ''light'' mode and in a one-minute cycle in ''heavy'' mode. Since there are approximately three minutes when the boots are deflated in the ''light'' cycle, it is likely that inflation cycles have already been occurring in service with less than the earlier recommended ¼- to ½-inch ice accumulation, with no documented indication of ''bridging.''

The FAA was not able to find documented evidence of ''bridging'' occurring on the airplane. The National Transportation Safety Board (NTSB) also noted in its response to the proposed rule that it ''* * * knows of no documented evidence of 'bridging' occurring on current generation turbopropeller airplanes.'' Moreover, de-icing system technology has improved over the years by using higher pressures, smaller chambers, more rapid inflation and deflation, and greater coverage of the leading edge, which have increased the system's ability to shed smaller accretions.

Unsafe Condition

Two commenters state that the Model EMB–120 series airplane has completed extensive testing in icing conditions and was found to have no adverse flight characteristics associated with ice accreted on the aircraft. Additionally, it was found to perform well within established safety parameters. This testing included natural icing tests within icing conditions specified in Appendix C of part 25 of the Federal Aviation Regulations (14 CFR part 25) as part of the original icing certification, testing of ice contaminated tailplane stall characteristics, and subsequent investigations of susceptibility to roll control anomalies following flight in supercooled large droplet icing conditions. One commenter states that the airplane was properly certified for flight into known or forecast icing conditions in 1985, and remains in complete compliance with current icing requirements and all FAA policies, practices, and procedures.

Two commenters state that all turbo-prop aircraft are tested to the same criteria, and that if the EMB–120 requires an ice detector, then all turbo-prop aircraft should be required to install a detector. Another commenter states that the justification given for the AD to ''enable the flight crew to more accurately determine the need to activate the ice protection systems on the airplane and to take appropriate action'' is insufficient reason to distinguish Model EMB–120 series airplanes from other airplane models.

Another commenter notes that another aircraft type with an ice detector system installed experienced a recent accident (Roselawn, Indiana) where icing conditions were determined to be a contributing cause. The commenter states that after the Roselawn accident, the FAA, in conjunction with the Brazilian aviation certification authorities, conducted an extensive review of the Model EMB–120 series airplanes and concluded that the aircraft was safe to fly in inadvertent icing environments without adverse handling or flight characteristics.

The FAA infers that these commenters request the FAA withdraw the notice of proposed rulemaking (NPRM), since they believe that an unsafe condition has not been established. The FAA acknowledges the previous testing and results. However, a review of the service history of Model EMB–120 series airplanes reveals that there have been several roll upset events in icing conditions, that the flightcrews did not activate the de-ice system prior to the events, and that they did not maintain proper airspeed. This indicates the flightcrews were either unaware of the ice accretion or underestimated the depth of ice accreted and the resultant loss in airplane performance, and delayed activation of the de-ice system too long. As stated in the NPRM, it is this lack of recognition of icing conditions, and the consequent failure to deploy the ice protection systems, rather than the performance of the airplane once this system is activated, that constitute the unsafe condition addressed by this AD. In this regard, the service history of the Model EMB–120 is significantly different from that of other turbo-prop aircraft. The requirements of the final rule will increase the level of pilot awareness, ensure appropriate flightcrew actions, and increase the operational level of safety over that which currently exists.

As further information is obtained, the FAA may consider addressing the question of requiring an ice detector to supplement visual icing cues for all commercial air transports as a part of future rulemaking actions.

Flightcrew Training

Several commenters request that crew training be instituted to increase pilot awareness of the criticality of aircraft performance degradation during an icing encounter, in lieu of the proposed rule to mandate installation of an ice detector.

One of these commenters states that the installation of an ice detector is not necessary, is overly burdensome, and that proper training of the flightcrews to the visual cues associated with ice formation on the propeller spinner is the best solution.

Another commenter, the manufacturer, states that the FAA's review of the icing related incidents cited in the proposed rule revealed that pilot indecision (as to when to activate the aircraft's de-ice system), and the lack of appreciation of the criticality of aircraft performance degradation during an icing encounter were the basic causes of the reported icing occurrences. The manufacturer concludes that, in addition to mandating immediate activation of the de-ice system, improved pilot training and recurrent training is needed to ensure that the information gained in recent years about icing is passed along to line pilots.

A third commenter agrees with the proposed requirement to install an ice detection system, but notes that pilots have been trained for years to operate the de-ice boots only after ¼- to ½-inch of ice has accumulated on the wings. The commenter states that the pilots need to be provided training to unlearn old habits and to emphasize the new icing procedures.

The FAA does not concur that substituting training for installation of an ice detector is an adequate solution to address the unsafe condition. However, the FAA supports the development of advisory materials and periodic training to increase awareness of the potential for aircraft performance degradation during an icing encounter, including ensuring that flightcrews are aware of the visual icing cues available to determine if the aircraft is in severe icing conditions. The FAA acknowledges that pilot indecision as to when to activate the de-ice system may have been a factor in the roll upset events. Training to ensure that flightcrews activate the ice protection systems at the first sign of ice accumulation will help address this issue. Part 121 (''Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft'') of the Federal Aviation Regulations (14 CFR part 121), and part 135 (''Air Taxi Operators and Commercial Operators,'') of the Federal Aviation Regulations (14 CFR part 135), require that appropriate training concerning limitations such as those contained in this AD are incorporated into air carriers' training programs.

However, based on the roll upset event history of Model EMB–120 series airplanes, the FAA considers that the use of advisory materials and training

alone are not adequate to address the subject unsafe condition. Therefore, the FAA has determined that installation of an ice detection system is necessary to achieve an acceptable operational level of safety.

Availability of Adequate Visual Cues

Several commenters request that the requirement for an ice detection system be removed from the proposal because the visual cues of ice accumulation already provide notification of icing conditions. One of the commenters further states that the ice detector is simply another indicator of the presence of ice, and that it does not have the ability to measure ice or alert the crews to icing environments beyond the capability of the de-ice system.

The manufacturer states that the FAA's brief discussion of the icing related incidents in the NPRM indicates that the natural visual cues of icing accretions are unsatisfactory or insufficient, thus necessitating the installation of the additional means of ice detection. The manufacturer disagrees with this conclusion because a review of the icing related incidents cited in the NPRM indicates that the common contributing factor to the icing related incidents was a lack of crew attentiveness, rather than a lack of availability of visual cues.

One commenter wrote that there is a definite difference in the visual pattern of ice buildup on the propeller spinner between supercooled large droplet (SLD) and ''normal'' ice buildup. The commenter concludes that the installation of an ice detector system is not the best option for dealing with ice on the aircraft.

Another commenter states that the visual cues for detecting icing conditions and operating de-icing equipment are inadequate and must be researched further.

The FAA does not concur with the request to remove the requirement for an ice detection system. The FAA acknowledges that natural icing testing conducted during the initial certification indicated that the visual cues for ice detection were adequate. Later testing revealed that the visual cues in freezing drizzle were adequate to provide identification of possible severe icing conditions. Nevertheless, a review of service history reveals that in several roll upset events in icing conditions, the flightcrew did not activate the de-ice system, and subsequently allowed the airspeed to decrease prior to the roll upset event. The fact that the flightcrews did not activate the de-ice system indicates that the flightcrews were either unaware of the ice accretion or underestimated the depth of ice accreted, and delayed activation of the de-ice system too long.

The FAA acknowledges the fact that the ice detector system does not have the ability to measure the amount of ice or to alert crews when icing environments are beyond the capability of the de-ice system. The FAA concurs that the visual cues associated with the SLD icing conditions, including ice on the propeller spinner farther aft than normally observed, are adequate to indicate severe icing conditions. Additionally, the FAA finds that the roll control characteristics testing in SLD conditions has shown that once the flightcrews are alerted that they are in icing conditions and activate the de-ice system, the handling characteristics are adequate to allow the crews to safely exit the severe icing conditions. Therefore, an adequate level of safety will be provided by alerting the crew that they are in icing conditions and requiring them to immediately activate the de-ice system. (Since the crew will be alerted to the presence of icing conditions, they will be able to monitor the aircraft for the visual cues associated with severe icing conditions, in accordance with the procedures currently provided in the FAA-approved AFM, and take appropriate action.)

The FAA does not concur that further research is warranted before issuance of the final rule. The visual cues available for detecting ice accumulation have already been defined for both Appendix C of part 25 of the Federal Aviation Regulations (14 CFR part 25), and SLD icing conditions; further research is unlikely to improve these available cues. However, the roll upset events indicate that flightcrews relying on these visual cues are not consistently activating the de-ice system at the proper time. Therefore, installation of an ice detection system which provides early and active annunciation to the flightcrew that they are in icing conditions, in conjunction with continuous flightcrew monitoring of the visual cues available, is necessary to provide an acceptable level of safety.

Installation of Ice Evidence Probe

One commenter indicates that it disagrees with the need to install an ice detection system. However, if the FAA requires some additional means other than visual cues to assist the crews in identifying icing conditions, the commenter suggests installing an ice evidence probe similar to the probe installed on Aerospatiale Model ATR series airplanes instead of an ice detector. Such a probe would indicate the first sign of ice on the airframe and would also be the last location to have ice sublimate from the airframe. The commenter states that the installation of this type of probe would require a minimum amount of time to install, and would take less time to train flightcrews in its operation than the proposed ice detection system.

The FAA does not concur that an ice evidence probe should be required to be installed in lieu of an ice detector. The FAA finds that the service histories of Model EMB–120 series airplanes and Aerospatiale Model ATR series airplanes warrant different approaches to satisfy an acceptable level of safety. An ice evidence probe is a passive device that would provide another visual indication of ice accretion, but would require the flightcrew to monitor and assess the appearance of the probe in order to be effective. Conversely, the ice detection system is an active system that provides an amber light on the multiple alarm panel, an aural warning system chime, and illumination of the master caution light. These multiple indications provide early and active notification to the flightcrew that they are in icing conditions. The ice detection system also provides a high level of pilot awareness without constant monitoring, and will increase the level of safety over the installation of a passive system such as an ice evidence probe. Consequently, the FAA has determined that the service history of Model EMB–120 series airplanes warrants installation of an ice detector to meet an acceptable level of safety.

Proposed Ice Detection System

One commenter states that ice detection equipment installed on an aircraft must have the capability of detecting all types and severity of ice accretions, as specified in Appendix C of part 25 of the Federal Aviation Regulations (14 CFR part 25), as well as those types and severities of ice accretions outside the scope of Appendix C. The commenter further states that such a system must also have the capability to differentiate between the two conditions and annunciate to the flightcrew which condition is being encountered. Additionally, the commenter states that monitoring of icing conditions should be conducted at all times during a flight. The commenter also states that any ice detection equipment installed on an aircraft should be considered an aid to flightcrew recognition and should not be considered a primary ice detection method.

The FAA does not concur with the commenter's suggestion that ice

detection equipment must have the capability to differentiate between the severity and types of ice accretion. The intent of this AD is to ensure that the flightcrew is able to recognize the formation of ice accretion and to take appropriate action. It is unnecessary to provide an ice detector that is capable of distinguishing between icing conditions that are defined in Appendix C and those icing conditions that are not defined in Appendix C in order to accomplish this intent.

The FAA has determined that the combination of early ice detection and the additional visual cues associated with severe icing conditions are adequate to determine if severe icing conditions have been encountered and should be exited. Additionally, the roll control characteristics testing of the Model EMB–120 series airplane in SLD conditions conducted in early 1996 has shown that once the flightcrew activates the de-ice system, the handling characteristics are adequate to allow the airplane to safely exit the severe icing conditions. The installation of an ice detection system, as required by the final rule, will provide a clear annunication of the presence of ice that will alert the flightcrew to monitor the aircraft for ice accumulation. The flightcrew will then be responsible for determining whether the visual cues associated with severe icing conditions are present and for taking appropriate action in accordance with procedures currently provided in the FAA-approved AFM. The FAA finds that reliance on the flightcrew to make this determination, in conjunction with the installation of an ice detection system, will provide an adequate level of safety.

The FAA concurs that the flightcrew has the primary responsibility for monitoring the icing conditions and for taking appropriate action. The FAA also concurs that the ice detection system required by the final rule is an aid to the flightcrew for early recognition of icing conditions. The FAA considers the definition of a ''primary'' ice detection system as one that is sufficiently reliable to serve as the sole source of information for flightcrew recognition of icing conditions. Primary systems do not require the flightcrew to monitor the icing conditions to determine if the ice protection equipment should be activated; the FAA does not consider the ice detection system required by the final rule as a ''primary'' system. Ice accumulation is signaled by either illumination of the ''ICE CONDITION'' light on the multiple alarm panel, or by flightcrew observation of other visual cues.

Installation of Ice Detector

One commenter states that compliance with § 25.1419 of the Federal Aviation Regulations (14 CFR 25.1419) concerning ice protection requirements is optional. The commenter also states that the FAA can only mandate operational limitations on the aircraft based on whether or not these requirements have been met. The commenter further states that such limitations could be so stringent that it would not be economical to operate the airplane in scheduled operations. Additionally, the commenter states that the need to install ice detection systems on the aircraft should be determined solely by the operator.

The FAA does not concur. As described in the NPRM, this AD is based on the FAA's finding that an unsafe condition exists on Model EMB–120 series airplanes, not that the type design does not comply with 14 CFR 25.1419. The FAA has determined that the operating limitations prescribed in this AD are necessary to address the identified unsafe condition. Therefore, the FAA is fully authorized under 49 U.S.C. 44701 and 14 CFR part 39 to impose these limitations by AD. The FAA considers these limitations to be highly cost effective, and the commenter has provided no information to the contrary.

Regarding the applicability of 14 CFR 25.1419, although the commenter is correct that compliance with this section is optional, the decision to comply is made only by applicants for type certificates (in this case, EMBRAER), and changes to those certificates, rather than by individual operators. EMBRAER chose to show compliance with 14 CFR 25.1419, and the Model EMB–120 is therefore permitted to operate in icing conditions.

Any operator that does not wish approval to operate into known or forecast icing conditions may request approval of an alternative method of compliance with the requirements of this AD in accordance with the provisions stated in paragraph (c) of the final rule.

Conflict With FAA's Inflight Aircraft Icing Plan

One commenter requests that the proposed rule be withdrawn because the FAA's Inflight Aircraft Icing Plan contains a task to consider a regulation to install ice detectors, aerodynamic performance monitors, or other means to warn flightcrews of ice accumulation on critical surfaces. Therefore, the commenter concludes that the proposed rule is in conflict with the FAA's Inflight Aircraft Icing Plan.

The FAA does not concur that the proposed rule conflicts with the FAA's Inflight Aircraft Icing Plan. As the commenter stated, the icing plan does identify a task to consider a regulation to require ice detectors. However, in the case of Model EMB–120 series airplanes, the FAA has identified an unsafe condition and has determined that installation of an ice detector is warranted. The potential for future adoption of a regulation to require an ice detector neither negates nor conflicts with the need to correct the existing unsafe condition.

AFM Procedures

One commenter requests that the FAA revise paragraph (a)(2) of the NPRM which currently requires revision of the ''. . . Normal Procedures Section of the AFM by removing any icing procedures that contradict the procedures specified in (a)(1) and (a)(3) of this AD. . . .'' The commenter requests that the FAA specify which portions of the Normal Procedures Section of the AFM should be revised rather than leaving this open to interpretation by individual operators.

One commenter requests that the FAA compare the recently proposed AFM changes in NPRM Docket Number 97–NM–46–AD to those AFM changes mandated by AD 96–09–24, amendment 39–9600 (61 FR 20677, May 7, 1996), as some of the procedures appear to conflict with one another. In particular, the commenter is concerned that the procedure in AD 96–09–24 indicates that flaps should be left wherever they are, whereas the current proposed rule indicates that flaps must be left up.

One commenter states that there is presently no guidance to many flightcrews to operate their deicing equipment at the first sign of ice accretions. The commenter further states that this guidance must first be evaluated for its validity and subsequently generated for flightcrew use.

Another commenter states that all temperature references and limitations specified in the proposed rule should be referenced in terms of Indicated Outside Air Temperature.

Two commenters request that the FAA review the language of the proposed AD specified in paragraph (a)(1) to validate whether continuous ignition should be used for extended periods of time. The current proposal is for a new limitation to require ''Turn on . . . Ignition Switches . . . When atmospheric or ground icing conditions exist.'' One of the commenters states

that operation of the ignition system on the ground while taxiing may mask other engine or fuel control problems. In addition, one commenter requests that the FAA review the language of the proposed AD to validate whether deicing equipment should be operated on the ground for extended periods of time.

One commenter notes that there is currently no guidance provided in the AFM concerning when to use the heavy or light modes of operation of the ice protection system.

One commenter questioned paragraph (a)(3) of the proposed AD, which states: ''Daily Checks of the Ice Protection System, add the following: Ice Detector System Test Button (if installed) * * * Press. Check normal test sequence.'' The commenter states that system reliability on similar aircraft do not require daily tests of this system, and that the system should be checked prior to dispatch into known or forecast icing conditions.

The FAA concurs that clarification is necessary to specify which portions of the Normal Procedures Section of the AFM should be revised. Since the issuance of the NPRM, the manufacturer has advised the FAA of new, revised procedures of the AFM. Therefore, the FAA has clarified and combined the requirements of paragraphs (a)(2) and (a)(3) of the proposal into a new paragraph (a)(2) of this final rule. The new paragraph (a)(2) of the final rule includes complete information to be incorporated into the AFM under the Normal Procedures Section for ''Operation in Icing Conditions for Flying into Icing Conditions.'' However, it should be noted that this information does not replace or revise any of the current AFM information provided under the subsequent section of the AFM regarding severe icing conditions.

The FAA does not concur that procedures specified in AD 96–09–24 conflict with the procedure of this final rule. AD 96–09–24 required revising the AFM to provide the flightcrew with recognition cues for severe icing conditions and procedures for exiting from severe icing conditions, and to limit or prohibit the use of various flight control devices, including flaps, in those severe icing conditions. The Limitations and Normal Procedures changes included in this final rule ensure that the flightcrew will be advised of when to operate the ice protection system during any icing condition. Therefore, the FAA finds that the change to AFM procedures do not conflict with the earlier AD requirements.

The FAA does not concur that operators (flightcrews) have not been provided guidance to operate the deicing equipment at the first sign of ice accretion. The FAA has approved Revision 43 of the AFM, dated April 23, 1996. This revision included a change in the Normal Procedures section for flight in icing conditions to indicate that wing and tail leading edges, engine air inlet, and windshield ice protection systems should be turned on at the first sign of ice formation. The originally approved AFM suggested a delay in activation of the wing and tail de-ice boots until ¼- to ½-inch ice had accumulated. However, the FAA recognizes that not all EMB–120 operators incorporated this change in procedures into their Operators Manuals. Therefore, the final rule requires that this procedure be added to the Limitations Section of the FAA-approved AFM, as well as in the Normal Procedures Section. As previously stated, Federal Aviation Regulations require that all operating limitations such as those specified in this AD be incorporated into air carriers' training programs and operators' manuals. In addition, as explained previously, the FAA has already determined the validity of the revised procedure to activate the ice protection systems at the first sign of ice accumulation, and has determined that this change is required in order to provide an adequate level of safety.

The FAA concurs that the temperature references specified in the final rule should be Indicated Outside Air Temperature, and has revised the final rule accordingly.

The FAA does not concur that continuous ignition should not be used for extended periods of time or that the operation of the ignition system on the ground while taxiing may mask other engine or fuel control problems. The FAA has reviewed information indicating that CTA, EMBRAER, and Pratt & Whitney have reviewed operation of continuous ignition, and the results indicate that extended use of continuous ignition does not have a detrimental effect on the operation of the engine, although it may decrease the life of the igniters. That information also indicated that engine or fuel control problems are diagnosed by monitoring other parameters available for the flightcrew. In addition, the FAA has reviewed the language of the AD concerning the extended operation of deicing equipment on the ground. The FAA has determined that operation of the deicing equipment for extended periods on the ground will not result in any adverse operating characteristics of the deicing equipment.

The FAA concurs that there is currently no guidance in the AFM regarding when, or under what conditions, to use the light or heavy modes of the ice protection system. However, the EMBRAER Operators Manual recommends that the pilot assess the severity and rate of accretion of ice and select the appropriate mode using pilot judgment. Paragraph (a)(2) of the final rule has been revised to provide that guidance by adding the following procedures in the Normal Procedures Section of the FAA-approved AFM under Operation in Icing Conditions for Flying into Normal Icing Conditions: ''Visually evaluate the severity of the ice encounter and the rate of accretion and select light or heavy mode (1 minute or 3 minute cycle) based on this evaluation.''

The FAA concurs that the ice protection system is required to be checked only once a day prior to dispatch into known or forecast icing conditions. The AFM change required by paragraph (a) of the final rule adds the ice detection system under ''Daily Checks of the Ice Protection System.'' Both the CTA and the FAA interpret this AFM guidance to mean that the daily checks of the ice protection system must be performed once a day before operation into known or forecast icing conditions, rather than before every flight into icing. To further clarify this procedure, the final rule has been revised to add the following procedures of the AFM under ''Daily Checks of the Ice Protection System:'' ''The following tests must be performed prior to the first flight of the day for which known or forecast icing conditions are anticipated.''

Minimum Airspeed in Icing Conditions

A number of commenters question the validity of the minimum airspeed specified in paragraph (a)(3) of the proposed AD that would require addition of the following: ''Operation in Icing Conditions for Flying Into Normal Icing Conditions: Airspeed * * * 160 KIAS Minimum. If buffet onset occurs, increase airspeed.''

One commenter states that buffet onset is dangerously close to the recommended minimum operating speed in icing conditions and should not be considered a prerequisite for speed additives. The commenter further states that the recommended minimum speed in icing lacks empirical data to substantiate its usage, and that any recommended minimum speeds must be scientifically determined.

Another commenter agrees that setting a clear 160-knot minimum airspeed in icing conditions will provide an immediate improvement in safety and should be implemented. However, the commenter questions whether the language provided in the proposed AD establishes appropriate speeds for all conditions (i.e., all flap settings and phases of flight) as proposed in the National Transportation Safety Board's Safety Recommendation A–97–31. The commenter also notes that further tests may show that a higher minimum airspeed is required to provide an adequate safety margin.

Several commenters also questioned the adequacy of the revised approach procedure specified in paragraph (a)(3) of the proposed AD which states: ''Operation in Icing Conditions for Flying Into Normal Icing Conditions: Approach procedure: Increase approach speeds (according to flap setting) by 10 KIAS until landing is assured.''

One commenter recommends the establishment of minimum operating speeds for each flap configuration to include no flaps, regardless of whether or not the aircraft is operating in icing conditions. With flaps up, the commenter recommends the use of 1.4Vs @ 30° bank; for approach procedures, the commenter recommends the use of 1.3Vs @ 30° bank. The commenter further recommends that climb procedures in the AFM be revised to reflect the higher speeds required with ice accumulation.

Another commenter asks what approach speed should be utilized since an approach speed has not been defined by the manufacturer.

The FAA concurs that clarification of the justification of the minimum airspeed specified in paragraph (a) of the proposal is necessary. The 160-knot minimum speed was defined by EMBRAER as the recommended holding speed for icing conditions during the original icing certification. The simulated ice shapes on unprotected surfaces used for the handling qualities and stall testing prior to icing approval were defined using the leading edge impingement criteria associated with this speed. These tests demonstrated that the aircraft can be maneuvered at this speed (160 KIAS) up to 30° of bank angle, the normal maximum bank angle for holding, with an adequate stall margin to the buffeting boundary, stick shaker, and stick pusher with these ice shapes on the aircraft. In addition, natural icing tests were conducted at this speed and ice shapes accumulated were recorded and compared to the simulated ice shapes to determine their validity. These tests demonstrate that the airplane meets the requirements specified in part 25 of the Federal Aviation Regulations (14 CFR part 25) during flight in icing conditions, provided the ice protection systems are properly activated. The flight tests also demonstrated that there is a minimum airspeed margin of at least 15 knots indicated airspeed (KIAS) in turns and 20 KIAS in level flight between the initial buffeting with ice on the unprotected surfaces, and the minimum recommended airspeed of 160 KIAS. Therefore, the FAA has determined that the recommended minimum speed with flaps up of 160 KIAS in icing conditions has not only been scientifically determined, but also has been validated by certification flight tests and has shown adequate margin to buffet boundary and to stall. Consequently, the FAA has determined that the procedure in the proposed rule that stated ''If buffet onset occurs, increase airspeed'' is not necessary, and has been removed from the final rule.

The FAA concurs that appropriate speeds for flap settings and phases of flight following flight in icing conditions should be provided in the final rule. The proposed AD provided a change to the Normal Procedures Section of the AFM that stated: ''When flying into known or forecast icing conditions, proceed as follows: AIRSPEED * * * 160 KIAS MINIMUM. If buffet onset occurs, increase airspeed.'' The FAA recognizes that this proposed change does not clearly indicate that this is the minimum speed for the flaps up, gear up configuration only. The FAA also acknowledges that, without clarification, some operators may be led to believe this is the minimum speed for all gear and flap configurations, even though additional proposed information states: ''Approach procedure: Increase approach speeds (according to flap setting) by 10 KIAS until landing is assured.''

Therefore, the FAA has revised the wording in paragraph (a) of this AD to clarify the procedures for flying into known or forecast icing conditions, approach and landing procedures, and go-around procedures.

The FAA has determined that this revised information will provide adequate information regarding minimum speeds to be used for all configurations after a continuous maximum icing encounter, which has been determined to provide the most severe ice accumulation on the airplane. The FAA has further determined that no change to the normal takeoff speeds is necessary as ice accumulation during this phase of flight with the ice protection system operating should have no impact on the flight characteristics of the airplane, provided the takeoff is accomplished with a properly de-iced aircraft.

The FAA does not concur with the commenter's recommendations for revision of in-flight minimum operating speeds. Those speeds are established by FAA regulations as V_2 speed for takeoff, a minimum speed of $1.25V_S$ to meet final takeoff climb requirements in the cruise configuration, and a climb speed established in connection with normal landing procedures, but not exceeding $1.5V_S$ to meet approach climb gradient requirements. Landing speed is required to be not less than $1.3V_S$ or the minimum control speed. These speeds, and their associated maneuver margins to stall warning, are in part defined by assuming an engine failure. Consideration is also given to ensuring adequate maneuver and stall warning margins as the wing trailing edge flaps are retracted or extended. Experience has shown these minimum speeds to be acceptable. Increasing the minimum operating speeds to those suggested would improve maneuver and stall warning margins beyond accepted levels. Moreover, use of the suggested higher flaps extended minimum operational speeds would significantly increase takeoff and landing field length requirements, and unnecessarily adversely affect the operating economics of the airplane. However, under the provisions of paragraph (c) of the final rule, the FAA may consider requests for approval of an alternative method of compliance if sufficient data are submitted to substantiate that such a design change would provide an acceptable level of safety.

The FAA concurs that the recommended approach speeds for operations in non-icing conditions are not clearly defined in the current FAA-approved AFM. Consequently, the final rule has been revised to include the following information in the Approach Checklist for Operation in Non-icing Conditions: ''Minimum Airspeed * * * Appropriate to Flap Position. Gear Up/Flaps 0, Minimum Recommended Airspeed 150 KIAS. Gear Up/Flaps 15, Minimum Recommended Airspeed 130 KIAS.'' The requirements of the final rule to increase approach speeds by 10 KIAS following flight in icing conditions would, therefore, give minimum approach speeds of 160 KIAS and 140 KIAS for flaps 0 and 15, respectively.

Incorporation of AFM Changes Into Operators Manuals

Several commenters expressed concern that the NPRM does not specify

how the changes to the Normal Procedures Section of the FAA-approved AFM will be implemented in operator flight manuals and training programs. This concern stems from the fact that although EMBRAER issued revision number 43 to the Normal Procedures Section of its AFM in April 1996 to require activating the de-ice boots ''at the first sign of ice formation,'' this new icing procedure has not yet been implemented by several operators.

The FAA acknowledges that the final rule does not specify how changes to the Normal Procedures Section of the AFM should be implemented in operator flight manuals and training programs. FAA Order 8400.10 recognizes that operators may rewrite these AFM procedures to tailor them to the operators' operation and to make them more suitable for flightcrew use in operation under parts 121 and 135 of the Federal Aviation Regulations (14 CFR parts 121 and 135). However, the FAA has chartered a team to review the process being used to transfer information in the manufacturer's flightcrew operating documents, including AFM's, to operators' documents. The team will make recommendations to revise the current process, which could lead to a higher level of safety. However, this issue is beyond the scope of this rulemaking, and no change has been made to the final rule.

Cost Impact Information

Two commenters state that the cost of retrofit will be substantially higher than the estimated cost in the NPRM if aircraft down time and canceled/rescheduled equipment are considered.

One commenter requests an explanation as to why a complete cost-benefit analysis is unnecessary and redundant. This commenter states that the explanation given in the NPRM relates to FAA's position not to consider additional costs of accomplishment of the AD after a determination has been made by the FAA that an unsafe condition exists in a product. Nevertheless, the commenter believes a cost-benefit analysis should be used to determine if a rule should be adopted in the first place.

The FAA acknowledges the concerns of the commenters of the cost of retrofit required by this final rule. The FAA recognizes that, in accomplishing the requirements of any AD, operators may incur other costs in addition to the ''direct'' costs that are estimated in the cost impact. However, the FAA makes every effort to consider all other costs (such as downtime and canceled/rescheduled equipment, etc.) to operators in establishing the terms of compliance in a AD. For example, the FAA generally establishes AD compliance times that coincide with most operators' maintenance schedules, unless safety considerations dictate more urgent corrective action. The FAA also frequently revises AD's when commenters identify less costly alternatives to address the unsafe condition.

Finally, since the issuance of the NPRM, EMBRAER has issued Service Bulletin No. 120–30–0027, dated May 9, 1997, which describes procedures for installation of an ice detector that will enable the flightcrew to more accurately determine the need to activate the ice protection systems on the airplane and to take appropriate action. The service bulletin includes specific costs for the installation of the ice detector. Those figures have enabled the FAA to provide a more realistic estimate in the cost impact section of the final rule.

The FAA does not concur that further discussion is necessary to explain why a complete cost-benefit analysis is unnecessary and redundant, since those reasons were stated in the NPRM. Further, the FAA does not concur that a cost-benefit analysis should be used to determine if a rule should be adopted in the first place. Once an unsafe condition is identified, as in this case, it must be corrected regardless of cost. When the FAA has determined what actions are necessary to correct an unsafe condition, the FAA is obligated to require that those actions be accomplished. This obligation arises from the statutory requirement that the FAA, not aircraft operators, determines the minimum required safety standards for civil aircraft. Therefore, it would be inappropriate in issuing AD's for the FAA to engage in the same kind of balancing of costs and benefits as when it is considering regulations to improve an already high level of safety. If an operator has an alternative method of compliance that would ease the economic burden for the operator, as well as provide an acceptable level of safety, the operator may request approval of that alternative method of compliance, as provided by paragraph (c) of the final rule.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 282 EMBRAER Model EMB–120 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 220 airplanes of U.S. registry will be affected by this AD.

The FAA estimates that it will take approximately 1 work hour per airplane to accomplish the AFM revisions, and that the average labor rate is $60 per work hour. Based on these figures, the cost impact of the AD on U.S. operators is estimated to be $13,200, or $60 per airplane.

The FAA estimates that it will take approximately 47 work hours per airplane to accomplish the proposed installation, and that the average labor rate is $60 per work hour. Required parts will cost approximately $13,054 per airplane. Based on these figures, the cost impact of the proposed AD on U.S. operators is estimated to be $3,492,280, or $15,874 per airplane.

The cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted.

Regulatory Impact

The regulations adopted herein will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this action (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption **ADDRESSES.**

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

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

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

97–26–06 Empresa Brasileira de Aeronautica, S.A., (EMBRAER): Amendment 39–10249. Docket 97–NM–46–AD.

Applicability: All Model EMB–120 series airplanes, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been otherwise modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (c) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To ensure that the flightcrew is able to recognize the formation of significant ice accretion, which could result in reduced controllability of the airplane in normal icing conditions, accomplish the following:

(a) Within 30 days after the effective date of this AD, accomplish paragraphs (a)(1) and (a)(2) of this AD.

(1) Revise the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) to include the following requirements for activation of the ice protection systems. This may be accomplished by inserting a copy of this AD in the AFM.

''TURN ON ICE PROTECTION SYSTEM and IGNITION SWITCHES AS FOLLOWS:

• AOA, TAT, SLIP, ENGINE AIR INLET, and IGNITION SWITCHES:

—When atmospheric or ground icing conditions exist.

• PROPELLER:

—When atmospheric or ground icing conditions exist, OR

—At the first sign of ice formation anywhere on the aircraft.

WING and TAIL LEADING EDGES, and WINDSHIELD:

—At the first sign of ice formation anywhere on the aircraft.

Note: On takeoff, delay activation of the wing and tail leading edge de-ice systems until reaching the final segment speed.

Note: Atmospheric icing conditions exist when:

—Indicated Outside Air Temperature (OAT) during ground operations or Total Air Temperature (TAT) in flight is 10 degrees C or below; and

—Visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet, or ice crystals).

Note: Ground icing conditions exist when:

—Indicated OAT during ground operations is 10 degrees C or below; and

—Surface snow, standing water, or slush is present on the ramps, taxiways, or runways.

Note: For Operation in Atmospheric Icing Conditions:

—Follow the procedures in the Normal Procedures Section under Operation in Icing Conditions.''

(2) Revise the Normal Procedures Section of the FAA-approved Airplane Flight Manual (AFM) to include the following additional and revised information regarding operation in icing conditions. This may be accomplished by inserting a copy of this AD in the AFM.

''Under DAILY CHECKS of the Ice Protection System, add the following:

The following tests must be performed prior to the first flight of the day for which known or forecast icing conditions are anticipated.

Ice Detector System TEST Button (if installed).....PRESS

Check normal test sequence.

Under APPROACH Checklist, add the following:

Minimum Airspeed.....APPROPRIATE TO FLAP POSITION (See Table Below)

Gear/Flap	Minimum Recommended Airspeed
UP/0°	150 KIAS
UP/15°	130 KIAS

Under OPERATION IN ICING CONDITIONS for FLYING INTO ICING CONDITION, *replace* the current AFM section information for normal icing conditions with the following:

—During flight, monitoring for icing conditions should start whenever the indicated outside air temperature is near or below freezing or when operating into icing conditions, as specified in the Limitations Section of this manual.

—When operating in icing conditions, the front windwhield corners (unheated areas), propeller spinners, and wing leading edges will provide good visual cues of ice accretion.

—For airplanes equipped with an ice between system, icing conditions will also be indicated by the illumination of the ICE CONDITION light on the multiple alarm panel.

—When atmospheric or ground icing conditions exist, proceed as follows:

AOA, TAT, SLIP, and ENGINE AIR INLET .....ON

IGNITION Switches .....ON

AIRSPEED (Flaps and Gear UP) .....160 KIAS MINIMUM

—When atmospheric or ground icing conditions exist, OR

—At the first sing of ice formation any where on the aircraft, proceed as follows:

PROPELLER Deicing Switch.....ON

Select NORM mode if indicated OAT is above −10° C (14° F) or COLD mode if indicated OAT is below −10° C (14° F).

—At the first sign of ice formation anywhere on the aircraft, proceed as follows:

WINDSHIELD .....ON

WING and TAIL LEADING EDGE.....ON

Visually evaluate the severity of the ice encounter and the rate of accretion and select light or heavy mode (1 minute or 3 minute cycle) based on this evaluation.

Note: On takeoff, delay activation of the wing and tail leading edge de-ice systems until reaching the final segment speed.

Note: The minimum NH required for proper operation of the pneumatic deicing system is 80%. At lower NH values, the pneumatic deicing system may not totally inflate, and the associated failure lights on the overhead panel may illuminate. If this occurs, increase NH.

Holding configuration:

Landing Gear Lever.....UP

Flap Selector Lever .....UP

N_p .....85% MINIMUM

Increase N_p as required to eliminate propeller vibrations.

Approach and Landing procedure:

Increase approach and landing speeds, according to the following flap settings, until landing is assured. Reduce airspeed to cross runway threshold (50 ft) at $V_{REF.}$

Flaps 15—Increase Speed by 10 KIAS (130+10)

Flaps 25—Increase Speed by 10 KIAS (V_{REF25}+10)

Flaps 45—Increase Speed by 5 KIAS (V_{REF45}+5)

Go-Around procedure:

Reduce values from Maximum Landing Weight Approach Climb Limited charts by:

1500 lbs. for PW 118 Engines

1544 lbs. for PW 118A and 118B Engines

Flaps 15—Increase approach climb speed by 10 KIAS (V_2+10); Decrease approach climb gradient by:

3.0% for PW 118 Engines

2.9% for PW 118A and 118B Engines

Flaps 25—Increase landing climb speed by 10 KIAS (V_{REF25}+10)

Flaps 45—Increase landing climb speed by 5 KIAS (V_{REF}+5)

CAUTION: The ice protection systems must be turned on immediately (except leading edge de-icers during takeoff) when the ICE CONDITION light illuminates on the multiple alarm panel or when any ice accretion is detected by visual observation or other cues.

CAUTION: Do not interrupt the automatic sequence of operation of the leading edge de-ice boots once it is turned ON. The system should be turned OFF only after leaving the icing conditions and after the protected surfaces of the wing are free of ice.

(b) Within 10 months after the effective date of this AD, install an ice detector in accordance with EMBRAER Service Bulletin No.: 120–30–0027, dated May 9, 1997.

(c) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Atlanta ACO. Operators shall submit their requests through an appropriate FAA Principal Operations Inspector, who may add comments and then send it to the Manager, Atlanta ACO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Atlanta ACO.

(d) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

(e) The installation of the ice detector shall be done in accordance with EMBRAER Service Bulletin No. 120–30–0027, dated May 9, 1997. This incorporation by reference was approved by the Director of the **Federal Register** in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from EMBRAER, Empresa Brasileira De Aeronautica S/A, Sao Jose Dos Campos, Brazil. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the **Federal Register**, 800 North Capitol Street, NW., suite 700, Washington, DC.

(f) This amendment becomes effective on January 23, 1998.

Issued in Renton, Washington, on December 11, 1997.

Gilbert L. Thompson,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 97–33000 Filed 12–18–97; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF THE TREASURY

Customs Service

19 CFR Part 4

[T.D. 98–3]

RIN 1515—AC27

Addition of Hong Kong to the List of Nations Entitled to Special Tonnage Tax Exemption

AGENCY: U.S. Customs Service, Department of the Treasury.

ACTION: Final rule.

SUMMARY: Pursuant to information provided by the Department of State, the United States Customs Service has found that Hong Kong does not impose or levy any discriminating duties of tonnage or imposts upon vessels wholly belonging to citizens of the United States, or upon the produce, manufactures, or merchandise imported in these vessels from the United States or any foreign country and that, accordingly, vessels of Hong Kong are exempt from the payment of special tonnage taxes and light money in ports of the United States. This document amends the Customs Regulations by adding Hong Kong to the list of nations whose vessels are exempt from the payment of any higher tonnage duties than are applicable to vessels of the United States and from the payment of light money.

EFFECTIVE DATE: The amendment to the 19 CFR 4.22 is effective on December 19, 1997. The exemption from special tonnage tax and light money for vessels registered in Hong Kong became effective on July 1, 1997.

FOR FURTHER INFORMATION CONTACT: Craig Clark, Entry and Carrier Rulings Branch (202) 927–2320.

SUPPLEMENTARY INFORMATION:

Background

Generally, the United States imposes regular and special tonnage taxes, and a duty of a specified amount per ton denominated ''light money'', on all foreign vessels which enter United States ports (46 U.S.C. App. 121 and 128). Vessels of a foreign nation, however, may be exempted from the payment of such special tonnage taxes and light money upon presentation of satisfactory proof that no discriminatory duties of tonnage or impost are imposed by that foreign nation on United States vessels or their cargoes (46 U.S.C. App. 141). The list of nations whose vessels have been found to be reciprocally exempt from the payment of any higher tonnage duties than are applicable to vessels of the United States and from the payment of light money is found at § 4.22, Customs Regulations (19 CFR 4.22). Nations granted these commercial privileges that subsequently impose discriminatory duties are subject to retaliatory suspension of the commercial privileges (46 U.S.C. App. 141 and 142).

Treatment of Hong Kong

On July 1, 1997, Hong Kong became a Special Administrative Region of the People's Republic of China. Before that date, vessels from Hong Kong had an exemption from special tonnage tax by virtue of Hong Kong's status as a British colony.

The Department of State has requested that Customs add Hong Kong to the list of nations under § 4.22 in order that vessels from Hong Kong receive the same treatment as they did prior to July 1, 1997. In addition, the Department of State has submitted information regarding the absence of discriminatory duties of tonnage or impost imposed on U.S. vessels in the ports of Hong Kong.

The Department of State's request is consistent with the terms of section 2 of the Act of October 5, 1992, referred to as the United States-Hong Kong Policy Act (Pub. L. 102–383, 106 Stat. 1448) codified in title 22, United States Code, section 5701, *et seq.*, which embodies the policy of the United States applicable to dealing with Hong Kong following reversion, including trade and commerce matters. That law demonstrates that dealings with Hong Kong after June 30, 1997, are to be conducted without change until and unless the Administration (the President) makes a determination that different treatment is warranted.

Finding

Based on the request and information submitted by the Department of State, and based on 22 U.S.C. 5701, *et seq.*, in order that vessels from Hong Kong remain exempt from the payment of special tonnage tax following reversion, the Customs Service has determined that Hong Kong should be added to the list of nations contained in 19 CFR 4.22, effective July 1, 1997. The Customs Regulations are amended accordingly.

Inapplicability of Public Notice and Delayed Effective Date Requirements, the Regulatory Flexibility Act, and Executive Order 12866

Because this amendment merely implements a statutory requirement and confers a benefit upon the public, pursuant to 5 U.S.C. 553(b)(B), notice and public procedure are unnecessary; further, for the same reasons, good cause exists for dispensing with a delayed effective date under 5 U.S.C. 553(d)(1) and (3). Since this document is not subject to the notice and public procedure requirements of 5 U.S.C. 553, it is not subject to the provisions of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). Furthermore, this amendment does not meet the criteria for a ''significant regulatory action'' as specified in Executive Order 12866.

List of Subjects in 19 CFR Part 4

Cargo vessels, Customs duties and inspection, Maritime carriers, Vessels.