DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[FR Doc No: 2011-2435]

SUMMARY: We are adopting a new airworthiness directive (AD) for the products listed above. This AD requires installing two warning level indicator lights on the P2-2 center instrument panel in the flight compartment for certain airplanes. For a certain other airplane, this AD requires activating the cabin altitude warning and takeoff configuration warning lights. For all airplanes, this AD also requires revising the airplane flight manual to remove certain requirements included by previous AD actions, requires new pressure altitude limitations for certain airplanes, and advises the flightcrew of the following changes: revised emergency procedures to use when a cabin altitude warning or rapid depressurization occurs, and revised cabin pressurization procedures for normal operations. This AD was prompted by a design change in the cabin altitude warning system that would address the identified unsafe condition. We are issuing this AD to prevent failure of the flightcrew to recognize and react properly to a valid cabin altitude warning horn, which could result in incapacitation of the flightcrew due to hypoxia (lack of oxygen in body), and consequent loss of control of the airplane.

DATES: This AD is effective March 14, 2011.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of March 14, 2011.

ADDRESSES: For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet https://www.myboeingfleet.com. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.
Examining the AD Docket

You may examine the AD docket on the Internet at http://www.regulations.gov; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Jeffrey W. Palmer, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; phone: (425) 917-6472; fax: (425) 917-6590; e-mail: Jeffrey.W.Palmer@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to the specified products. That NPRM published in the Federal Register on August 11, 2010 (75 FR 48620). That NPRM proposed to require installing two warning level indicator lights on the P2-2 center instrument panel in the flight compartment for certain airplanes. For a certain other airplane, that NPRM proposed to require activating the cabin altitude warning and takeoff configuration warning lights. For all airplanes, that NPRM proposed to also require revising the airplane flight manual (AFM) to remove certain requirements included by previous AD actions, to require new pressure altitude limitations for certain airplanes, and to advise the flightcrew of the following changes: revised emergency procedures to use when a cabin altitude warning or rapid depressurization occurs, and revised cabin pressurization procedures for normal operations.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and the FAA’s response to each comment.

Support for the NPRM

The Air Line Pilots Association, International supports the proposed AD.

Request to Delay Rule Pending Additional Service Information

Lufthansa requested that the FAA consider the release of Boeing Service Bulletin 737-21-1164 before releasing the AD. Lufthansa stated that Boeing has recommended that operators consider doing the modifications specified in Boeing Service Bulletin 737-21-1164 and Boeing Alert Service Bulletin 737-31A1325, dated January 11, 2010, at the same time, because both modifications require access to the same area of the airplane and extensive airplane downtime. However, Lufthansa pointed out that Boeing Service Bulletin 737-21-1164 has not yet been published; therefore, releasing the AD before Boeing Service Bulletin 737-21-1164 is released would require operators to accomplish the modifications separately, doubling the time and cost of the modifications.

We do not agree to delay this AD pending release of an unrelated service bulletin. Accomplishment of Boeing Service Bulletin 737-21-1164 installs a second 10,000-foot cabin altitude pressure switch, which is not related to the unsafe condition identified by this AD. To delay this
action until the manufacturer can release a planned service bulletin would be inappropriate, since we have determined that an unsafe condition exists and that the required actions must be accomplished to ensure continued safety. Once the planned service bulletin is developed, approved, and available, we might consider additional rulemaking. However, under the provisions of paragraph (l) of the final rule, we will consider requests for approval of an extension of the compliance time if sufficient data are submitted to substantiate that the change would provide an acceptable level of safety. We have not changed this AD in this regard.

**Request To Revise the Proposed Costs of Compliance**

Continental Airlines (Continental) stated that the estimated costs of compliance for doing the modification are significantly low for the following reasons:

- Boeing Alert Service Bulletin 737-31A1325, dated January 11, 2010, specifies an estimate of 32.5 work-hours to do the modification. Continental declared that it has historically found that Boeing estimates given in service bulletins are unachievable. Continental believed it would be possible to accomplish the modification in approximately 50 work hours, if the modification is done during a heavy maintenance visit.

- If the proposed compliance time remains 36 months, Continental asserted that some airplanes will have to be modified on "special holds" and the added cost would be significant because there is much more access, close-up, and testing necessary. Continental estimates that airplanes modified while on "special holds" will require 120 work hours, and that cost of lost revenue while the airplane is out of service for 5 days would be $220,000 per airplane.

- Continental stated that the FAA did not account for material costs, and pointed out that Boeing Service Bulletin 737-31A1325, dated January 11, 2010, lists a kit that costs $2,738 and is required for each airplane.

From these statements, we infer that Continental is requesting that we revise the proposed estimated costs for accomplishing the modification specified in paragraph (g) of the proposed AD. We do not agree. In establishing the requirements of all ADs, we do consider cost impact to operators beyond the estimates of parts and labor costs contained in AD preambles. For example, where safety considerations allow, we attempt to set compliance times that generally coincide with operators' maintenance schedules. However, because operators' schedules vary substantially, we cannot accommodate every operator's optimal scheduling in each AD. Each AD does allow individual operators to obtain approval for extensions of compliance times, based on a showing that the extension will not affect safety adversely. Therefore, we do not consider it appropriate to attribute to the AD the costs associated with the type of special scheduling that might otherwise be required.

Furthermore, we do not consider it appropriate to attribute the costs associated with aircraft "down time" to the AD. Normally, compliance with the AD will not necessitate any additional down time beyond that of a regularly scheduled maintenance hold. Even if additional down time is necessary for some airplanes in some cases, we do not have sufficient information to evaluate the number of airplanes that may be so affected or the amount of additional down time that may be required. Therefore, we are unable to estimate such costs.

Additionally, we point out that Boeing service bulletins generally include task hours necessary to do only the change for each airplane, excluding lost time. Boeing, in service bulletins, also specifically advises operators to adjust the task-hour estimates with operator task-hour data, if necessary.

We have not changed the AD in this regard.

**Request To Extend Proposed Compliance Time**

Continental recommended that the proposed compliance time of 36 months for installing warning indicator lights should be extended to 60 months, which would fall during a heavy maintenance visit. Continental asserted that it operates 37 Model 737-500 airplanes that would be
affected by the NPRM, and that modifying all of these airplanes within 36 months would impose an undue economic burden.

We do not agree with Continental’s request to extend the compliance time. We recognize that in some cases, it might be necessary for operators to accomplish the requirements of the AD outside of normal scheduled maintenance cycles. However, in developing an appropriate compliance time for this action, we considered the urgency associated with the subject unsafe condition, and the practical aspect of accomplishing the required modification within a period of time that corresponds to the normal scheduled maintenance for most affected operators. Based on the available data, we have determined that a compliance time of 36 months is the longest compliance time we can allow that would provide an adequate level of safety. However, under the provisions of paragraph (l) of the final rule, we will consider requests for approval of an extension of the compliance time if sufficient data are submitted to substantiate that the new compliance time would provide an acceptable level of safety. We have not changed the AD in this regard.

**Request To Add Baseline Maximum Takeoff/Landing Altitude for Model 737-100 and -200 Airplanes**

Boeing requested that we consider adding a baseline maximum takeoff and landing altitude of 8,300 feet for Model 737-100 and -200 airplanes. Boeing pointed out that the NPRM contains an 8,400-foot pressure altitude as a function of the baseline maximum takeoff and landing altitude for the Model 737-300, -400, and -500 airplanes. Therefore, Boeing contended that the new baseline maximum takeoff and landing altitude should be added for the Model 737-100 and -200 airplanes to avoid confusion.

We do not agree to add a baseline maximum takeoff and landing altitude of 8,300 feet for Model 737-100 and -200 airplanes. We have verified that there are no Model 737-100 or -200 airplanes with high-altitude deviations approved between 8,300 and 8,400 feet. Therefore, the statement in paragraph (i)(1)(ii) of this AD accurately considers all Model 737 Classic airplanes as appropriate. We have not changed this AD in this regard.

**Request To Revise AFM Requirement Specified in Paragraph (i)(2)(i) of the NPRM**

Boeing requested that we revise paragraph (i)(2)(i) of the NPRM to correct the title of the procedure that is to be deleted. Boeing asserted that the procedure title specified in paragraph (i)(2)(i) of the NPRM no longer exists, as the title was changed according to FAA Alternative Method of Compliance (AMOC) Letter 130S-09-134a, dated April 28, 2009.

We partially agree. We do not agree to delete reference to the procedure titled "WARNING HORN—CABIN ALTITUDE OR CONFIGURATION," because all AFMs might not have been changed according to FAA AMOC Letter 130S-09-134a. Additionally, that procedure title is included in the existing requirements of AD 2006-13-13, and, therefore, it is necessary for this AD to refer to the procedure title specified in that AD. However, some AFMs have been revised according to FAA AMOC Letter 130S-09-134a; therefore, we agree to revise paragraph (i)(2)(i) of this AD to address airplanes with AFMs that have been revised according to FAA AMOC Letter 130S-09-134a.

**Request To Revise AFM Terminology Specified in Paragraph (i)(2)(iv) of the NPRM**

Boeing requested that we revise the AFM text proposed in paragraph (i)(2)(iv) of the NPRM to change "Descent" to "Rapid Descent." Boeing requested this change to clarify the proposed AFM wording.

We partially agree. We do agree to change "Descent" in the AFM text required by paragraph (i)(2)(iv) of this AD. We have determined that "Descent" is not the proper terminology to use in this AFM text. However, we do not agree to change "Descent" to "Rapid Descent," because that term is
also not accurate. We have determined that the correct terminology is "Emergency Descent." Therefore, we have revised the AFM text required by paragraph (i)(2)(iv) of this AD to refer to "Emergency Descent."

**Request To Revise AFM Requirement Specified in Paragraph (i)(2)(iv) of the NPRM**

Boeing requested that we revise paragraph (i)(2)(iv) of the NPRM to add certain steps in the AFM text. Boeing asserted that this change is necessary to standardize the cabin altitude warning procedure across all Boeing airplane models.

We partially agree. We agree that the additional steps proposed by Boeing would be beneficial, add clarity and specificity, and contribute to standardization across Boeing airplane models. However, we do not agree that this AD should require these additional steps. Requiring these additional steps would alter the actions currently required by this AD, so additional rulemaking would be required. We have determined that the proposed AFM text is adequate, and that delaying this action would be inappropriate in light of the identified unsafe condition. However, because we agree that the additional steps would be beneficial, we have revised this AD to add a new paragraph (i)(2)(v) to include the additional steps as an option, so that operators may use the additional steps if they choose.

**Request To Revise AFM Requirement Specified in Paragraph (i)(3)(ii) of the NPRM**

Boeing requested that we revise paragraph (i)(3)(ii) of the NPRM to remove the requirement to add "For normal operations, the pressurization mode selector should be in AUTO prior to takeoff." Boeing pointed out that this step is already included in the "Boeing Preflight Procedures–First Officer."

We do not agree. We have determined that, because there is relevant accident history associated with incorrect setting of this specific switch, continued emphasis on the proper positioning of this switch prior to takeoff is necessary. Therefore, because this step is being eliminated by this AD, which terminates the requirements of AD 2006-13-13, this step must be added back into the AFM to emphasize the correct setting of this switch. We have not changed this AD in this regard.

**Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously.

We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

**Costs of Compliance**

We estimate that this AD will affect 741 airplanes of U.S. registry. We estimate the following costs to comply with this AD:

<table>
<thead>
<tr>
<th>Estimated costs</th>
<th>Action</th>
<th>Labor cost</th>
<th>Parts cost</th>
<th>Cost per product</th>
<th>Cost on U.S. operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation of warning indicator lights</td>
<td>20 work-hours X $85 per hour = $1,700</td>
<td>$2,738</td>
<td>$4,438</td>
<td>$3,288,558</td>
<td></td>
</tr>
</tbody>
</table>
Activation of the cabin altitude warning system/takeoff configuration warning lights (one airplane) | 1 work-hour X $85 per hour = $85 | $0 | $85 | $85

AFM revision | 1 work-hour X $85 per hour = $85 | $0 | $85 | $62,985

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in subtitle VII, part A, subpart III, section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect 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.

For the reasons discussed above, I certify that this AD:

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),
3. Will not affect intrastate aviation in Alaska, and
4. 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.

List of Subjects in 14 CFR Part 39

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

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):
2011-03-14 The Boeing Company: Amendment 39-16598; Docket No. FAA-2010-0761; Directorate Identifier 2010-NM-069-AD.

Effective Date

(a) This AD is effective March 14, 2011.

Affected ADs

(b) This AD affects the ADs identified in paragraphs (b)(1), (b)(2), and (b)(3) of this AD. This AD does not supersede the requirements of these ADs.
   (1) AD 2008-23-07, Amendment 39-15728.
   (2) AD 2006-13-13, Amendment 39-14666.
   (3) AD 2003-03-15 R1, Amendment 39-13366.

Applicability

(c) This AD applies to the airplanes, certificated in any category, identified in paragraphs (c)(1) and (c)(2) of this AD.

Subject

(d) Air Transport Association (ATA) of America Code 31: Instruments.

Unsafe Condition

(e) This AD results from a design change in the cabin altitude warning system that would address the identified unsafe condition. The Federal Aviation Administration is issuing this AD to prevent failure of the flightcrew to recognize and react properly to a valid cabin altitude warning horn, which could result in incapacitation of the flightcrew due to hypoxia (lack of oxygen in body) and consequent loss of control of the airplane.

Compliance

(f) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

Installation of Warning Indicator Lights

(g) For airplanes identified in Boeing Alert Service Bulletin 737-31A1325, dated January 11, 2010: Within 36 months after the effective date of this AD, install two warning level indicator lights
on the P2-2 center instrument panel in the flight compartment, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-31A1325, dated January 11, 2010.

Activation of Warning Indicator Lights

(h) For airplanes identified in Boeing Alert Service Bulletin 737-31A1398, dated January 7, 2010: Within 36 months after the effective date of this AD, activate the cabin altitude warning and takeoff configuration warning lights, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-31A1398, dated January 7, 2010.

Airplane Flight Manual (AFM) Revisions

(i) Before further flight after doing the installation or activation of the warning lights required by paragraph (g) or (h) of this AD, do the actions specified in paragraphs (i)(1), (i)(2), and (i)(3) of this AD.

(1) Revise the Limitations Section of the applicable Boeing 737 AFM by doing the actions specified in paragraphs (i)(1)(i) and (i)(1)(ii) of this AD.

(i) Delete the "CABIN ALTITUDE WARNING TAKEOFF BRIEFING" added by AD 2008-23-07.

(ii) Add the following statement. This may be done by inserting a copy of this AD into the applicable AFM.

"For airplanes approved for maximum takeoff and landing altitudes above 8,400 feet pressure altitude, change the limitation for Maximum Takeoff and Landing pressure altitude as follows: With the CABIN ALTITUDE and TAKEOFF CONFIG lights installed and operative on those airplanes without the High Altitude Landing switch installed, maximum takeoff and landing altitude is limited to 9,000 feet pressure altitude."

(2) Revise the Emergency Procedures Section of the applicable Boeing 737 AFM by doing the actions specified in paragraphs (i)(2)(i), (i)(2)(ii), (i)(2)(iii), and (i)(2)(iv) of this AD.

(i) Delete the procedure "WARNING HORN–CABIN ALTITUDE OR CONFIGURATION" added by AD 2006-13-13. If the title of this procedure has been changed according to FAA Alternative Method of Compliance AMOC Letter 130S-09-134a, dated April 28, 2009, delete the procedure approved according to that AMOC letter.

(ii) Delete the procedure entitled "CABIN ALTITUDE WARNING OR RAPID DEPRESSURIZATION" added by AD 2003-03-15 R1 and modified by paragraph (g) of AD 2006-13-13.

(iii) If the procedure entitled "CABIN ALTITUDE (Airplanes with the CABIN ALTITUDE lights installed)" is currently contained in the applicable Boeing 737 AFM, delete the procedure entitled "CABIN ALTITUDE (Airplanes with the CABIN ALTITUDE lights installed)."

(iv) Add the following statement. This may be done by inserting a copy of this AD into the applicable AFM.

"CABIN ALTITUDE WARNING OR RAPID DEPRESSURIZATION (required by AD 2011-03-14)

Condition: The CABIN ALTITUDE warning light illuminates or the intermittent warning horn sounds in flight above 10,000 ft MSL."
RECALL
Oxygen Masks and Regulators……………..ON, 100%
Crew Communications…………………….ESTABLISH

REFERENCE
Pressurization Mode Selector………………MANUAL
Outflow Valve Switch……………………..CLOSE

If Cabin Altitude is uncontrollable:

Emergency Descent (If Required)…………..INITIATE
Passenger Oxygen Switch…………………..ON

(v) The following steps may be added to the AFM procedure specified by paragraph (i)(2)(iv) of this AD. These steps should be added following "Passenger Oxygen Switch * * * On."

"Thrust Levers………………………….CLOSE
Speed Brakes………………………….FLIGHT DETENT
Target Speed………………………….VMO/MMO"

(3) Revise the Normal Procedures Section of the applicable Boeing 737 AFM by doing the actions specified in paragraphs (i)(3)(i) and (i)(3)(ii) of this AD.
   (i) Delete the "CABIN ALTITUDE WARNING TAKEOFF BRIEFING" procedure added by AD 2008-23-07.
   (ii) Add the following statement. This may be done by inserting a copy of this AD into the applicable AFM.

   "For normal operations, the pressurization mode selector should be in AUTO prior to takeoff. (Required by AD 2011-03-14)"

Note 1: When statements identical to those specified in paragraphs (i)(1)(ii), (i)(2)(iv), and (i)(3)(ii) of this AD have been included in the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copies of this AD may be removed from the AFM.

Terminating Action for Affected ADs

(j) Accomplishment of the requirements of this AD terminates the specified requirements of the ADs identified in paragraphs (j)(1), (j)(2), and (j)(3) of this AD, for only the airplanes identified in paragraphs (c)(1) and (c)(2) of this AD.
   (1) AD 2008-23-07: All requirements of that AD.
   (2) AD 2006-13-13: All requirements of that AD.
   (3) AD 2003-03-15 R1: The requirements specified in paragraph (a), Table 2, and Figures 2 and 3 of that AD.

Special Flight Permit

(k) Special flight permits, as described in Section 21.197 and Section 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199), are not allowed.
Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Jeffrey W. Palmer, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6472; fax (425) 917-6590. Information may be e-mailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

Related Information

(m) For more information about this AD, contact Jeffrey W. Palmer, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; phone: (425) 917-6472; fax: (425) 917-6590; e-mail: Jeffrey.W.Palmer@faa.gov.

Material Incorporated by Reference

(n) You must use Boeing Alert Service Bulletin 737-31A1325, dated January 11, 2010; or Boeing Alert Service Bulletin 737-31A1398, dated January 7, 2010; as applicable; to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of the service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet https://www.myboeingfleet.com.

(3) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at an NARA facility, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Issued in Renton, Washington, on January 25, 2011.
Ali Bahrami, Manager, Transport Airplane Directorate, Aircraft Certification Service.