[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0304; Product Identifier 2018-NM-065-AD; Amendment 39-19261; AD 2018-09-05]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: We are adopting a new airworthiness directive (AD) for The Boeing Company Model 787-8 and 787-9 airplanes powered by Rolls-Royce plc (RR) Trent 1000-A2, Trent 1000-AE2, Trent 1000-C2, Trent 1000-CE2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2 turbofan engines. This AD requires revising the airplane flight manual (AFM) to limit extended operations (ETOPS). This AD was prompted by a report from the engine manufacturer indicating that after an engine failure, prolonged operation at high thrust settings on the remaining engine during an ETOPS diversion may result in failure of the remaining engine before the diversion can be safely completed. We have determined that updated AFM limitations are needed to minimize the potential for intermediate pressure compressor (IPC) blade failures under certain conditions. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

We must receive comments on this AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Examining the AD Docket

You may examine the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2018-0304; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The street address for Docket Operations (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Tak Kobayashi, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3553; email: Takahisa.Kobayashi@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

Over the past year, we have been aware of several engine failures of Trent 1000 Package C engines due to failed compressor and turbine blades and seals. Package C engines are RR Trent 1000-A2, Trent 1000-AE2, Trent 1000-C2, Trent 1000-CE2, Trent

1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2 turbofan engines. During that same period, under the management programs for those engine issues, we have been aware of numerous reports of engine inspection findings of cracked blades resulting in unscheduled engine removals. Boeing reported to the FAA that the engine manufacturer recently determined that IPC stage 2 blades have a resonant frequency that is excited by the airflow conditions existing in the engine during operation at high thrust settings under certain temperature and altitude conditions. The resultant blade vibration can result in cumulative fatigue damage that can cause blade failure and consequent engine in-flight shutdown. In the event of a single engine in-flight shutdown during the cruise phase of flight, thrust on the remaining engine is normally increased to maximum continuous thrust (MCT). During a diversion following a single engine shutdown under an ETOPS flight, the remaining engine may operate at MCT for a prolonged period, during which the IPC stage 2 blades would be exposed to the resonant frequency condition. Therefore, an ETOPS diversion will put the remaining engine at an operating condition that would significantly increase the likelihood of failure of the remaining engine. In addition, if the remaining engine already had cracked IPC stage 2 blades, the likelihood of the remaining engine failing before a diversion can be safely completed will further increase.

Related Rulemaking

AD 2018-08-03, Amendment 39-19256 (83 FR 16768, April 17, 2018) ("AD 2018-08-03"), also requires revising the AFM to limit ETOPS on Boeing Model 787-8 and 787-9 airplanes powered by RR Trent 1000-A2, Trent 1000-AE2, Trent 1000-C2, Trent 1000-CE2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2 turbofan engines.

Actions Since AD 2018-08-03 Was Issued

Based on further review of the AFM limitations, Boeing has updated the information reflected within the figures of AD 2018-08-03. The FAA has determined it is necessary to update the AFM limitations accordingly to minimize the potential for IPC blade failures under certain conditions.

The FAA has determined that operation under AD 2018-08-03 is acceptable for safe operation until the new AD limitations are mandated.

FAA's Determination

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

AD Requirements

This AD requires revising the AFM to limit ETOPS, using the updated information referenced in figure 1 to paragraph (g) of this AD and figure 2 to paragraph (h) of this AD. Accomplishment of the AFM revisions required by this AD terminates all requirements of AD 2018-08-03.

Interim Action

This AD is interim action. The manufacturer is currently developing a modification that will address the unsafe condition identified in this AD. Once this modification is developed, approved, and available, we might consider additional rulemaking.

FAA's Justification and Determination of the Effective Date

An unsafe condition exists that requires the immediate adoption of this AD without providing an opportunity for public comments prior to adoption. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because unrecoverable thrust loss on both engines could lead to a

forced landing. Therefore, we find good cause that notice and opportunity for prior public comment are impracticable. In addition, for the reasons stated above, we find that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, we invite you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under the ADDRESSES section. Include the docket number FAA-2018-0304 and Product Identifier 2018-NM-065-AD at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. We will consider all comments received by the closing date and may amend this final rule because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this final rule.

Costs of Compliance

We estimate that this AD affects 14 airplanes of U.S. registry. We estimate the following costs to comply with this AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. registered airplanes
AFM revisions	1 work-hour X $85 per hour = $85	$0	$85	$1,190

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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes to the Director of the System Oversight Division.

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):

2018-09-05 The Boeing Company: Amendment 39-19261; Docket No. FAA-2018-0304; Product Identifier 2018-NM-065-AD.

(a) Effective Date

This AD is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD affects AD 2018-08-03, Amendment 39-19256 (83 FR 16768, April 17, 2018) ("AD 2018-08-03").

(c) Applicability

This AD applies to The Boeing Company Model 787-8 and 787-9 airplanes, certificated in any category, powered by Rolls-Royce plc (RR) Trent 1000-A2, Trent 1000-AE2, Trent 1000-C2, Trent 1000-CE2, Trent 1000-D2, Trent 1000-E2, Trent 1000-G2, Trent 1000-H2, Trent 1000-J2, Trent 1000-K2, and Trent 1000-L2 turbofan engines.

(d) Subject

Air Transport Association (ATA) of America Code 71, Power plant.

(e) Unsafe Condition

This AD was prompted by a report from the engine manufacturer indicating that after an engine failure, prolonged operation at high thrust settings on the remaining engine during an extended-operation (ETOPS) diversion may result in failure of the remaining engine before the diversion can be safely completed. We are issuing this AD to address unrecoverable thrust loss on both engines, which could lead to a forced landing.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Revision of Limitations Chapter in Airplane Flight Manual (AFM)

Within 4 days after the effective date of this AD, revise the Certificate Limitations chapter of the applicable Boeing AFM Engine Appendix by incorporating the information in figure 1 to paragraph (g) of this AD. This may be accomplished by inserting a copy of this AD into the AFM. When information identical to that in figure 1 to paragraph (g) of this AD has been included in the Certificate Limitations chapter of the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 1 to paragraph (g) of this AD – *AFM Certificate Limitations*

Engine Appendix - Certificate Limitations (Required by AD 2018-09-05)

ETOPS

The following information applies to 787-8 and 787-9 airplanes equipped with a RR Trent 1000 series engine that has a numeral "2" at the end of the model number installed on either wing, with the following exception. The following information does not apply to an airplane if both engines on that airplane have fewer than either 300 total accumulated engine cycles on the intermediate pressure compressor (IPC) Rotor 2 blades since new or since refurbishment in accordance with the instructions of Parts B, C, D or E in RR NMSB TRENT 1000 72-J871 Original Issue, Revision 1, Revision 2, or Revision 3.

To ensure continued safe flight during ETOPS, planned aircraft gross weight must not exceed those specified in the ETOPS Section of the Performance chapter prior to operating more than 60 minutes from a suitable airport.

ETOPS Diversion Speeds and Times

ETOPS Single Engine Driftdown diversion must be planned and flown at Engine-Out Long Range Cruise (LRC) speed. Planned maximum diversion time for single engine driftdown must not exceed 140 minutes.

ETOPS Decompression diversion at 10,000 feet must be planned and flown at Mach 0.55. For intermediate altitude level offs above 10,000 feet, LRC speed must be used.

(h) Revision of Performance Chapter of AFM

Concurrently with accomplishment of the requirements of paragraph (g) of this AD, revise the Performance chapter of the applicable Boeing AFM Engine Appendix by incorporating the information in figure 2 to paragraph (h) of this AD. This may be accomplished by inserting a copy of this AD into the AFM. When information identical to that in figure 2 to paragraph (h) of this AD has been included in the Performance chapter of the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM. Guidance on flight path planning can be found in figure 3 to paragraph (h) of this AD.

Figure 2 to paragraph (h) of this AD – *AFM Performance*

Engine Appendix – Performance **(Required by AD 2018-09-05)**

ETOPS

ETOPS operation of a Model 787-8 or 787-9 airplane equipped with a RR Trent 1000 engine using A2, C2, or E2 thrust rating is prohibited.

As outlined in the ETOPs Section of the Certificate Limitations chapter, the following table must be utilized when planning ETOPS flights.

(D631Z003-9R64EF) 787-9 Trent 1000-AE2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,000	19,000	18,800	18,500	18,300	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	499,000	497,400	477,500	453,000	422,000	Prohibited
	KGS	226,360	225,650	216,620	205,480	191,410	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	425,900	417,000	396,300	367,300	338,200	Prohibited
	KGS	193,210	189,170	179,800	166,610	153,420	

*Interpolation between temperature columns is allowed.

(D631Z003-9R7072F) and (D631Z003-9R7072E) 787-9 Trent 1000-D2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,100	19,100	18,900	18,700	18,500	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	510,300	508,400	488,200	465,800	441,800	Prohibited
	KGS	231,500	230,640	221,480	211,310	200,390	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	438,300	429,300	408,400	383,800	359,300	Prohibited
	KGS	198,830	194,760	185,240	174,110	162,970	

*Interpolation between temperature columns is allowed.

(D631Z003-9R74F) and (D631Z003-9R74E) 787-9 Trent 1000-J2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,300	19,300	19,100	18,800	18,500	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	528,900	526,800	507,800	479,500	451,100	Prohibited
	KGS	239,900	238,950	230,370	217,510	204,640	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	455,200	446,600	430,200	401,400	372,500	Prohibited
	KGS	206,470	202,580	195,140	182,070	169,000	

*Interpolation between temperature columns is allowed.

(D631Z003-R7475F) and (D631Z003-R7475E) 787-9 Trent 1000-K2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,300	19,300	19,100	18,800	18,500	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	528,900	526,800	507,800	479,500	451,100	Prohibited
	KGS	239,900	238,950	230,370	217,510	204,640	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	455,200	446,600	430,200	401,400	372,500	Prohibited
	KGS	206,470	202,580	195,140	182,070	169,000	

*Interpolation between temperature columns is allowed.

(D631Z003-R70EF) 787-8 Trent 1000-CE2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,300	19,300	19,100	18,900	18,600	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	502,500	502,500	499,600	476,300	450,100	Prohibited
	KGS	227,930	227,930	226,610	216,040	204,160	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	446,700	438,600	419,400	396,300	372,400	Prohibited
	KGS	202,650	198,970	190,260	179,790	168,910	

*Interpolation between temperature columns is allowed.

(D631Z003-R7072F) and (D631Z003-R7072E) 787-8 Trent 1000-D2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,300	19,300	19,100	18,900	18,600	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	502,500	502,500	499,600	476,300	450,100	Prohibited
	KGS	227,930	227,930	226,610	216,040	204,160	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	446,700	438,600	419,400	396,300	372,400	Prohibited
	KGS	202,650	198,970	190,260	179,790	168,910	

*Interpolation between temperature columns is allowed.

(D631Z003-R70LF) 787-8 Trent 1000-L2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,300	19,300	19,100	18,900	18,600	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	502,500	502,500	499,600	476,300	450,100	Prohibited
	KGS	227,930	227,930	226,610	216,040	204,160	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	446,700	438,600	419,400	396,300	372,400	Prohibited
	KGS	202,650	198,970	190,260	179,790	168,910	

*Interpolation between temperature columns is allowed.

(D631Z003-R67F) and (D631Z003-R67E) 787-8 Trent 1000-G2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,200	19,200	19,000	18,700	18,400	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	502,500	502,500	488,900	461,500	430,400	Prohibited
	KGS	227,930	227,930	221,780	209,340	195,220	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	436,300	426,700	405,700	383,400	355,300	Prohibited
	KGS	197,910	193,550	184,020	173,910	161,160	

*Interpolation between temperature columns is allowed.

(D631Z003-R64EF) and (D631Z003-R64EE) 787-8 Trent 1000-AE2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		19,200	19,200	19,000	18,700	18,400	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	502,500	502,500	488,900	461,500	430,400	Prohibited
	KGS	227,930	227,930	221,780	209,340	195,220	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	436,300	426,700	405,700	383,400	355,300	Prohibited
	KGS	197,910	193,550	184,020	173,910	161,160	

*Interpolation between temperature columns is allowed.

(D631Z003-R58F) 787-8 Trent 1000-H2

		Maximum Enroute Diversion Temperature*					
		ISA+0 Degrees C and Below	ISA+10 Degrees C	ISA+15 Degrees C	ISA+20 Degrees C	ISA+25 Degrees C	Above ISA+25 Degrees C
Minimum Engine-Out Cruise Altitude (ft)		18,900	18,800	18,600	18,200	17,900	Prohibited
Without Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	474,000	471,600	447,400	416,700	386,000	Prohibited
	KGS	215,000	213,940	202,970	189,040	175,100	
With Forecast Icing Maximum Planned Weight at ETOPS Entry Points and Equal Time Points	LBS	404,400	394,900	371,700	346,700	321,700	Prohibited
	KGS	183,470	179,120	168,630	157,270	145,910	

*Interpolation between temperature columns is allowed.

Figure 3 to paragraph (h) of this AD – *Guidance on flight path planning*

Guidance on flight path planning

1. Utilize the one-engine inoperative LRC speed for the ETOPS engine-out planning speed and establish that the planned maximum diversion time is not greater than 140 minutes. Critical fuel decompression scenarios should utilize the M0.55 speeds for both all engine and engine inoperative scenarios.

2. Determine if forecast icing is expected along the planned flight plan path and in the planned diversionary track(s) between the ETOPS Entry Point(s) (EEP) and the first ETOPS Equal-Time Point (ETP1). Accomplish the same determination for the subsequent ETOPS segment (i.e., between ETP1 and ETP2 or the (ETOPS Exit Point) EXP).

3. Verify the planned maximum weight at the EEP is derived based upon the maximum forecast temperature at FL200 between the EEP and ETP1 and the planned weight at the EEP is no greater than the maximum planned weight corresponding to either the without-forecast icing or with-forecast icing (if icing is probable between the EEP and ETP1 along the flight plan track or along the planned diversionary track at FL200) table values at the appropriate maximum diversion temperature. If the EEP gross weight is less than the table limits, continue with the flight planning. If the EEP maximum planned weight is greater than the appropriate value provided in the table, a takeoff weight reduction will be required to establish that the maximum planned weight at the EEP is equal to or less than the table values.

4. Verify the planned maximum weight at ETP1 is derived based upon the maximum forecast temperature at FL200 between the ETP1 and ETP2 (or the EXP) and the planned weight at the ETP1 is no greater than the maximum planned weight corresponding to either, the without-forecast icing or with-forecast icing (if icing is probable between the ETP1 and ETP2 along the flight plan track or along the planned diversionary track at FL200) table values at the appropriate maximum diversion temperature. If the ETP1 planned maximum weight is less than the table limits, continue with the flight planning. If the ETP1 maximum planned weight is greater than the appropriate value provided in the table, a takeoff weight reduction will be required to establish that the maximum planned weight at the ETPs is equal to or less than the table values.

5. Verify the planned maximum weights at each subsequent ETP are no greater than the appropriate weight provided in the table accounting for the effects of forecast icing, if probable, and the appropriate forecast temperature.

6. Upon verification of the planned maximum weight limits at the EEP and each of the ETPs required to complete the mission, validate the engine inoperative maximum diversion time is no greater than 140 minutes.

(i) Terminating Action for AD 2018-08-03

Accomplishment of the actions required by paragraphs (g) and (h) of this AD terminates all requirements of AD 2018-08-03.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) 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.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(k) Related Information

For more information about this AD, contact Tak Kobayashi, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3553; email: Takahisa.Kobayashi@faa.gov.

(l) Material Incorporated by Reference

None.

Issued in Des Moines, Washington, on April 24, 2018.

Jeffrey E. Duven,
Director,
System Oversight Division,
Aircraft Certification Service.
[FR Doc. 2018-08951 Filed: 4/25/2018 8:45 am; Publication Date: 4/26/2018]