

**§ 39.13 [Amended]**

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

**2002–08–18 Empresa Brasileira de Aeronautica S.A. (EMBRAER):**

Amendment 39–12730. Docket 2002–NM–68–AD.

**Applicability:** Model EMB–135 and –145 series airplanes; certificated in any category; serial numbers 145004 through 145189 inclusive; 145191 through 145362 inclusive; 145364 through 145373 inclusive; 145375 through 145411 inclusive; 145413 through 145461 inclusive; 145463 through 145468 inclusive; 145470; 145472 through 145482 inclusive; 145485, 145486, and 145488; 145490 through 145494 inclusive; 145496 through 145498 inclusive; 145500 through 145502 inclusive; 145504 and 145507; 145508 through 145512 inclusive; 145514, 145515, 145517, and 145518.

**Note 1:** This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been 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 prevent loss of pitch trim command during the takeoff and climb phase of flight due to improper set point of the actuator clutches of the horizontal stabilizer, which could result in high pitch control forces and consequent reduced controllability of the airplane, accomplish the following:

**Repetitive Inspections (Tests)/Replacement**

(a) Within 800 flight hours after the effective date of this AD: Do an inspection (test) of the actuator clutches of both the primary and backup pitch trim systems of the horizontal stabilizer for proper pitch trim indications per EMBRAER Service Bulletin 145–27–0082, dated September 18, 2001. Repeat the test after that every 2,000 flight hours.

(1) If either test indicates that the clutch is slipping (no PIT TRIM 1 INOP or PIT TRIM 2 INOP message appears, and the measured voltage during trim attempts is greater than 1 volt), before further flight, replace the applicable actuator with an improved actuator and before further flight, repeat the test.

(2) If both tests indicate that the clutch is acceptable (PIT TRIM 1 INOP or PIT TRIM 2 INOP message appears), repeat the test at the time specified in paragraph (a) of this AD.

**Spares**

(b) As of the effective date of this AD, no person shall install an actuator having part

number 362200–1007, –1009, –1011, or –1013 on any airplane, unless the actuator clutch has been inspected as required by paragraph (a) of this AD.

**Alternative Methods of Compliance**

(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 Aircraft Certification Office (ACO), FAA. Operators shall submit their requests through an appropriate FAA Principal Maintenance 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.

**Special Flight Permits**

(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.

**Incorporation by Reference**

(e) The actions shall be done in accordance with EMBRAER Service Bulletin 145–27–0082, dated September 18, 2001. 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 Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343—CEP 12.225, Sao Jose dos Campos—SP, Brazil. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**Note 3:** The subject of this AD is addressed in Brazilian airworthiness directive 2001–10–02R1, dated February 4, 2002.

**Effective Date**

(f) This amendment becomes effective on May 16, 2002.

Issued in Renton, Washington, on April 19, 2002.

**Lirio Liu-Nelson,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*

[FR Doc. 02–10246 Filed 4–30–02; 8:45 am]

**BILLING CODE 4910–13–P**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

[Docket No. 2002–NM–107–AD; Amendment 39–12728; AD 2002–08–51]

**RIN 2120–AA64**

**Airworthiness Directives; Airbus Model A300 B2 and B4 Series Airplanes Equipped With General Electric CF6–50 Engines**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This document publishes in the **Federal Register** an amendment adopting airworthiness directive (AD) 2002–08–51 that was sent previously to all known U.S. owners and operators of Airbus Model A300 B2 and B4 series airplanes equipped with General Electric CF6–50 engines by individual notices. This AD requires deactivating both thrust reversers and revising the airplane flight manual (AFM) to require performance penalties during certain takeoff conditions to ensure that safe and appropriate performance is achieved for airplanes on which both thrust reversers have been deactivated. This action is prompted by issuance of mandatory continuing airworthiness information by a foreign civil airworthiness authority. The actions specified by this AD are intended to prevent uncommanded in-flight deployment of a thrust reverser, which could result in reduced controllability of the airplane.

**DATES:** Effective May 6, 2002, to all persons except those persons to whom it was made immediately effective by emergency AD 2002–08–51, issued April 8, 2002, which contained the requirements of this amendment.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of May 6, 2002.

Comments for inclusion in the Rules Docket must be received on or before May 31, 2002.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM–114, Attention: Rules Docket No. 2002–NM–107–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056. Comments may be inspected at this location between 9 a.m. and 3 p.m., Monday through Friday, except Federal

holidays. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using the following address: 9-anm-iarcomment@faa.gov. Comments sent via fax or the Internet must contain "Docket No. 2002-NM-107-AD" in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

The applicable service information may be obtained from Airbus Industrie, 1 Rond Point Maurice Bellonte, 31707 Blagnac Cedex, France. This information may be examined 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.

**FOR FURTHER INFORMATION CONTACT:** Tim Backman, Aerospace Engineer, International Branch, ANM-116, FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2797; fax (425) 227-1149.

**SUPPLEMENTARY INFORMATION:** On April 8, 2002, the FAA issued emergency AD 2002-08-51, which is applicable to Airbus Model A300 B2 and B4 series airplanes equipped with General Electric CF6-50 engines.

The FAA has received a report that, on February 16, 2002, uncommanded deployment of a thrust reverser occurred on the number 1 engine of a McDonnell Douglas Model DC-10-30 airplane equipped with General Electric CF6-50 engines. The uncommanded deployment occurred following climb and level-out at 17,000 feet. The flightcrew reported severe buffeting of the airplane with yaw to the left and pitch down of about five degrees. The "REV UNLOCK" light was illuminated prior to onset of the buffeting. The flightcrew shut down the engine, dumped fuel, turned back to the departure airport, and landed the airplane. No injuries were reported among passengers or crew.

Uncommanded deployment of a thrust reverser with a dual translating cowl requires a minimum of two failures: (1) The over pressure shut-off valve (OPSOV) must let pressure enter into the thrust reverser actuation system; and (2) the directional pilot valve (DPV) must command this pressure in the deploy direction. The cause of the presence of pressure in the thrust reverser system has not been determined.

Results of a subsequent investigation by the engine manufacturer revealed

that the DPV was misassembled during overhaul by the DPV manufacturer in 1997. The DPV was installed on the incident airplane in 1999. The misassembly involved incorrect installation of a washer and bushing in the DPV piston/poppet assembly. Results of vibration-table testing showed that a DPV misassembled in this way could change positions from "stow command" to "deploy command" on its own. When a DPV is in the "deploy command" position, a single failure of the OPSOV could result in an uncommanded deployment of the thrust reverser during flight. This condition, if not corrected, could result in reduced controllability of the airplane.

Model A300 B2 and B4 series airplanes equipped with General Electric CF6-50 engines have the same nacelle and thrust reverser system as the airplane on which the event described previously occurred. Since a misassembled DPV may be installed on Model A300 B2 and B4 series airplanes, those airplanes may be subject to the unsafe condition identified in this AD.

#### **Explanation of Relevant Service Information**

Airbus has issued All Operators Telex (AOT) A300/78A0023, dated April 5, 2002, which describes procedures for deactivating both thrust reversers on Model A300 B2 and B4 series airplanes. The Direction Générale de l'Aviation Civile (DGAC), which is the airworthiness authority for France, classified this AOT as mandatory and issued French telegraphic airworthiness directive 2002-189(B), dated April 5, 2002, to ensure the continued airworthiness of these airplanes in France.

#### **Explanation of Change to Emergency AD**

The "Explanation of Relevant Service Information" section of the emergency AD states, "The DGAC \* \* \* issued French telegraphic airworthiness directive 2001-523(B), dated April 5, 2002, to ensure the continued airworthiness of these airplanes in France." The number of the French telegraphic airworthiness directive as cited in the emergency AD is incorrect. The correct number is 2002-189(B). The correct number has been cited in the section above as well as in NOTE 4 of this amendment. The date for the French telegraphic airworthiness directive, April 5, 2002, is correct as cited.

#### **FAA's Conclusions**

This airplane model is manufactured in France and is type certificated for

operation in the United States under the provisions of section 21.29 of the Federal Aviation Regulations (14 CFR 21.29) and the applicable bilateral airworthiness agreement. Pursuant to this bilateral airworthiness agreement, the DGAC has kept the FAA informed of the situation described above as it pertains to Airbus Model A300 B2 and B4 series airplanes. The FAA has examined the findings of the DGAC, reviewed all available information, and determined that AD action is necessary for products of this type design that are certificated for operation in the United States.

#### **Explanation of the Requirements of the Rule**

Since the unsafe condition described is likely to exist or develop on other airplanes of the same type design registered in the United States, the FAA issued emergency AD 2002-08-51 to prevent uncommanded in-flight deployment of a thrust reverser, which could result in reduced controllability of the airplane. The AD requires deactivating both thrust reversers in accordance with the AOT described previously. Additionally, this airworthiness directive requires revising the FAA-approved airplane flight manual (AFM) to require performance penalties during certain takeoff conditions to ensure that safe and appropriate performance is achieved for airplanes on which both thrust reversers have been deactivated. On an interim basis, this AD includes a penalty of five percent of the acceleration-stop distance for takeoffs on wet or contaminated runways. This penalty is an estimate that is necessary to provide an acceptable level of safety until we receive more information and a more precise performance penalty can be established.

Since it was found that immediate corrective action was required, notice and opportunity for prior public comment thereon were impracticable and contrary to the public interest, and good cause existed to make the AD effective immediately by individual notices issued on April 8, 2002, to all known U.S. owners and operators of Airbus Model A300 B2 and B4 series airplanes equipped with General Electric CF6-50 engines. These conditions still exist, and the AD is hereby published in the **Federal Register** as an amendment to section 39.13 of the Federal Aviation Regulations (14 CFR 39.13) to make it effective to all persons.

### Similar AD Action on Other Airplanes

As stated above, the incident described previously occurred on a McDonnell Douglas Model DC-10-30 airplane equipped with General Electric CF6-50 engines. The FAA is planning to issue an airworthiness directive similar to this one, to require revising the AFM and deactivating the thrust reversers under certain conditions on those airplanes. Because the identified unsafe condition may be especially critical for Airbus Model A300 B2 and B4 series airplanes, the FAA finds it appropriate to proceed with this action applying to those airplanes now.

### Interim Action

This is considered to be interim action until final action is identified, at which time the FAA may consider further rulemaking.

### Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified under the caption **ADDRESSES**. All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2002-NM-107-AD." The postcard will be date-stamped and returned to the commenter.

### Regulatory Impact

The regulations adopted herein 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. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and that it is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, 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:

**2002-08-51 Airbus:** Amendment 39-12728. Docket 2002-NM-107-AD.

**Applicability:** Model A300 B2 and B4 series airplanes equipped with General Electric CF6-50 engines, certificated in any category.

**Note 1:** Airbus Model A300 B4-600 series airplanes (commonly referred to as "A300-600 series airplanes") are not affected by this AD.

**Note 2:** This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been

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.

**Compliance:** Required as indicated, unless accomplished previously.

To prevent uncommanded in-flight deployment of a thrust reverser, accomplish the following:

### Thrust Reverser Deactivation and AFM Revision

(a) Within 72 clock hours after the effective date of this AD, accomplish paragraphs (a)(1) and (a)(2) of this AD.

(1) Deactivate both thrust reversers according to Airbus All Operators Telex A300/78A0023, dated April 5, 2002.

(2) Revise the Limitations Section of the Airplane Flight Manual (AFM) to include the following (this may be accomplished by inserting a copy of this AD into the AFM):

"When the runway is wet or contaminated, reduce by five percent the corrected acceleration-stop distance resulting from the airplane flight manual takeoff performance analysis.

(**Note:** This supersedes any relief provided by the Master Minimum Equipment List (MMEL).)"

### Alternative Methods of Compliance

(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, International Branch, ANM-116, FAA, Transport Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance or Operations Inspector, as applicable, who may add comments and then send it to the Manager, International Branch, ANM-116.

**Note 3:** Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the International Branch, ANM-116.

### Special Flight Permits

(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.

### Incorporation by Reference

(d) The deactivation of thrust reversers shall be done in accordance with Airbus All Operators Telex A300/78A0023, dated April 5, 2002. 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 Airbus Industrie, 1 Rond Point Maurice

Bellonte, 31707 Blagnac Cedex, France. 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.

**Note 4:** The subject of this AD is addressed in French telegraphic airworthiness directive 2002-189(B), dated April 5, 2002.

#### Effective Date

(e) This amendment becomes effective on May 6, 2002, to all persons except those persons to whom it was made immediately effective by emergency AD 2002-08-51, issued April 8, 2002, which contained the requirements of this amendment.

Issued in Renton, Washington, on April 19, 2002.

**Lirio Liu-Nelson,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*

[FR Doc. 02-10245 Filed 4-30-02; 8:45 am]

**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2002-NM-111-AD; Amendment 39-12733; AD 2002-08-21]

**RIN 2120-AA64**

#### **Airworthiness Directives; Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-135 and -145 Series Airplanes**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This amendment supersedes an existing airworthiness directive (AD), applicable to certain EMBRAER Model EMB-135ER and "135LR series airplanes, and Model EMB-145, -145ER, -145MR, and -145LR series airplanes, that currently requires a one-time inspection to determine if the bonding jumpers that connect the horizontal stabilizer to the vertical stabilizer are properly installed, a one-time inspection to determine if the supports that connect the bonding jumpers to the horizontal stabilizer are deformed, and corrective actions if necessary. This amendment requires new repetitive inspections to detect discrepancies of both vertical-to-horizontal stabilizer bonding jumpers and the connecting support structure; and corrective action, if necessary. This amendment also revises the applicability to include additional airplanes. The actions specified in this

AD are intended to prevent damaged or severed bonding jumpers, which, in the event of a lightning strike, could result in severed elevator control cables and consequent reduced elevator control capability and reduced controllability of the airplane. This AD is intended to address the identified unsafe condition.

**DATES:** Effective May 16, 2002.

The incorporation by reference of EMBRAER Alert Service Bulletin 145-55-A028, dated April 10, 2002, as listed in the regulations, is approved by the Director of the Federal Register as of May 16, 2002.

The incorporation by reference of EMBRAER Alert Service Bulletin 145-55-A025, dated June 5, 2001, as listed in the regulations, was approved previously by the Director of the Federal Register as of September 5, 2001 (66 FR 43768, August 21, 2001).

Comments for inclusion in the Rules Docket must be received on or before May 31, 2002.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2002-NM-111-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using the following address: [9-anm-iarcomment@faa.gov](mailto:9-anm-iarcomment@faa.gov). Comments sent via fax or the Internet must contain "Docket No. 2002-NM-111-AD" in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

The service information referenced in this AD may be obtained from Empresa Brasileira de Aeronautica S.A. (EMBRAER), PO Box 343—CEP 12.225, Sao Jose dos Campos—SP, Brazil. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or the FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Rob Capezutto, Senior Engineer, Systems and Flight Test Branch, ACE-116A, FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia

30349; telephone (770) 703-6071; fax (770) 703-6097.

**SUPPLEMENTARY INFORMATION:** On August 13, 2001, the FAA issued AD 2001-17-04, amendment 39-12395 (66 FR 43768, August 21, 2001), applicable to certain EMBRAER Model EMB-135ER and -135LR series airplanes, and Model EMB-145, -145ER, -145MR, and -145LR series airplanes. That AD requires a one-time visual inspection to determine if the two bonding jumpers that connect the horizontal stabilizer to the vertical stabilizer are properly installed, and replacement of the jumper with a new jumper, if necessary. That AD also requires a one-time visual inspection to determine if the supports that connect the bonding jumpers to the horizontal stabilizer are deformed, and corrective actions, if necessary. That AD was prompted by a report indicating that a post-lightning strike inspection of a Model EMB-145 series airplane revealed that the bonding jumpers that electrically bond the vertical and horizontal stabilizers were severed, the elevator cables were damaged, one elevator cable was severed, and the other elevator cable had arcing damage. The actions required by that AD are intended to prevent reduced elevator control capability, and consequent reduced controllability of the airplane, due to severed bonding jumpers.

#### **Actions Since Issuance of Previous Rule**

Since the issuance of that AD, the Departamento de Aviacao Civil (DAC), which is the airworthiness authority for Brazil, has advised that a recent lightning strike event occurred on a Model EMB-145 series airplane. Subsequent inspection revealed that both bonding jumpers of the horizontal-to-vertical stabilizer were severed; the control cables of the left lower and right upper elevators near the rear sectors on the horizontal-to-vertical stabilizer were also severed. The results of the inspection indicated that one of the bonding jumpers may have been damaged or severed prior to the lightning strike, which could have resulted in the lightning current path traveling through the elevator control cables. The airplane involved in the lightning strike event had been inspected at the factory using the procedures specified in EMBRAER Alert Service Bulletin 145-55-A025, dated June 5, 2001, which is required by AD 2001-17-04. Because certain airplanes had already been inspected per EMBRAER Alert Service Bulletin 145-55-A025 at the factory, they were therefore not subject to the requirements of that AD. In light of this information,