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 a new airworthiness directive (AD) to read as follows:

99–07–20 Avions Pierre Robin: Amendment 39–11104; Docket No. 98–CE–82–AD.

Applicability: Model R2160 airplanes, all serial numbers, certificated in any category.

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 (f) 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 in the body of this AD, unless already accomplished.

To detect defects (cracks, loose rivets, or spar web distortion) in the vertical stabilizer spar, which could result in structural failure of the vertical stabilizer with possible reduced or loss of control of the airplane, accomplish the following:

(a) Within the next 50 hours time-in-service (TIS) after the effective date of this AD, and thereafter at intervals not to exceed 100 hours TIS until the modification required by paragraph (b) of this AD is incorporated, inspect the vertical stabilizer spar in the area of the lower fitting of the rudder for cracks, loose rivets, or spar web distortion. Accomplish this inspection in accordance with the instructions in Avions Pierre Robin Service Bulletin No. 120, dated September 27, 1990.

(b) At whichever of the compliance times in paragraphs (b)(1) and (b)(2) of this AD that occurs first, modify the vertical stabilizer spar by incorporating Avions Pierre Robin Kit No. 97.40.03 in accordance with the instructions to this kit, as specified in Avions Pierre Robin Service Bulletin No. 120, dated September 27, 1990.

(1) Prior to further flight if cracks, loose rivets, or spar web distortion are/is found during any inspection required by paragraph (a) of this AD; or

(2) Within the next 12 calendar months after the effective date of this AD.

(c) Modifying the vertical stabilizer spar as specified in paragraph (b) of this AD is considered terminating action for the repetitive inspection requirement of this AD.

(d) As of the effective date of this AD, no person may install, on any affected airplane, a vertical stabilizer spar that has not been modified as specified in paragraph (b) of this AD.

(e) 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.

(f) An alternative method of compliance or adjustment of the compliance times that provides an equivalent level of safety may be used if approved by the Manager, Small Airplane Directorate, FAA, 1201 Walnut, suite 900, Kansas City, Missouri 64106. The request shall be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Small Airplane Directorate.

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

(g) Questions or technical information related to the service information referenced in this AD should be directed to Avions Pierre Robin, 1 route de Troyes 21121 Darois, France; telephone: 03.80.44.20.50; facsimile: 03.80.35.60.80. This service information may be examined at the FAA, Central Region, Office of the Regional Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri 64106.

(h) The inspection required by this AD shall be done in accordance with Avions Pierre Robin Service Bulletin No. 120, dated September 27, 1990. The modification required by this AD shall be done in accordance with the instructions to Avions Pierre Robin Kit No. 97.40.03 as referenced in Avions Pierre Robin Service Bulletin No. 120, dated September 27, 1990. 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 Avions Pierre Robin, 1 route de Troyes 21121 Darois, France. Copies may be inspected at the FAA, Central Region, Office of the Regional Counsel, Room 1558, 601 E. 12th Street, Kansas City, Missouri, 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 French AD 90–224(A), dated December 12, 1990.

(i) This amendment becomes effective on May 17, 1999.

Issued in Kansas City, Missouri, on March 25, 1999.

Michael Gallagher,

Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. 99–8092 Filed 4–5–99; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 98–NM–163–AD; Amendment 39–11106; AD 99–08–02]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 747 series airplanes. The amendment requires a one-time inspection to detect discrepancies of the center fuel tank wiring and components, and corrective action, if necessary; and a one-time electrical bonding test of the center fuel tank components, and rework, if necessary. For certain airplanes, the amendment requires a one-time insulation resistance test and a one-time inspection to detect discrepancies of the wiring and components of the fuel quantity indication system (FQIS), and corrective actions, if necessary; replacement of certain FQIS probes with certain newer probes; a system adjustment and system operational test; and modification (installation of a flame arrestor) of the inlet line of the scavenge pump of the center fuel tank. This amendment is prompted by design review and testing results obtained in support of an accident investigation. The actions specified by this AD are intended to prevent ignition sources and consequent fire/explosion in the center fuel tank.

DATES: Effective May 11, 1999.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of May 11, 1999.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124–2207. 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 Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Dionne Stanley, Aerospace Engineer, Propulsion Branch, ANM–140S, FAA, Transport Airplane Directorate, Seattle

Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055–4056; telephone (425) 227–2250; fax (425) 227–1181.

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 Boeing Model 747 series airplanes was published in the **Federal Register** on July 24, 1998 (63 FR 39765). That action proposed to require a one-time inspection to detect discrepancies of the center fuel tank, and corrective actions, if necessary; replacement of all components of the fuel quantity indicating system (FQIS) of the center tanks with new FQIS components; and replacement of the FQIS wiring with new wiring. For certain airplanes, that action proposed to require a one-time inspection to detect discrepancies of the FQIS, and corrective actions, if necessary; and installation of a flame arrestor in the scavenge pumps of the center fuel tank. That action was prompted by design review and testing results obtained in support of an investigation into a 1996 accident involving a Boeing Model 747 series airplane that occurred shortly after takeoff from John F. Kennedy International Airport in Jamaica, New York (hereinafter referred to as ''the accident'').

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

1. Support for Various Actions in the Proposal

Five commenters support various actions proposed by the AD.

Two commenters strongly support the philosophy in the notice of proposed rulemaking (NPRM) that tank entry would be minimized because multiple issues pertaining to the center wing tank may be accomplished during a single tank entry.

One commenter states that it currently plans to accomplish the actions described in Boeing Service Bulletin 747–28–2205 during scheduled checks to inspect center wing tank components. Another commenter states that it considers a one-time inspection of all Model 747 series airplanes necessary to ensure that no manufacturing or operator rework anomalies exist in today's fleet prior to the introduction of any new maintenance procedures. The FAA infers that those two commenters concur with the proposal to require the actions specified by Boeing Service Bulletin 747–28–2205, dated June 27, 1997, and Revision 1, dated April 16, 1998, as applicable.

Four commenters concur with the proposal to require the actions contained in Boeing Alert Service Bulletin 747–28A2208, dated May 14, 1998.

Four commenters concur with the proposal to require the actions contained in Boeing Alert Service Bulletin 747–28A2210, dated May 14, 1998.

2. Request To Withdraw the Proposal: No Justification

One commenter states that, without any proof that the FQIS or any of the other center wing tank components may have been the cause of the accident, and, without any service experience that supports such a conclusion, there is no technical or operational justification to mandate the proposed rule. The FAA infers that the commenter requests withdrawal of the proposed AD.

The commenter states that on-airplane tests performed by Boeing have not shown any in-service condition that could create any hazard. The commenter also concludes that there is no service experience that shows any evidence of ignition sources (evidence that would have been visible on any of the 248 airplanes that have been inspected).

The FAA does not concur that the proposed AD should be withdrawn based on the lack of conclusive evidence that the accident was caused by failure of the FQIS components or any of the other center fuel tank components. The FAA agrees that no conclusive evidence exists to indicate the accident was caused by failure of the FQIS or center fuel tank components. However, during such accidents, evidence that could lead to a conclusive identification of the cause of the accident often is destroyed. Regardless of the degree of destruction caused by such an accident, there often is no specific physical evidence of low energy electrical arcing. In consideration of the extensive wiring installed on a Boeing Model 747 series airplane, and the extensive damage to the wiring that occurred during the airplane fire, breakup, and subsequent recovery, conclusive identification of a specific wire that was damaged before the fire and breakup is extremely unlikely.

Following the determinations that an explosion in the center fuel tank was the initial event in the breakup of the airplane in the accident, and that the fire was not caused by an external source such as a bomb or missile, the National Transportation Safety Board (NTSB) has necessarily used systems analysis methods to determine what systems on the airplane are most likely to have been the source of ignition energy. That analysis included examinations of system failure modes and effects, service history, and similar airplanes. It was that analysis that led the FAA to propose the requirements specified in the NPRM.

The same commenter stated that on-airplane tests performed by Boeing have not shown any in-service condition that could create any hazard, and that any evidence of ignition sources would have been visible on any of the 248 airplanes that have been inspected. The FAA surmises that the commenter is referring to the bonding and grounding checks recommended in Boeing Service Bulletin 747–28–2205. The FAA agrees that to date none of the bonding and grounding checks have revealed severe bonding or grounding degradation that would pose a safety threat to the airplane. The bonding and grounding provisions within the fuel tank are designed to protect the fuel system components from becoming in-tank ignition sources in the event of a lightning strike or static electricity. However, the investigation of the accident identified certain fuel tank explosion scenarios involving latent failures or aging conditions within the fuel tank that are not related to the bonding or grounding aspects of the fuel system. Those scenarios involve a failure or condition inside the tank (such as conductive debris, copper/sulfur or silver/sulfur contaminants, and damaged in-tank wiring) in combination with a failure outside the tank (such as a hot short or electrical interference condition on the FQIS wiring). Examples of these in-tank and out-of-tank conditions, which can contribute to a multiple-failure ignition scenario, were found in airplane service records and on airplanes that were inspected by the FAA and NTSB.

The FAA does not agree with the commenter's conclusion that evidence of ignition sources would have been visible on any of the 248 airplanes that have been inspected. The FAA surmises that the commenter is referring to the results of the inspections described in Boeing Service Bulletin 747–28–2205. The infrequency of fuel tank explosions on Model 747 series airplanes indicates that the conditions creating the scenario for an airplane fuel tank explosion are uncommon. To date no evidence of ignition sources or conditions that may lead to an ignition source have been identified through inspections described in Service Bulletin 747–28–2205; therefore, the FAA would expect this evidence or condition to be unusual. A

sample inspection of 200 or 300 airplanes may identify degradation or system aging issues, but the FAA has determined that only a thorough inspection of all affected Model 747 series airplanes in the fleet can determine if a rare condition setting the stage for an airplane fuel tank explosion exists in a given airplane. No change to the final rule in this regard is necessary.

3. Request To Withdraw the Proposal: Unnecessary

One commenter states that the proposed AD is unnecessary due to the related rulemaking proposed in NPRM docket 97–NM–272–AD. The FAA infers that the commenter requests that this proposed AD be withdrawn.

The commenter observes that the related proposed AD (97–NM–272–AD) would prevent possible voltage spikes caused by lightning, electromagnetic interference, or electrical failures from entering the fuel tanks. The commenter concluded that ignition sources would be eliminated by either the related NPRM or this proposed AD, and that mandating both proposals is unnecessary.

NPRM docket 97–NM–272–AD has been issued as final rule AD 98–20–40 (63 FR 52147, September 30, 1998), effective November 4, 1998. AD 98–20–40, applicable to all Boeing Model 747–100, -200, -300, SP, and SR series airplanes, requires the installation of shielding and separation of the FQIS electrical wiring.

The FAA does not concur with the commenter's rationale as a basis to withdraw the proposed AD. Although the FAA agrees that both this final rule and AD 98–20–40 address the potential for ignition sources within airplane fuel tanks, each activity addresses different aspects of the multiple-failure ignition scenarios identified by the NTSB and FAA in the course of the accident investigation. These different aspects of the multiple-failure ignition scenarios were identified through the FQIS safety analysis and examinations of Model 747 series airplanes performed by the NTSB and FAA and involve latent failures or aging conditions within the fuel tank combined with a subsequent single failure or electrical interference condition outside the tank.

In attempting to preclude future fuel tank explosions, the FAA finds it necessary to address all aspects of viable ignition scenarios to ensure that potential failures of the fuel system cannot contribute to ignition of the flammable fuel vapors in airplane fuel tanks. By requiring ''best practices'' to be used both inside the tank (to eliminate the possibility for the creation of latent ''spark-gap'' locations in the event of high voltage on the FQIS wires) and outside the tank (to avoid introduction of ignition energy onto the FQIS wires), the FAA has determined that the modifications of the FQIS design of the Model 747 series airplane required by AD 98–20–40 and this final rule will adequately address the identified unsafe condition and meet the appropriate fail-safe standards to provide the level of safety (i.e., tank ignition events should never occur) intended by the regulations in place at the time of the original certification of the design.

No change to the final rule in this regard is necessary.

4. Request To Remove Requirement To Inspect Wiring

Five commenters request that the proposed AD remove the requirement to inspect the center fuel tank wiring and components, as specified by Boeing Service Bulletin 747–28–2205. One commenter, the manufacturer, states that Service Bulletin 747–28–2205 was initiated as a voluntary inspection activity. The service bulletin specifies that the purpose of inspecting the center fuel tank is to gather data on the in-service condition of fuel tanks, identify follow-up activities to ensure continued airworthiness, and develop updated maintenance programs and/or corrective action service bulletins where necessary. The manufacturer stated that, because the purpose of the inspections identified in the service bulletin was to collect data necessary to assess the in-service condition of the fleet, only a sampling of airplanes would be required. The manufacturer adds that, since no unsafe conditions have been identified in the approximately 283 airplanes inspected in accordance with this bulletin, there is no justification for mandating this bulletin. The manufacturer's philosophy has been to address any corrective actions for known issues in separate service bulletins to keep this bulletin from being mandated by regulatory action.

Four commenters agree that the intent of Service Bulletin 747–28–2205 was to conduct a sample program to gather data on in-service airplanes and not to address any unsafe condition.

Two commenters also note that, on all airplanes inspected to date, there have been no immediate safety concerns identified. One commenter states that, based on the inspections performed to date, Boeing is still convinced that the present design is safe.

The FAA does not concur with the commenters' request to withdraw the subject requirement. While the commenters state that Service Bulletin 747–28–2205 was initiated as a voluntary data-gathering inspection activity and that the manufacturer's philosophy has been to address any corrective actions for known issues in separate service bulletins, the FAA has repeatedly stated (e.g., at the NTSB Public Hearing and at ATA meetings) that it would consider mandating accomplishment of Service Bulletin 747–28–2205.

The FAA agrees that to date none of the inspections have revealed severe bonding or grounding degradation or a specific condition that would pose a safety threat to affected airplanes. The infrequency of fuel tank explosions on Model 747 series airplanes indicates that the conditions creating the scenario for such an explosion are uncommon. To date no evidence of ignition sources or conditions that may lead to an ignition source has been identified through inspections performed in accordance with Service Bulletin 747–28–2205; therefore, the FAA expects this evidence or condition to be unusual. While the FAA agrees that a sample inspection of 200 to 300 airplanes may identify degradation or system aging issues, only a thorough inspection of all affected Model 747 series airplanes in the fleet can determine if a rare condition setting the stage for an airplane fuel tank explosion exists in a given airplane. Therefore, the FAA does not concur with the commenters' request to withdraw the requirement to inspect the center fuel tank wiring in accordance with Service Bulletin 747–28–2205.

No change to the final rule in this regard is necessary.

5. Request To Add an Inspection

One commenter requests that the proposed actions specified in Boeing Service Bulletin 747–28–2205 be expanded to include an inspection to ensure that only fuel tube clamps of proper design are used in the center fuel tank and that the electrical resistances of all fuel tube clamps and couplings are within specified limits.

The commenter states that the NTSB, FAA, and National Aeronautics and Space Administration have each documented cases of fuel tube clamps and flexible fuel tube (Wiggins) couplings that were not properly bonded. In addition, the commenter found four different types of fuel tube clamps present in Model 747 series airplanes, some of which were not bonded. Also, the commenter has found fuel tube clamps in the center fuel tank of a Model 747 series airplane with silicon cushions that had degraded in

the presence of fuel. The commenter further notes that military specifications prohibit the use of this type of clamp in fuel tanks.

The FAA does not concur with the commenter's request to add an inspection. At the NTSB's request, an operator measured resistances and capacitances from three airplanes, each a different model, utilizing flexible fuel tube (Wiggins) couplings. The data from those measurements can be found in the NTSB accident investigation docket associated with the subject accident. After a review of the data from each of the three airplanes, the FAA determined that the range of resistances and capacitances measured would not result in an ignition with respect to static charge. The fuel tube clamps would be even less of a concern than the Wiggins fittings (for which the data were taken) because the fuel tube clamps would have lower associated capacitances.

While previous examination of the Wiggins coupling design has identified the potential for generating electrical sparks during a lightning event, standard installations in large aluminum fuel tanks (as in the Model 747) with fay surface bonding where fuel tubes attach to wing structure and the use of bonding jumpers have been shown to provide adequate lighting protection. In that type of installation, the design relies on the bonding jumper and fay surfaces to create a path for conducting the lightning current. The requirement to examine the bonding jumpers and measure the electrical bonding resistance as specified in Boeing Service Bulletin 747–28–2205, Revision 1, verifies the integrity of the provisions for lightning protection. Therefore, no additional measurements or inspections concerning the Wiggins couplings themselves are required.

Previous studies performed regarding the threat of lightning to an aircraft fuel system have not identified tube clamps as ignition sources.

No change to the final rule in this regard is necessary.

6. Request To Revise Reporting Requirements

Several commenters request revision or withdrawal of the proposed requirements to report results of the inspection of the center fuel tank and FQIS wiring. The specific requests are as follows:

- One commenter requests that the proposed requirement to report results of the inspection specified by Boeing Service Bulletin 747–28–2205 be withdrawn. The commenter states that the reporting requirement is necessary only for providing sample results to aid in defining future maintenance requirements. The commenter also is concerned that legible and consistent reporting results are not always obtained during inspections. The commenter states that it would be of considerable concern if corrupt or lost data meant that an operator was noncompliant.
- Three commenters request that the proposed inspection reporting requirements be modified to allow 30 days instead of the proposed 10 days. One commenter, the manufacturer, requests that the proposed AD extend the reporting time from 10 to 30 days because the volume and detail of the records taken during the inspection require a significant effort to collect and document. In addition, some airlines perform a series of inspections on a number of airplanes within a short time frame. One commenter, an operator, states that 10 days is not adequate to provide the reports, based on numerous center fuel tank inspections it has performed (in accordance with Service Bulletin 747–28–2205). That commenter adds that the data for the inspection are quite extensive, and that collating and processing the data take considerable time; in some cases, three weeks were required to input the data into a database and complete a qualitative report.
- One commenter opposes any proposed requirement to reinspect airplanes inspected previously with the original issue of Boeing Service Bulletin 747–28–2205, due to the change in reporting requirements in Revision 1 of that service bulletin. One commenter, an operator, states that the reporting mechanism in the original release of Service Bulletin 747–28–2205 was improved in Revision 1 (the main purpose of the revision). The commenter observed that operators did provide the relevant data to Boeing, but not necessarily in a manner consistent with the mechanism employed in Revision 1 of the service bulletin.
- Two commenters request that, for those airplanes on which the center fuel tank inspections have already been accomplished in accordance with the original version of Boeing Service Bulletin 747–28–2205, the proposed reporting requirements be revised to allow any incorrect or missing data to be obtained and submitted after a scheduled tank entry or ''C'' check, prior to the compliance date of the proposed AD. One commenter, an operator, explained that when the original data from the center fuel tank inspections (in accordance with the original release of Service Bulletin 747–28–2205) were collected, the inspection was not a mandatory project. Although most of the data were collected, about 1% to 4% of the data were missing or incorrect on 13 of 44 airplanes inspected. That commenter interprets the proposed requirement to submit all findings on the previously inspected airplanes to mean that operators would be required to plan another unscheduled tank entry to re-obtain the missing measurements. That commenter plans to obtain the missing measurements during the accomplishment of the installation of the scavenge pump flame arrestor and considers an additional tank entry prior to that installation to be of no value.

The FAA concurs with the request to remove the reporting requirements from the proposal. Because the proposed AD specified that the reporting results of the inspections described in both Service Bulletin 747–28–2205 and Alert Service Bulletin 747–28A2208 be sent directly to the manufacturer, the FAA would not be reviewing those results. Boeing Service Bulletin 747–28–2205 states that the data from the inspection program ''* * * will be used to confirm the intended condition of the tanks and, where necessary, to identify follow-up activities to assure the continued airworthiness of these tanks. These additional activities may include updated maintenance programs and/or corrective action service bulletins.'' Service Bulletin 747–28A2208 states that ''* * * data will be collected and used to confirm the intended conditions of the FQIS * * *''

Ordinarily, the FAA mandates that inspection results be submitted directly to the agency when the FAA intends to use the data to determine if the AD needs to be revised. For example, data reporting may be mandated if that information could be used to identify trends indicating that the AD would need a more restrictive action, such as including additional airplanes or reducing the compliance time. Inspection data from 283 Model 747 series airplanes have been submitted by operators having already completed the actions specified by the original issue of Service Bulletin 747–28–2205. These data have not identified any information that the FAA would consider relevant to the requirements of the proposed AD. The FAA does not expect that any data from Alert Service Bulletin 747–28A2208 will identify information relevant to the requirements of the proposed AD. Because additional data from the accomplishment of either Boeing Service Bulletin 747–28–2205 or Alert Service Bulletin 747–28A2208 would not serve a direct purpose for the FAA, the reporting requirements have

been removed from the final rule. Operators may voluntarily submit their inspection and test data to the manufacturer, as requested in the applicable service bulletins.

The final rule has been revised to delete paragraph (c), which referred to the reporting requirements for the inspections and tests contained in Boeing Service Bulletin 747–28–2205 and Alert Service Bulletin 747–28A2208.

7. Support for Reporting Requirement

One commenter fully supports a requirement for operators to report findings to the FAA. [However, it should be noted that the reporting requirement proposed in the NPRM would have required operators to ''* * * submit a report of the results of the inspections * * * to the Manager, Airline Support, Boeing Commercial Airplane Group.'']

It was not the FAA's intent to require that the inspection reports be submitted to the FAA. As stated earlier, ordinarily, the FAA mandates that reporting requirements be submitted directly to the agency when the FAA intends to use the data to determine if the AD needs to be revised. For example, data reporting may be mandated if that information could be used to identify trends indicating that the AD would need a more restrictive action, such as encompassing more airplanes or a shorter compliance time. Inspection data from 283 Boeing Model 747 series airplanes have been submitted by operators having already completed the original version of Boeing Service Bulletin 747–28–2205. These data have not identified any information that the FAA would consider relevant to the requirements of the proposed AD. The FAA does not expect that any data from Alert Service Bulletin 747–28A2208 will identify information relevant to the requirements of the proposed AD. Because additional data from the accomplishment of either service bulletin would not serve a direct purpose to the FAA, the reporting requirements for Boeing Service Bulletin 747–28–2205 and Alert Service Bulletin 747–28A2208 will be removed from the final rule. The operators may voluntarily submit their inspection and test data to the manufacturer.

The reporting requirements [paragraph (c) of the proposed AD] have been removed from the final rule.

8. Request To Allow Optional Modification

One commenter explained that, during inspections performed on airplanes in accordance with the original version of Boeing Service Bulletin 747–28–2205, some operators, with the airplane manufacturer's approval, modified in-tank bonding by adding additional bonding jumpers. The operator states that the modifications have been necessary for various reasons, but always with the intent to ensure conformity with design requirements, and that, at the next ''D'' check, the airplane may or may not be reworked back to original configuration, depending upon the circumstances of the modification.

The commenter requests that the final rule consider the aforementioned situation so that operators do not have to re-enter the fuel tanks.

The FAA infers that additional bonding jumpers were installed to achieve the resistance values specified by the airplane type design. The FAA additionally infers that the operators are concerned that, because the addition of bonding jumpers is not specified as acceptable rework in the service bulletin, re-entry into the fuel tank would be required to achieve the resistance values by a method specified in the service bulletin. The FAA considers that the bonding jumpers added with the approval of the manufacturer may be an acceptable change to the type design. However, requests for alternative methods of compliance must be submitted in accordance with paragraph (d) of this AD. (Operators of foreign-registered airplanes would need to obtain approval for the change from their respective regulatory authorities as an alternative method of compliance to the AD.) Another option would be for the manufacturer to revise Service Bulletin 747–28–2205 to add this modification, and apply for an alternative method of compliance to the AD. No change to the final rule is necessary.

9. Request To Remove Certain Airplanes From the Requirement To Accomplish Paragraph (a)

One commenter requests that, for new airplanes, the FAA mitigate the intent of paragraph (a) of the proposed AD, ''unless it is clearly the intent of the FAA to document compliance with SB 747–28–2205 during production.''

The commenter interprets paragraph (a) of the NPRM to mean that new production airplanes also would be required to accomplish the proposed inspections and tests during production, or that the operators would be required to perform the inspections and tests after delivery, but no later than 24 months after the effective date of the proposed AD. Therefore, at the time of delivery, airplane records would be required to demonstrate compliance with Boeing Service Bulletin 747–28–2205 or an FAA-approved equivalent method of compliance. Otherwise, the AD compliance letter, provided at the time of new airplane delivery, would be required to report the AD as further action required by the customer after delivery.

The FAA concurs with the commenter's interpretation of the effect paragraph (a) of the proposal would have on production airplanes. However, the intent of the proposal was not to require the incorporation of Service Bulletin 747–28–2205 for the production airplanes. Paragraph (a) of the final rule has been revised to require accomplishment of Service Bulletin 747–28–2205, Revision 1, by airplanes listed in that service bulletin.

10. Request To Revise Work Hour Estimates

One commenter stated that the airplane downtime provided in the referenced service bulletins is not a true reflection of the time necessary to accomplish the actions, as it does not include tank preparation, scheduling manpower, and any necessary rework.

The commenter suggests that the rework associated with the actions described in the original version of Boeing Service Bulletin 747–28–2205 takes as least as long as the inspection itself. Although no specific change was requested by the commenter, the FAA infers that the commenter requests that the work hour estimates for the wiring inspection be revised.

The FAA does not concur with the request to revise the work hour estimates. While the FAA agrees that the service bulletins do not include tank preparation time, the cost estimate for the AD does factor in the preparation time and associated cost for one center fuel tank entry (assuming that all of the required actions will be accomplished concurrently). Normally the cost analysis in AD rulemaking actions does not include ''incidental costs,'' such as planning time or time necessitated by other administrative actions. Because incidental costs may vary significantly from operator to operator, such costs are almost impossible to calculate.

Furthermore, the economic analysis of the AD is limited only to the cost of actions actually required by the rule. It does not consider the costs of ''on condition'' actions, such as repairing damaged components detected during a required inspection (''repair, if necessary''). Such ''on condition'' repair actions would be required to be accomplished—regardless of AD action—in order to correct an unsafe

condition identified in an airplane and to ensure operation of that airplane in an airworthy condition, as required by the Federal Aviation Regulations.

No change to the final rule in this regard is necessary.

11. Request To Revise Cost Estimate

One commenter provided cost estimates different from those proposed in the NPRM, including $12,500 for the work hours, $61,000 for the material, and $69,000 for the downtime required to accomplish the proposed actions, for a total of $142,500 per airplane. Although there was no specific change requested by the commenter, the FAA infers that the commenter requests that the proposed cost estimates be revised.

The FAA does not concur with the request to revise the cost estimates. The commenter did not provide any justification for the different cost estimate.

Moreover, the FAA considers it inappropriate to attribute the costs associated with aircraft ''downtime'' to the cost of the AD, because, normally, compliance with the AD will not necessitate any additional downtime beyond that of a regularly scheduled maintenance hold. However, in cases such as this AD, where additional downtime may be necessary for some airplanes, the FAA does not possess sufficient information to evaluate the number of airplanes that may be so affected or the amount of additional downtime that may be required. Therefore, attempting to estimate such costs would be futile.

No change to the final rule in this regard is necessary.

12. Request To Mandate Accomplishment of Unreleased Service Bulletin

One commenter requests that the proposed rule be modified to mandate the actions contained in a revision to Boeing Alert Service Bulletin 747–28A2208.

The commenter advised that a revision to the alert service bulletin was being prepared. The commenter listed the changes to be included in the revision:

- A clarification of the part numbers for sleeving material and wire;
- A clarification in references to the supplier service bulletin on the compensators, and additional information provided to operators on the installation of a seal boot during the assembly of a splice; and
- A clarification of a reference with respect to the installation of terminals lugs.

The FAA does not concur with the commenter's request to mandate the actions contained in a revision to Alert Service Bulletin 747–28A2208 because the revision will not be released in time to support the procedural schedule for the release of this AD. Use of the phrase ''or later FAA-approved revisions'' violates Office of the Federal Register regulations regarding approval of materials that are incorporated by reference. However, affected operators may apply for an alternative method of compliance, in accordance with paragraph (d) of this AD.

13. Request To Expand Inspection Requirements

One commenter requests that the proposed FQIS inspection (actions as described in Boeing Alert Service Bulletin 747–28A2208) be expanded to include the following actions that were identified during the accident investigation:

- Electrical tests for disconnected/floating wire shielding that has been found inside and outside Boeing Model 747 fuel tanks;
- A test for proper operation of the FQIS indicator light circuit (a failure path was found from the light circuit to the tank wires);
- Isolation of FQIS and Airborne Integrated Data System wiring; Inspections for loose metal debris on and in the volumetric shutoff (ground refueling) unit that can bridge across FQIS compensator circuits; and
- Inspections of the wiring connections at all terminal blocks and terminal strips in the center fuel tank.

The FAA does not concur with the commenter's request to expand the FQIS inspection in this AD. The FAA points out that the proposed AD is intended to address only *in-tank* actions. However, some of the commenter's proposed actions concerning systems or components outside of the fuel tanks are addressed in AD 98–20–40 [airplane models not addressed by that AD will be addressed by a proposed Special Federal Aviation Regulation (SFAR)]. AD 98–20–40 requires the installation of shielding and separation of the electrical wiring of the FQIS and the first four bulleted items in the preceding list.

The commenter also proposes that the FAA require electrical tests for disconnected or floating wire shielding *inside* the fuel tanks. The action specified in the NPRM for accomplishing Boeing Alert Service Bulletin 747–28A2208 requires a visual inspection of the FQIS wire shield termination at the terminal blocks, which, according to the commenter, should detect any loose or disconnected wire shields. However, the commenter adds that, with the new requirement to replace all FQIS wiring outside of the fuel tanks and the surge tank (the tank located on the outboard tip of each wing, which collects any overfill from any of the fuel tanks) with shielded wire, the concern regarding a floating or disconnected wire shield within the fuel tank (in the FQIS) is mitigated.

The FAA does not concur with the request to include electrical tests for disconnected or floating wire shields inside the center fuel tank. With the mandated design change requiring shielding on all outside-the-tank FQIS wiring, a hot short to the FQIS wire bundle outside of the tank would be intercepted and grounded by the FQIS wire bundle shield. Therefore, the only threat posed by a floating or disconnected wire shield inside the fuel tank, such as the HI Z shield, would be system malfunctioning due to potential electromagnetic effects. While system malfunctioning is undesirable, it does not pose a safety threat to the airplane with respect to fuel tank ignition.

The commenter also proposes inspections of the wiring connections at all terminal blocks and terminal strips in the center fuel tank. The FAA points out that paragraph (b) of the AD requires ''a one-time visual inspection of the FQIS wiring and components, in accordance with Boeing Alert Service Bulletin 747–28A2208.'' Included in that alert service bulletin are specific procedures for the inspection of all terminal blocks and terminal strips in the center fuel tank; this inspection is required for compliance with the requirements of this AD. The FAA agrees that an action to visually inspect the terminal strip located in the center wing tank for proper wiring connections is appropriate. The final rule does not require revision in this regard.

14. Request To Remove In-Production Airplanes From Inspection Requirement

One commenter requests that, for new airplanes, the FAA mitigate the intent of paragraph (b) of the proposed AD, ''unless it is clearly the intent of the FAA to document compliance with SB 747–28A2208 during production.''

The FAA does not concur with the commenter's request. The AD, as written, does not require documentation of compliance with Boeing Alert Service Bulletin 747–28A2208 for production airplanes. Paragraphs (b)(1) and (b)(2) of the AD specify those groups listed in the airplane effectivity section of the service bulletin, which includes only 747–100, –200, –300, SR, and SP airplane line

numbers. Therefore, none of the 747–400 production airplanes would be required to comply with paragraph (b) of this AD. No change to the final rule is necessary in this regard.

15. Request To Limit FQIS Inspection Requirement to Younger Airplanes

One commenter requests the FAA to revise the requirement to inspect the FQIS wiring by limiting it to airplanes younger than 20 years. The commenter observes that mandating the combination of the inspection of the FQIS wiring and components and the replacement of the FQIS wiring and components is overdone for airplanes older than 20 years. If rulemaking requires removal of FQIS wiring and components, an extra inspection on the newly installed components cannot be technically justified.

The FAA concurs with the commenter's statement that requiring both the FQIS wiring inspection and probe replacement in accordance with Boeing Alert Service Bulletin 747–28A2208 and the replacement of FQIS wiring and components for airplanes older than 20 years is not technically justified. If both requirements were to be mandated, airplanes that are required to replace FQIS wiring and components would not be subject to the inspection described in Alert Service Bulletin 747–28A2208. However, as discussed in issue 18., the requirement to replace FQIS wiring and components has been removed.

16. Request To Eliminate Duplicate Inspection

Three commenters state that the proposal would require a duplication of the wiring inspection of the FQIS. (The same inspection is described in Boeing Service Bulletin 747–28–2205 and Alert Service Bulletin 747–28A2208.) The commenters request that the AD clarify this requirement so that operators may avoid the duplication of work.

The FAA concurs with the commenters' request. Service Bulletin 747–28–2205 and Alert Service Bulletin 747–28A2208 do indeed contain some duplicate actions. Therefore, the final rule has been revised to continue to require accomplishment of Boeing Alert Service Bulletin 747–28A2208 for the FQIS inspection for Model 747–100, –200, –300, SP, and SR series airplanes. Airplanes already inspected in accordance with Steps 1 through 9 in Figure 11 of the original issue of Service Bulletin 747–28–2205, will receive credit for the accomplishment of Steps 1 through 6 in Figure 16 of Alert Service Bulletin 747–28A2208. Model 747–100, –200, –300, SP, and SR series airplanes will be required to accomplish only step 3 in Figure 11 of Service Bulletin 747–28–2205, Revision 1. However, because Alert Service Bulletin 747–28A2208 does not address Model 747–400 airplanes, those airplanes would be required to perform the tasks outlined in Steps 1 through 9 in Figure 11 of Service Bulletin 747–28–2205, Revision 1.

17. Request To Remove Requirement To Install Flame Arrestor

Three commenters do not support the requirement to accomplish Boeing Alert Service Bulletin 747–28A2210, which describes installation of a flame arrestor in the inlet line of the scavenge pump. Two commenters request the FAA to provide valid technical data and further technical discussion in support of that requirement.

One commenter stated that neither service experience over the past 25 years of operation of the Model 747 nor findings of the 248 airplanes inspected to date indicate that the scavenge pump design could possibly create an unsafe condition. The commenter states that, other than providing an additional layer of safety, there is no technical justification to mandate the actions specified in Alert Service Bulletin 747–28A2210.

The other commenters note that, while the FAA identified the scavenge pump's vulnerability to center fuel tank ignition as a result of a potential mechanical failure of the pump, Alert Service Bulletin 747–28A2210 specifies that ''laboratory testing of the pump has not revealed any condition under which the pump would generate an ignition source.'' The commenters question the necessity for the proposed modification due to the disparity between the FAA and Boeing positions. The commenters suggest that the FAA pursue further examination of this issue and provide valid technical data supporting the need for this modification.

The FAA infers that the commenters are requesting removal of the requirement to install a flame arrestor in the scavenge pump inlet line of the center fuel tank. The FAA does not concur. It was noted during the accident investigation that, although the structure that had contained the scavenge pump was recovered, the scavenge pump itself was missing from the wreckage. The scavenge pump is operated differently than the other pumps within the fuel system. The purpose of the scavenge pump is to reduce the amount of unusable fuel in the center fuel tank by scavenging the fuel left in the tank after the override boost pumps have been turned off (due to low pressure output). This scavenged fuel is relocated to a wing tank for later use. Because of its unique operation, the scavenge pump is run dry, which means that it continues to operate while exposed only to the fuel vapor within the center fuel tank.

Because the scavenge pump was missing and unavailable for further analysis, the NTSB reviewed possible failure scenarios associated with the vane-type scavenge pump. The scavenge pump rotating element is made of steel, as are the pump vanes and sleeving against which the vanes rotate. While the laboratory testing performed on Boeing Model 747 scavenge pumps has not produced an ignition during explosion-proof testing and dry-running the pump, not all of the potential failures are represented by those types of qualification tests. One scenario not represented by qualification tests involves metallic debris within the tank being drawn into the pump and becoming lodged between the steel pump sleeve and the steel rotating components, or causing another type of pump failure. This scenario could cause sparking or excessive heat and potentially act as an ignition source if the pump were exposed to fuel vapors from within the center fuel tank (dry-running). The vulnerability of the scavenge pump to creating a scenario that would allow ignition of the flammable fuel vapors drawn into the pump and have the resultant flame front propagate back through the inlet line to the center fuel tank causing a fuel tank explosion was identified during the design reviews of this component. That revelation led to the manufacturer's willingness to provide a flame arrestor design for the inlet line of the scavenge pump. Therefore, the FAA considers this information as technical justification for requiring the installation of a flame arrestor in the inlet line of the scavenge pump.

No change in the final rule is required.

18. Request To Remove Requirement To Replace FQIS: No Demonstrated Need

Five commenters oppose the FAA's proposal to require replacement of the center tank FQIS components and wiring on Model 747 series airplanes having 20 or more years of service. The FAA infers that these commenters request removal of these replacement actions from the proposed AD.

Four commenters state that there is no evidence to date indicating that sulfide contamination is degrading these specific parts to a point where they would be considered a safety hazard to

the airplane, either by themselves or in combination with system failures.

One commenter notes that it has conducted analyses and tests on these particular FQIS components that were removed from aged Boeing Model 747 series airplanes and reports it has not found an instance in which the level of sulfide contamination presents a hazard. The commenter also states that it provided an extensive response to this issue of sulfides in its response to NPRM (docket) 97–NM–272–AD. The commenter notes that the FAA and NTSB are actively pursuing studies of sulfides and the effect these compounds may have in the fuel tank. The commenter proposes that, prior to rulemaking activities on this issue, further research into the subject of sulfides in fuel tanks be accomplished and suggests that these investigations pursue the mechanisms for the formation of sulfides in commercial fuel tank environments. The commenter further states that any testing should involve, where practical and possible, actual airplane components and wiring, and study of the ignition capability of sulfide-contaminated equipment in a fuel vapor environment.

One commenter states that there are no data that indicate that a replacement of the FQIS installed on Model 747–400 series airplanes is necessary. The commenter points out that there are significant differences in the design and construction of the FQIS components and wiring for Model 747–400 and 747 Classic series airplanes.

The FAA concurs with the request to remove the requirement to replace the FQIS. The FAA agrees with the commenters that the effects of copper/sulfur contaminates are not fully understood at this time. The FAA had anticipated gathering meaningful data from the commenters as to a reasonable replacement time for the FQIS components and wiring, but no additional data were provided through this comment process. Therefore, the FAA may consider further rulemaking on the issue of copper/sulfur or silver/sulfur contamination.

The FAA and NTSB currently plan to research the effects of copper/sulfur deposits on fuel tank system components. The research will include identifying copper/sulfur film properties, identifying the mechanisms related to film growth, and identifying aircraft maintenance methods that will detect and remove deposits before they reach hazardous levels.

The final rule has been revised to remove the requirement to replace all the center tank FQIS components with new FQIS components [paragraph (d) of the NPRM]. The final rule has been further revised to remove the requirement to replace the silver-plated copper FQIS wiring with nickel-plated copper wiring [paragraph (e) of the NPRM].

19. Request To Remove Requirement To Replace FQIS Wiring: Various Reasons

Several commenters propose the removal of the requirement to replace the FQIS wiring and components, for various reasons. As stated previously, the final rule has been revised to remove the requirement to replace all the center tank FQIS components with new FQIS components. The action requiring replacement of the silver-plated copper FQIS wiring with nickel-plated copper wiring also has been removed from the final rule. Therefore, these requests are moot.

20. Request To Reduce Compliance Time

One commenter does not support the proposed compliance time to replace the FQIS components, and to replace silver-plated copper FQIS wiring with new nickel-plated wiring, on airplanes having 20 or more years of service. The commenter encourages the FAA to require a much earlier replacement interval.

The commenter states that the proposed actions are based on finding the presence of corrosion, in the form of copper/sulfur residue, on center fuel tank FQIS components of Model 747 series airplanes. The commenter further states that testing has demonstrated the potential for arcing of sulfur residues, which could create a possible ignition source. However, the commenter has found sulfidation on FQIS components in a 17-year-old Boeing Model 757 series airplane that had accumulated only 24,000 hours of service. The commenter is also aware of Boeing laboratory test results (which were shared with the FAA) that indicate that sulfidation may be present on FQIS components with less than 1,000 hours of service.

As discussed previously, the FAA acknowledges that the effects of copper/sulfur contaminates are not fully understood at this time. The FAA had anticipated gathering meaningful data from the commenters to help determine a reasonable replacement time for the FQIS components and wiring, but no additional data were provided through this comment process. Therefore, the FAA may consider further rulemaking on the issue of copper/sulfur or silver/sulfur contamination.

The FAA and NTSB currently plan to research the effects of copper/sulfur deposits on fuel tank system components. The research will include identifying copper/sulfur film properties, identifying the mechanisms related to film growth, and identifying airplane maintenance methods to detect and remove deposits before they reach hazardous levels. After this research is accomplished, appropriate actions and intervals for those actions may be proposed to address any concerns identified by the research.

As previously stated, the final rule has been revised to remove the requirements to replace all center tank FQIS components with new FQIS components, and to replace silver-plated copper FQIS wiring with nickel-plated copper wiring.

21. Request To Require Replacement of All Silver-Plated Wiring

One commenter strongly supports the action for replacing silver-plated copper FQIS wiring in the center wing tank with new nickel-plated wiring. The commenter encourages the FAA to expand this action to address replacement, with new nickel-plated copper wiring, of all silver-plated copper wiring (not just that on the FQIS) that is exposed to fuel or fuel vapors.

The FAA does not concur with the commenter's proposal. The FAA acknowledges that the effects of copper/sulfur contaminates are not fully understood at this time. The FAA had anticipated gathering meaningful data from the commenters to determine a reasonable replacement time for the FQIS components and wiring, but no additional data were provided through this comment process. Therefore, the FAA may consider further rulemaking on the issue of copper/sulfur or silver/sulfur contamination.

The FAA and NTSB currently plan to research the effects of copper/sulfur deposits on fuel tank system components. The research will include identifying copper/sulfur film properties, identifying the mechanisms related to film growth, and identifying airplane maintenance methods to detect and remove deposits before they reach hazardous levels. After this research is accomplished, appropriate actions and intervals for those actions may be proposed to address any concerns identified by the research.

As previously stated, the final rule has been revised to remove the requirement to replace all center tank FQIS components with new FQIS components. In addition, the final rule has been revised to remove the requirement to replace silver-plated copper FQIS wiring with nickel-plated copper wiring.

22. Request To Approve BF Goodrich FQIS for Compliance

One commenter, an operator, requests that the AD specify the BF Goodrich Digital FQIS system as an acceptable means of compliance with the AD. The operator reports that it expects to have the FQIS system installed on all of its airplanes by January 2000.

The FAA is reviewing the BF Goodrich Digital FQIS system to determine if it is an acceptable means of compliance with AD 98–20–40, which requires the installation of shielding and separation of the electrical wiring of the FQIS. The FAA does not have the information necessary to approve the BF Goodrich Digital FQIS system as an alternative method of compliance to the requirements of the proposed AD.

Furthermore, as stated previously, the final rule has been revised to remove the requirement to replace the FQIS components and wiring due to concerns regarding copper/sulfur or silver/sulfur contamination.

23. Request To Revise Number of Affected Airplanes

One commenter, the manufacturer, provided an estimate of affected airplanes for United States and foreign operators. The FAA infers that the commenter requests the revision of the affected number of airplanes to reflect 248 airplanes operated domestically and a total of 1,077 airplanes operated worldwide.

The FAA concurs. The original estimates in the proposed AD were provided by the manufacturer. Because the manufacturer provided a revised estimate via the NPRM comment process, the final rule has been revised to reflect these numbers.

24. Request To Extend Compliance Time

Five commenters request an extension of the compliance time for the actions specified by the proposed AD.

Two commenters suggest 36 months as a realistic compliance time, considering the time required to schedule these modifications into operators' normal maintenance schedules.

One commenter proposes that, although parts will be available to support the modification described in Boeing Alert Service Bulletin 74–28A2210, the compliance time should be the same for all actions. The commenter is concerned that requiring a different compliance time for this service bulletin could mean that the 40-hour effort of tank preparation would be required for only a two-hour modification procedure. Therefore, this commenter requests the compliance time for all actions to be 36 months.

One commenter requests an increase in the compliance time to allow operators to complete these actions at scheduled ''D'' checks, which would reduce the additional ''down time'' of the airplanes. The commenter encourages the FAA to consider the additional cost associated with taking an airplane out of service.

Another commenter, an operator, stated that a proposed compliance time of 24 months would require most of its airplanes to be inspected/modified in ''C'' checks. The associated cost of accomplishing these actions in ''C'' checks rather than ''D'' checks is $69,000 per airplane.

Some commenters request that the compliance time associated with replacement of the FQIS components be based on a time frame of ''x'' months after parts availability.

Another commenter suggests that, with respect to the proposed requirement to replace all of the FQIS components, a period not to exceed 25 years after manufacture of the airplane would be better matched to the airplane operational life and maintenance schedule.

The FAA does not concur with the commenters' request for an extension of the compliance time. In developing an appropriate compliance time, the FAA considered the safety implications, parts availability, and normal maintenance schedules for timely accomplishment of the required actions. The FAA also has removed from the final rule several proposed actions: replacement of all center tank FQIS components with new FQIS components, replacement of silver-plated copper FQIS wiring with nickel-plated copper wiring, and the reporting requirements. These revisions to the AD will substantially reduce the amount of time operators will need to accomplish the required actions. Also, because replacement of the FQIS components and wiring will no longer be required, the parts availability concern associated with the fact that those system components are no longer in production or do not currently exist is not a factor in considering compliance time.

Because the proposed AD addresses actions to reduce the potential for an ignition source within the center fuel tank, and because some of the original requirements in the proposed NPRM have been removed, the FAA does not find it is in the best interest of the public or industry to extend the compliance time. Associated rulemaking regarding ignition sources, such as a proposed SFAR (which is currently being developed) and AD 98–20–40 (which has a 36-month compliance time), will not be fully implemented for several years. Therefore, it is important that the actions required by this AD be implemented as quickly as possible.

No change to the compliance times in the final rule is necessary.

Additional Changes to Final Rule

Certain requirements in the proposed AD would have been applicable to all Boeing Model 747 series airplanes; those actions have been removed from the final rule. As a result, the applicability of the final rule has been revised to include only those airplanes affected by the remaining requirements.

In the proposed AD, paragraphs (a)(2), (b)(1), and (b)(2) referred to certain Figures in the applicable service bulletins. The FAA finds that clarification of the requirements of paragraphs (a)(2), (b)(1), and (b)(2) is necessary. Although the Figures called out in those paragraphs contain the primary instructions for those actions, additional information may be found in other Figures of the service bulletins for accomplishment of the actions required by those paragraphs. The final rule has been revised to remove specific Figure references from paragraphs (a)(2), (b)(1), and (b)(2).

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 described previously. 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 1,077 Boeing Model 747 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 248 airplanes of U.S. registry will be affected by this AD.

The FAA estimates that it will take approximately 40 work hours per airplane to purge, access, and close the center fuel tank, at an average labor rate of $60 per work hour. The cost impact on U.S. operators to purge, access, and close the fuel tank is estimated to be $2,400 per airplane.

The FAA estimates that the inspection of the center fuel tank will be required to be accomplished on 248 airplanes. It will take approximately 56 work hours per airplane to accomplish the inspection, at an average labor rate of

$60 per work hour. Based on these figures, the cost impact of this inspection on U.S. operators is estimated to be $833,280, or $3,360 per airplane.

The FAA estimates that the FQIS inspection and system operational test, probe replacement, and insulation resistance test will be required to be accomplished on 191 airplanes. It will take approximately 60 work hours (maximum) per airplane to accomplish these actions, at an average labor rate of $60 per work hour. Required parts will cost approximately $30,000 per airplane (maximum). Based on these figures, the cost impact of these actions on U.S. operators is estimated to be a maximum of $6,417,600, or $33,600 per airplane.

The FAA estimates that the installation of a flame arrestor will be required to be accomplished on 214 airplanes. It will take approximately 2 work hours per airplane to accomplish the installation, at an average labor rate of $60 per work hour. Required parts will cost approximately $1,107 per airplane. Based on these figures, the cost impact of this installation on U.S. operators is estimated to be $262,578, or $1,227 per airplane.

The cost impact figures discussed above are 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:

99–08–02 Boeing: Amendment 39–11106. Docket 98–NM–163–AD.

Applicability: Model 747 airplanes having line numbers 1 through 1124 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 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 (d) 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 ignition sources and consequent fire/explosion in the center fuel tank, accomplish the following:

(a) For those airplanes listed in Boeing Service Bulletin 747–28–2205, Revision 1, dated April 16, 1998: Within 24 months after the effective date of this AD, accomplish paragraphs (a)(1) and (a)(2) of this AD, in accordance with the service bulletin.

(1) Perform a one-time visual inspection of the center fuel tank wiring and components to detect discrepancies (damage, disbonding, and incorrect installation). If any discrepancy is detected, prior to further flight, repair the discrepant component, or replace it with a new or serviceable component. And

(2) Perform a one-time electrical bonding test of the center fuel tank components. If any measured resistance exceeds the limits specified by the service bulletin, prior to further flight, rework the discrepant component.

Note 2: Revision 1 of Boeing Service Bulletin 747–28–2205 provides two additional actions (inspection of the body fuel tank components and measurement of the ground resistance of the pressure switch case on the auxiliary power unit pump) that were not provided in the original version of this service bulletin. Inspections and testing accomplished prior to the effective date of this AD in accordance with Boeing Service Bulletin 747–28–2205, dated June 27, 1997, are considered acceptable for compliance with the applicable actions specified in this AD.

Note 3: Airplanes required to accomplish paragraph (b) of this AD are exempt from accomplishing steps 1, 2, and 4 through 9 in Figure 11 of Boeing Service Bulletin 747–28–2205, Revision 1, dated April 16, 1998.

(b) For those airplanes listed in Boeing Alert Service Bulletin 747–28A2208, dated May 14, 1998: Within 24 months after the effective date of this AD, perform a one-time insulation resistance test of the fuel quantity indication system (FQIS), a one-time visual inspection of the FQIS wiring and components to detect discrepancies (chafing damage to the wiring and incorrect configuration of the terminal blocks), replacement of ''series 3'' (or earlier series) FQIS probes with new ''series 4'' (or subsequent series) FQIS probes, and system adjustment and system operational test; in accordance with the alert service bulletin. If any discrepancy is detected, prior to further flight, perform corrective actions in accordance with the alert service bulletin.

Note 4: For airplanes on which steps 1 through 9 in Figure 11 of Boeing Service Bulletin 747–28–2205, dated June 27, 1997, or Revision 1, dated April 16, 1998, were accomplished prior to the effective date of this AD, steps 1 through 6 in Figure 16 of Boeing Alert Service Bulletin 747–28A2208, dated May 14, 1998, are not required.

(c) For airplanes having line positions 1 through 971 inclusive: Within 24 months after the effective date of this AD, install a flame arrestor in the inlet line of the electrical motor-operated scavenge pump of the center fuel tank, in accordance with Boeing Alert Service Bulletin 747–28A2210, dated May 14, 1998.

(d) 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, Seattle Aircraft Certification Office (ACO), FAA, Transport 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, Seattle ACO.

Note 5: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

(e) 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.

(f) The actions shall be done in accordance with Boeing Service Bulletin 747–28–2205, Revision 1, dated April 16, 1998; Boeing Alert Service Bulletin 747–28A2208, dated

May 14, 1998; and Boeing Alert Service Bulletin 747–28A2210, dated May 14, 1998; as applicable. 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 Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124–2207. 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.

(g) This amendment becomes effective on May 11, 1999.

Issued in Renton, Washington, on March 29, 1999.

Darrell M. Pederson,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 99–8134 Filed 4–5–99; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF THE TREASURY

Customs Service

19 CFR Part 178 and 192

[T.D. 99–34]

RIN 1515–AC19

Exportation of Used Motor Vehicles

AGENCY: Customs Service, Treasury.

ACTION: Final rule.

SUMMARY: This document amends the Customs Regulations to implement title IV of the Anti Car Theft Act of 1992, which concerns the exportation of used self-propelled vehicles. The amendments concern the nature of the documentation that establishes ownership of a vehicle bound for export and the presentment of that documentation to Customs. The document also clarifies procedures to enable Customs to more efficiently and effectively deter the export of stolen vehicles.

EFFECTIVE DATE: May 6, 1999.

FOR FURTHER INFORMATION CONTACT: Hugh Austin, Outbound Programs, Office of Field Operations, (202) 927–3735.

SUPPLEMENTARY INFORMATION:

Background

Regulations implementing current export control requirements applicable to used self-propelled vehicles, vessels, and aircraft are found at part 192 of the Customs Regulations (19 CFR part 192). Since 1989, these regulations have, in general, required persons or entities seeking to export used self-propelled vehicles to present both the vehicle and documentation, which includes the Vehicle Identification Number (VIN) or other product identification number, to Customs at least three days prior to shipment; Customs then checks the VIN against the databases of the National Crime Information Center (NCIC) to see if the vehicle has been reported stolen.

To strike back against auto thieves and carjackers, on October 25, 1992, the President signed the Anti Car Theft Act of 1992 (the Act)(Pub. L. 102–519, 106 Stat. 3384) in the hope that the legislation would reduce the level of auto thefts and carjackings—a major crime problem costing American car owners billions of dollars each year. *See,* H.R. 4542, 102th Cong., 2d Sess. (1992), *reprinted* in (1992) 5 U.S.C.C.&A.N. 2829. Title IV of the Act contains provisions pertaining to the export of stolen automobiles. Section 401 of title IV contains two provisions intended to tighten Customs enforcement against stolen car exporters. Section 401 amends Part VI of Title IV of the Tariff Act of 1930 by adding: new section 646A (19 U.S.C. 1646b), which directs Customs to conduct random checks of automobiles and containers to ensure that reported VIN information matches the VINs on vehicles being exported; and new section 646B (19 U.S.C. 1646c), which codifies Customs export reporting requirements, and directs Customs to check selected VINs against the information contained at the NCIC.

To implement section 401 of the Act and address certain other procedural problems present in the exportation of used motor vehicles pertaining to the authenticity of documentation presented to Customs to establish ownership of the vehicle to be exported, on October 28, 1997, Customs published a Notice of Proposed Rulemaking in the **Federal Register** (62 FR 55764) to amend the Customs Regulations at § 192.2, Customs Regulations (19 CFR 192.2), which pertains to the requirements for exporting such vehicles. The amendment proposed to revise the documentation requirements contained in paragraph (b) to better ensure that the documentation reflects ownership of the vehicle; the documentation presentment requirement contained in paragraph (c) to clarify the three-day rule; and the authentication requirement of paragraph (d) to make it conform with the above changes. The proposed amendment also added a new paragraph (e) to give port directors the authority to establish when and where the original documentation for the vehicle for export may be presented and where and when the vehicle may be inspected at their ports. The authority citation for part 192 would also be revised to add the statutory citation for the Act discussed (19 U.S.C. 1646c).

The comment period closed on December 29, 1997. Forty-four comments were received. The comments and Customs responses to them follow.

Discussion of Comments

Of the comments received, nine (9) supported the proposed changes and thirty-five (35) either opposed or suggested revisions to the proposed changes. Collectively, these comments concern four major areas.

1. *The requirement to present the original Certificate of Title or a certified copy of the original title issued by a government authority for export of the vehicle presented.*

Comment: The majority of comments received argued that Customs should continue to accept notarized copies of title documents as sufficient proof of ownership of used vehicles intended to be exported, rather than adopt a requirement that only an original or a certified copy of the vehicle title issued by a government authority establishes ownership. These commenters stated that this new documentary requirement will slow the business of exporting used vehicles because of the added costs and time required to obtain these documents from sole-source state-issuing authorities. Accordingly, these commenters propose that Customs not institute the more stringent documentary requirement.

Customs Response: Customs disagrees with the contention that notarized copies of an original title are sufficient to prove ownership of vehicles intended to be exported. Customs needs to be sure that the export of the vehicle presented is authorized by the true owner(s) of the vehicle. In light of the mandate contained in the Anti Car Theft Act of 1992 that Customs tighten enforcement against stolen car exporters, it is Customs position that the only documents which establish verifiable ownership are the original Certificate of Title or a certified copy issued by a government authority.

Original Certificates of Title contain security features designed to defeat fraud, counterfeiting, modifications, etc. Copies of original titles certified by the government-issuing authority also protect against fraud. The fact that these documents are issued by a single government agency in each jurisdiction registering motor vehicles adds to the trustworthiness of these documents.

Concerning notaries certifying ''copies'' of original documents as