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

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 actions shall be done in accordance with Boeing Alert Service Bulletin 767–25A0265, dated May 27, 1999. This incorporation by reference was approved previously by the Director of the Federal Register as of July 20, 2001 (66 FR 32531, June 15, 2001). 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.

Effective Date

(e) The effective date of this amendment remains July 20, 2001.

Issued in Renton, Washington, on October 18, 2001.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 01–26861 Filed 10–25–01; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 95–NM–15–AD; Amendment 39–12485; AD 2001–22–06]

RIN 2120–AA64

Airworthiness Directives; Boeing Model B–17E, F, and G Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to all Boeing Model B–17E, F, and G airplanes, that requires inspections to detect cracking and corrosion of the wing spar chords, bolts and bolt holes of the spar chords, and wing terminals; and correction of any discrepancy found during these inspections. This amendment is prompted by reports of cracking and corrosion of the wing spar. The actions specified by this AD are intended to prevent reduced structural integrity of the wing of the airplane due to the problems associated with corrosion and cracking of the wing spar.

EFFECTIVE DATE: November 30, 2001.

ADDRESSES: Information concerning this amendment may be obtained from or examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington 98055–4056.

FOR FURTHER INFORMATION CONTACT: James G. Rehrl, Aerospace Engineer, Airframe Branch, ANM–120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055–4056; telephone (425) 227–2783; 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 B–17E, F, and G airplanes was published in the **Federal Register** on March 16, 1995 (60 FR 14233). That action proposed to require inspections to detect cracking and corrosion of the wing spar chords, bolts and bolt holes of the spar chords, and wing terminals; and correction of any discrepancy found during these inspections.

Of the approximately 12,600 Boeing Model B–17E, B–17F, and B–17G bombers produced during World War II, only about a dozen remain in operation. Since the last B–17 was completed in April 1945, each is now at least 56 years old. Those remaining are flown primarily in various forms of airshow displays.

Comments

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

Requests To Withdraw Proposed Rule

Many commenters contend that the proposed AD is unjustified and that it should be withdrawn accordingly. The commenters present various reasons for this request.

Several commenters assert that cracking in the spar chord is not a safety issue because no wing or structural failures, incidents, or accidents have resulted from the cracking addressed by the proposed AD. One commenter states that the documented support for the necessity of the proposed AD (as described in the proposal) is flawed and without technical or event-based merit. Another states that no proper basis or need for the issuance of an AD has been established.

Several commenters also refer to B–17s flying with known cracks without incident, some of which are subject to an unspecified type of inspection. One commenter notes that cracks were present in some B–17s during World War II, and limits on the degree of cracking that was acceptable were described in the Structural Repair Manual. The same commenter notes that battle damage was corrected with strap or angle reinforcements. Another commenter reports finding corroded or cracked spars on several airplanes under major restoration, and on one that ran off a runway into a ravine, consequently requiring major repairs. The commenter indicates that, despite the extreme conditions that this latter airplane encountered, and the implied severity of the spar cracks, no components failed. One commenter reports inspecting the cracks on a particular B–17 and noticing surface corrosion in the cracked area of one B–17. The commenter concludes that since corrosion takes a period of time (sometimes years) to form, the cracks must have been there for several years. Another commenter reports that a hairline crack was observed in the left wing of an airplane in 1979, and that there has been no change or increase in the size of the crack during years of subsequent flying. (The commenter did not specify which structural member contained the crack.) The commenter indicates that a B–17 engineer indicates that there is no safety problem with hairline cracks.

The FAA acknowledges that no accidents are known to have occurred as a result of the conditions addressed by the proposed AD. Nevertheless, the FAA, as well as the operators, are aware of cracks in the wing spar chords of certain B–17 airplanes. To date five of the B–17s either flying or capable of being restored to flight status are known to have cracks in their wing spar chords. The FAA has determined that there is no design feature to prevent the crack propagation from becoming transverse and severing the spar chord. The integrity of this structure is, therefore, essential for continued safe flight and landing.

Several commenters point to the service history of the B–17 as evidence that the proposed actions are not necessary. A few commenters state that, in proposing this rule, the FAA failed to take into account the ruggedness of the B–17, and they reference occurrences during World War II in which some B–17s returned with all four spars broken

as a result of combat damage. One commenter states that the reason for the airplanes being able to return safely in spite of the degree of damage is that 90 percent of the wing strength is in the skin and ribs of the airplane.

Several commenters justify their requests to withdraw the proposal based on the fact that the current usage of the airplane is far less demanding—in terms of weights, altitudes, and environments—than the conditions encountered during wartime operations. Several commenters note that none of the subject airplanes fly at gross weight, with most of them, according to one commenter, flying at 10,000 to 15,000 pounds under gross. One commenter states that the airplanes subject to the proposed AD are flown only 50 to 250 hours per year. Additionally, the commenters assert that the current pilots of these airplanes are more schooled and proficient than those flying them 50 years ago.

Several commenters also cite the excellent maintenance record on the B–17s as a reason that the proposal should be withdrawn. They point out that the subject airplanes are under ''constant surveillance,'' and are well maintained. The commenters also suggest that the remaining B–17s are better maintained now than when they were new, with many of them having been completely restored and many of them being hangared during the airshow off-season.

The FAA concurs with the commenters' assertions that the subject airplanes are operating in environments much more favorable than those encountered during World War II. In addition, the FAA recognizes that, for the most part, these airplanes are meticulously maintained. However, the FAA does not concur with the request to withdraw the proposal based on the conditions in which B–17s operate today, because such conditions are only partially relevant. Of much greater significance are the conditions to which any particular airplane has been exposed over its life-span. While most B–17s may be hangared and well-maintained now, most, if not all, of the affected airplanes have been exposed to years of grueling operations such as fire-fighting, aerial application, etc. Furthermore, even if the airplanes had been hangared continuously since World War II, moisture could accumulate from condensation. In fact, most of the subject airplanes have spent much of their life-span in open storage with no particular protection from the elements.

One commenter indicates that applicable military technical orders (the basis to which these aircraft are maintained) allow flights with known cracks in the spar chord if the cracks meet specified criteria. The commenter reports that this allowance has been validated by combat operations, current usage of the airplanes, and the type certificate.

Contrary to the commenters' assertions, continued flight with known structural defects, such as those addressed by the proposed AD, is considered a violation of section 91.7 of the Federal Aviation Regulations (14 CFR 91.7), which requires the pilot in command to discontinue a flight when an unairworthy structural condition occurs. The FAA finds that a military technical order written almost 60 years ago during wartime conditions (when emphasis was placed on short-term airworthiness risks as opposed to long-term risks such as fatigue and corrosion) is not an appropriate basis for allowing continued flight with cracks of this nature. The FAA also is not aware of any specific FAA approval, either directly or by reference, of a military technical order that allowed continued flight operations for B–17s with unrepaired cracked spar chords. In any event, this AD would supersede such an approval.

One commenter justifies its objection to the proposed rule on the fact that B–17s are not operated for hire. (The Limited Category type certification basis prohibits using B–17 airplanes for carriage of passengers or cargo for compensation or hire.) The FAA infers that the commenter is implying that a lesser safety standard is therefore acceptable. The FAA does not concur with the commenter's justification. The corrective action specified in this AD is needed to ensure the safety of not only the crew members and any other persons on board, but also of the many spectators that are in proximity to the affected airplanes as they participate in airshows.

Several commenters report that removal of the wings requires significant disassembly and express concern that such removal could reduce the structural integrity of the spar chord-to-terminal fitting joints. Two commenters state that it has not been determined that these cracks reduce the structural integrity of the wing assembly. One commenter states that replacement of used aircraft hardware with new hardware will affect the aircraft's ''preset'' and ''harmonics,'' and may establish a stress concentration, which would reduce the integrity of the aircraft.

The FAA does not concur. The wings have already been removed and repaired on at least three B–17 airplanes. The FAA has received no comments indicating the removal and subsequent reinstallation of the wings reduced the structural integrity of those airplanes. Nevertheless, wing removal is not required in all instances, as discussed below. No change to the final rule in this regard is necessary.

Clarification of Discussion Section of Proposed Rule

Certain commenters request clarification and correction of language that appears in the Discussion section of the preamble to the notice of proposed rulemaking (NPRM). One commenter presents an analysis of the Discussion section, which includes a number of questions and suggestions for editorial changes. The commenters specifically request that the FAA correct certain language related to the description of the wing spar chord to wing terminal fitting joint. One commenter asks for clarification regarding the description of the wing spar chord to wing terminal fitting through bolts being ''seized'' in the joint. Additionally, the commenters request correction of the discussion of spar loading that appeared in the NPRM. Additionally, the commenters pose various questions, such as:

—When was the cracking problem discovered by the FAA?
—On how many airplanes was the cracking discovered?
—How many cracked spars have been found?
—How was the cause of the bolt corrosion and spar chord cracking attributed to moisture entrapment? Was the moisture accumulation observed or ''is this a guess?''

The FAA finds that clarification of these issues is necessary. The commenters note correctly that spar chords mate with the cylindrical, tapering inner wing attach fitting inserts. Each of the eight joints is held together by eight close-tolerance bolts. The FAA was informed of the cracking of the wing spar chord and corrosion of these bolts on April 26, 1994. One B–17 had been inspected at that time, and approximately one-third of the 64 bolts in the eight joints were replaced due to corrosion. At least two bolts had lost almost half of the cross-sectional area. Some of the eight spar chords were cracked, and one chord end was broken into pieces. Since receiving that report, the FAA has learned that cracks have been discovered in the wing spar chord-to-wing terminal fittings of five of the 12 airplanes either flying or capable of being restored to flight status.

The FAA notes that cracks have propagated to observed lengths greater

than seven inches. As the cracks propagate outboard into the region of increasing longitudinal tensile and compressive stresses, there is no design feature to prevent the crack propagation from becoming transverse and severing the spar chord. Because this area is subject to high axial loads and this structure is necessary for the continued safe flight of the airplane, cracking in this area is critical.

Evidence that the bolt corrosion and spar chord cracking were due to moisture entrapment came from several sources. The first operator to report this condition found corrosion of the joint bolts and the spar chords. By design, the spar chord tubes are open at the outboard end, and the presence of the wing terminal fittings inside the spar chords traps water at the inboard ends. Cracks known to date run longitudinally along the spars, which indicates that circumferential loads are cracking the spars. Pressure from corrosion products between the spar chord-to-terminal joints would create such circumferential loads.

Commenters correctly note that the bolts in these fittings are not seized. Rather, moisture trapped in the inner wing spars has caused some of the bolts to corrode, which makes removal difficult.

Since the Discussion section of the preamble of an NPRM is not restated in a final rule, no change to this final rule is necessary in this regard.

Questions Concerning Applicability of Proposed Rule

One commenter asserts that all B–17 aircraft with large, visible cracks were built by Douglas, and all had history of damage or severe use. The commenter states that Vega- and Boeing-built B–17s do not have a problem with cracking.

The FAA infers from these remarks that the commenter requests that Vega- and Boeing-built airplanes be excluded from the applicability of this AD. The FAA does not concur. The FAA notes that, of the approximately 12,600 Model B–17E, B–17F, and B–17G airplanes produced, nearly 3,000 were manufactured under license by Douglas, and approximately 2,750 were manufactured under license by Vega, a subsidiary of Lockheed.

The dozen or so airplanes still in operation—only about one of every 1,000 produced—comprise a statistically insignificant sample; therefore, no conclusions can be drawn statistically from the origin of the particular airplanes in which cracks have been discovered. Additionally, the commenter fails to present any evidence, such as differences in design or production methods, that would suggest airplanes manufactured by Boeing or Vega are less likely to experience the unsafe condition addressed by this AD. Further, the FAA is not aware of any such differences. No change to the applicability of this final rule is necessary.

Another commenter requests that the applicability of the proposed AD exclude certain airplanes that have already undergone wing removal, removal of terminals, replacement of close tolerance bolts, and repair of spar tubes.

The FAA does not concur that a general exclusion should be made for those airplanes since the previous actions accomplished on those airplanes may not provide the necessary level of safety. Operators have not submitted formal documentation to the FAA describing such previous actions, and so cannot establish that any actions accomplished previously on these airplanes definitively meet the criteria of this AD. In addition, it appears likely that there may be repairs accomplished previously, such as stop-drilling of cracks found in the spar chords, that do not adequately address the unsafe condition.

However, paragraph (d) of this final rule provides operators with the opportunity to present the FAA with data to justify approval of an inspection or repair accomplished previously as an alternative method of compliance. This provision enables the FAA to review such inspections and repairs and determine whether further action is necessary. Also, NOTE 2 of this AD states specifically that operators of airplanes on which the terminal fitting-to-spar chord joint was separated prior to the effective date of this AD, and on which inspection(s) of and/or repair(s) to the wing terminals-to-spar chords were accomplished prior to the effective date of this AD, should submit requests for approval of alternative methods of compliance to the FAA.

Question Concerning Cause of Cracking

Several commenters question whether the cracks have been caused by corrosion. The commenters state there is no documented proof that corrosion between the steel wing terminal fitting and the aluminum spar chord is the cause of the cracking. Several commenters state that the cracks are due to operational abuses (*e.g.,* heavy landings, operating above gross weights). Another commenter states that the cracks known to be present on B–17s have not been attributed to any single cause. That commenter states that environmental stresses (i.e., temperature changes between the aluminum spar and the steel trunnion) contributed to the cracking. One commenter states that moisture accumulation and consequent corrosion cannot be the cause of the cracking addressed by this AD because most B–17 owners store their airplanes indoors where moisture cannot accumulate on the spars. Other commenters suggest that observed cracking is due to a reported manufacturing procedure in which the terminal fittings, as well as the spar chord-to-terminal fitting bolts, were driven into place with hammers.

The FAA clarifies that cracking that has been discovered is not consistent with the damage that would result from overstresses such as those suggested by the commenters. However, on the other hand, the cracking is consistent with the pressure that would result from products of corrosion in the joints. The FAA finds that the longitudinal nature of the cracks discovered so far is indicative of expansion due to corrosion products in the spar chord to terminal fitting joints. It should be noted that the wing terminal fittings are steel, while the spar chords are constructed of aluminum. Because steel and aluminum are dissimilar metals, aluminum will tend to galvanically corrode if in direct contact with steel, as it is in the B–17 design. The faying surfaces of these joints have not been the subject of routine maintenance inspections because of the age of the subject airplanes.

Requests Concerning Separation of Wing Spar Chord-to-Wing Terminal Joint

Several commenters indicate that separation of the wing spar chord-to-wing terminal joint is unnecessary, and that the proposed requirement to remove all 64 bolts in the eight wing spar chord-to-wing terminal joints is likewise unnecessary. These commenters offer various proposals with regard to alternative inspection and repair procedures and compliance times, which are discussed in the following paragraphs.

Several commenters request that the FAA change the requirements to remove the most inboard bolt in each wing spar chord joint and to remove all 64 bolts, as specified in proposed paragraphs (a)(2) and (b)(2)(i), respectively, so that the three most inboard fasteners in each joint would not have to be removed. One commenter states that the most inboard bolt in each of the eight wing spar chord-to-wing terminal joints should not be removed due to interference with other wing structure and the fact that the bolt is only 5/8 inch

from the end of the spar. Some commenters state that the three most inboard bolts should not be removed for the reason mentioned previously (for the most inboard bolt), and because removal of the next two most inboard bolts would necessitate disassembly of a wing rib to access those bolts.

The FAA finds that some commenters were apparently misled by the preamble of the proposed AD as to whether the inspections specified in paragraph (b) of the AD could be accomplished without actually separating the wing spar-to-wing terminal joint.

The FAA acknowledges that significant disassembly would be required to remove the three most inboard bolts on the front and rear spars. The FAA clarifies that the intent of paragraph (b)(2) of the proposed rule (designated as paragraph (b)(2)(i) of this final rule) is that the use of equivalent inspections that do not involve separating the terminal fitting from the spar chord to detect cracking and corrosion may be acceptable. The FAA has determined that an acceptable level of safety can be achieved without removing the three most inboard bolts of a joint provided: (1) The dye penetrant inspection of the spar-chord tube-end reveals no cracks; (2) the other five bolts are removed and an eddy current inspection verifies that the holes are free of cracks; and (3) a borescope inspection using 10-power magnification reveals that the first, second, and third most inboard bolts are free of corrosion. These inspections must be performed on a repetitive basis at 36-month intervals. Paragraph (b) of this final rule has been reformatted, and this new alternative procedure is specified in paragraph (b)(2)(ii) of this AD.

Further, the FAA has made editorial changes to paragraphs (b)(2)(ii), (b)(2)(ii)(B), and (b)(2)(ii)(C) of the final rule to more clearly specify which bolts are being referred to in those paragraphs.

In addition, the FAA has determined that the requirement to perform the high frequency eddy current inspection in accordance with paragraph (a)(2) of the proposed AD (which included removing the most inboard bolt during the initial inspection) can be omitted from this AD without unduly affecting aviation safety, since this inspection is adequately addressed by paragraph (b) of this AD. Therefore, paragraph (a) of this AD has been re-structured and re-numbered accordingly.

One commenter that has accomplished extensive repairs on a Model B–17 airplane in the area that is the subject of this AD states that separating the terminal fitting from the spar chord is the only method that will adequately address the unsafe condition (corrosion and cracking of the wing spar, which could result in reduced structural integrity of the wing of the airplane). The FAA infers that this commenter is requesting that the FAA revise paragraph (b)(2) of the proposed AD to eliminate reference to alternative inspection procedures that may not include separating the terminal fitting from the spar chord.

The FAA partially concurs with the commenter's request. The FAA concurs that inspections that involve separating the terminal fitting from the spar chord are required for all airplanes with cracks that are unacceptable for repair. The FAA points out that it also has not approved any alternative inspection procedures for airplanes that have no cracks or repairable cracks. The FAA also points out that this AD does not grant blanket approval for alternative inspection procedures. All inspections in accordance with this AD are required to be accomplished in accordance with a method approved by the FAA.

However, the FAA does not concur that inspections must include separation of the terminal fitting from the spar chord. The FAA finds that it may be possible, depending on the degree of cracking detected, for alternative inspection procedures to provide an acceptable level of safety, even if such procedures do not involve separating the terminal fitting from the spar chord. Paragraph (b)(2)(i) of this AD specifies that alternative inspection procedures must meet certain minimum requirements, which are specified in paragraphs (b)(2)(i)(A), (b)(2)(i)(B), and (b)(2)(i)(C) of this AD. However, the FAA does not have the resources to develop these procedures for operators. No change to the final rule is necessary in this regard.

Requests Concerning Proposed Compliance Time

One commenter requests that the proposed 18-month compliance time specified in paragraph (b) of the AD be changed to allow the inspections and any needed repairs to be performed during the winter months away from the airshow season.

The FAA does not concur that the compliance time should be revised. An 18-month compliance time, as proposed, does allow compliance during the winter months; therefore, no change to paragraph (b) is necessary in that regard.

However, in light of the concern raised by the commenter, the FAA has determined that the compliance time for the initial inspections specified in paragraph (a) of this AD can be changed to 180 days without a significant adverse effect on aviation safety. Paragraph (a) of this AD has been revised accordingly.

Discussion of Repairs

One commenter suggests that each spar chord should be treated with corrosion inhibitor after bolt removal, replacement, or remedial action. The FAA infers that the commenter is requesting that a requirement for application of corrosion inhibitor be added to applicable paragraphs in the final rule.

The FAA concurs with the commenter's suggestion that each spar chord should be treated with corrosion inhibitor. Therefore, paragraph (a)(2) of the final rule (formerly paragraph (a)(3) in the NPRM) has been revised to include a requirement for application of a corrosion inhibitor as suggested. The FAA has determined that such a requirement will increase the long-term corrosion resistance characteristics of the affected structure without imposing a significant burden on the operators of the affected airplanes.

One commenter requests that the FAA require that repairs be performed in accordance with published repair manuals for the B–17. For those repairs not covered by a published repair manual, the commenter believes that repairs should be accomplished with the aid of FAA Designated Engineering Representatives (DER) or other recognized experts.

The FAA does not concur. All repairs required by this AD must be approved by the Manager of the Seattle Aircraft Certification Office, FAA, regardless of whether those repairs are addressed in a published B–17 repair manual. Although a World War II-era repair manual may be of some assistance in that regard, it must be recognized that the value of such a manual is very limited. The primary concern was short-term airworthiness; that is, that an airplane was to be repaired sufficiently to safely complete further combat missions. Long-term considerations, such as fatigue and corrosion, were secondary.

The FAA also recognizes that there have been considerable advances in repair and corrosion-prevention practices over the last half-century. As suggested by the commenter, the FAA encourages review of any needed repair by an appropriately qualified DER since that would undoubtedly hasten FAA approval of the repair. (Because the repair would be related to compliance with an airworthiness directive, a DER would be authorized only to

recommend its approval.) However, no change to this final rule is necessary in this regard.

One commenter requests that the final rule be revised to require replacement of bolts only ''as needed,'' rather than requiring replacement of any corroded bolt. The commenter states that it has accomplished a repair that involved removal of the wings and the terminal attach fittings. In the course of the repair, approximately one-third of the wing terminal-to-spar bolts were found to be corroded to the point where replacement was required. However, the commenter points out that there was no corrosion of the shear plane of any bolt. Based on the commenter's statements, the FAA infers that the commenter is requesting that the final rule be revised to require replacement of bolts only if corrosion is found at the shear plane area.

The FAA does not concur with the commenter's request. The FAA finds that it would be inappropriate to allow a bolt found to be corroded to remain installed on an airplane. The FAA has determined that bolts in wing spar chord-to-wing terminal joints are critical to the safety of flight; therefore, those bolts must be free of discrepancies, including corrosion. In addition to the criticality of the bolts to flight safety, the bolts must be removed to be inspected fully, and the FAA has determined that it is more cost effective for operators to replace corroded bolts with new bolts, rather than to perform frequent repetitive inspections of corroded, or corrosion-reworked, bolts. No change to the final rule is necessary in this regard.

In lieu of repairing any cracks found, one commenter requests that the FAA allow operators to attach 4130 steel straps to the outside of the wing using existing rivet holes. The FAA does not concur that this would be an acceptable alternative because steel straps fastened to the outside of the wings would not provide adequate load paths for the spar-chord loads. No change to the final rule is necessary in this regard.

Economic Considerations

Some commenters question the cost impact information presented in the preamble of the NPRM. These commenters take offense to assumptions made in that section that ''no operator has yet accomplished any of the proposed requirements'' and that ''no operator would accomplish those actions if this AD were not adopted.'' One commenter states that all owners/operators have already voluntarily undertaken inspections and repairs as a community. The commenter adds that results of those inspections revealed that virtually all cracks have been discovered using detailed visual inspection and non-destructive test (NDT) inspection methods that did not involve de-mating of the spar/wing terminal. Other commenters also submit information concerning previously accomplished inspections and corrective actions.

The FAA finds that clarification of language presented in the cost impact information of this AD is necessary. The FAA and other federal agencies are required to propose or adopt a regulation only upon reasoned determination that the benefits of the intended regulation justify its costs. The two assumptions mentioned above merely represent a degree of conservatism taken by the FAA in determining that this AD will, in fact, be cost effective. They are in no way intended to be judgmental of what a particular operator would or would not do in the absence of this AD.

Nevertheless, the FAA has not been provided with specific data indicating that any of the previously accomplished repairs and inspections provide the level of safety intended by this AD to adequately address the identified unsafe condition. It also must be recognized that, in the absence of an AD, operators of B–17s would not be required to perform the needed inspections and repairs. If there is no binding requirement to do so, the statutory responsibility of the FAA to ensure the safety of the occupants of those airplanes and persons on the ground watching the airplanes during airshows would not be fulfilled.

Another commenter states that the statement in the proposal that indicates the proposed AD ''would not have a significant economic impact on a substantial number of small entities'' is inconsistent with the estimated cost of $90,000 per airplane.

The FAA notes that the phrase referenced by the commenter refers to a statutory requirement imposed by the Regulatory Flexibility Act. That act is intended to protect small businesses and organizations from federal rulemaking by requiring agencies to develop and analyze information concerning the effect of rules on small entities. When the effects of a rule are likely to be ''significant'' on a ''substantial number of small entities,'' the agency is expected to take steps that will reduce the burden. Regarding regulatory flexibility findings in conjunction with the requirements of ADs, very few ADs will ever reach the level of having a ''significant economic impact, positive or negative, on a substantial number of small entities,'' since either most aircraft operators do not meet the agency's criteria for small entities, or because the cost of an individual AD usually does not exceed the agency limit for significant impact (which is $100 million per year). A statement concerning the impact, or lack of it (as in the case of this AD), is required to be included in the certification statement of each AD.

Some commenters state that they cannot afford to separate the wing spar chord-to-terminal joints to perform the inspection. The commenters state that the AD, as proposed, would create severe economic hardship, result in grounding of airplanes, and force the sale of non-flying airplanes at a financial loss. One commenter acknowledges that the cost estimates fall within federal guidelines for a rule that is ''not a significant impact;'' however, the commenter contends that, for the most part, these airplanes are owned by non-profit organizations that do not have $90,000 in discretionary funds. Another commenter states that, under the circumstances, issuance of a precautionary manufacturer's service bulletin or an FAA Advisory Circular would be more than adequate.

The FAA recognizes the economic impact of the proposed rule. However, the FAA notes that an unsafe condition exists in regard to the integrity of the affected joints, which are essential for safe flight. The FAA also points out that, as explained previously, paragraph (b)(2) of the AD provides operators the option of performing an alternative inspection without separating the joints. The FAA expects that costs for accomplishment of the alternative inspection will likely be lower than $90,000 per airplane.

Some commenters believe that the cost of compliance will be much greater than the estimated $90,000 per airplane. One commenter states that a consensus of affected owners/operators is that the wing spar/terminal de-mate would require 2,250 to 2,500 work hours. The commenter notes that this requirement entails removal and reinstallation of four engines, and complete de-rigging of the control, electrical wiring, engine control, and fuel systems. Therefore, the commenter estimates that costs would be from $125,000 to $150,000 per airplane and a four-to six-month cessation in aircraft financial support activities.

However, one commenter that has actually performed the alternative inspections outlined in paragraph (b) of the proposed AD states that the cost impact was much lower than the estimated amount.

The FAA finds that no change to the cost impact information, below, is necessary. The FAA based the cost impact information presented in this AD on the best data available to date for airplanes on which the wing spar chord-to-wing terminal fitting separation has been accomplished. Although the costs may vary somewhat, the actual cost for a particular airplane is not expected to differ greatly from the estimated cost of $90,000 per airplane.

Issues Related to Inspection Methods and Procedures

One commenter proposes an alternative to the inspection requirements of paragraph (a) of the proposed AD. The commenter suggests that within 90 days, and annually thereafter, a dye penetrant check be accomplished on the inboard butt of each of the eight spar tubes. The commenter adds that within 12 months, and tri-annually thereafter, the interior of all eight spar tubes should be treated with a moisture and corrosion inhibitor.

The commenter also proposes that within 12 months, and thereafter at 10-year or 1,000-flight-hour intervals, a detailed inspection designed to detect cracking in the wing spar tubes or terminal bolt holes should be accomplished. This inspection would include removal and inspection of the terminal attach bolts at the fifth and seventh most inboard locations. The commenter also suggests that operators should inspect annually and report on the status, migration (or lack thereof), and condition of any cracks determined to be within acceptable tolerance criteria.

The FAA does not concur with this request. Since corrosion is believed to be the cause of the cracking, the FAA finds that the proposed inspection program at the intervals suggested by the commenter would not ensure such timely detection of cracking. In addition, an inspection interval based on flight hours is inappropriate because damage resulting from corrosion is related to calendar time, not flight time.

Two commenters indicate that no bolts should be removed during the inspections required by this proposed AD unless there is obvious damage to the bolt.

One of these commenters states that no bolts should be removed ''without due cause,'' because the bolts have been in the holes of the joint for more than 50 years, and molecular transfer will have taken place between the mating surfaces. The commenter asserts that replacement of the bolts is likely to cause reduced structural integrity of the wing terminal-to-spar joints.

Another commenter states that replacement of hardware or parts from an airplane with new parts or hardware changes the harmonics of the airplane's vibration frequency and establishes a stress point at the location of the replacement. This commenter states that the engineers and master mechanics consulted did not recommend replacement of hardware unless major damage is detected during a visual inspection, because the stress created by removal could cause significant damage.

The FAA infers that these commenters are requesting that paragraph (b) of the proposed rule be revised to eliminate the requirement to remove the bolts that join the wing terminals to the spar chords.

The FAA does not concur with the request to eliminate the requirement to remove the bolts. The FAA has determined that performing inspections of the bolts and bolt holes without removing the bolts does not ensure that corrosion or cracking would be detected. The FAA finds that, to ensure the continued safety of the fleet of airplanes, it is necessary to require at least a one-time removal of five of the bolts in each joint to inspect the shear planes of the bolts for corrosion and to inspect the bolt holes for cracks. However, as discussed previously, the FAA has revised this final rule to allow for the three inboard fasteners in each joint to remain in place, provided that certain conditions are met.

One commenter inquires as to what eddy current inspection methods are approved. The FAA is unaware of any military or industry standards for eddy current inspections. As stated in paragraph (b)(1) of this AD, eddy current inspections must be approved by the Manager of the Seattle Aircraft Certification Office, FAA. The manufacturer, The Boeing Company, has agreed to allow its specifications to be used for the eddy current inspections. The FAA has added a new NOTE 9 to this final rule to indicate that this information is available to operators as needed.

One commenter requests that the FAA develop criteria containing acceptance/rejection standards of cracks characterized (by the commenter) as insignificant, monitorable, and unacceptable. The commenter believes that ''blanket condemnation of any cracking is unwarranted.''

The FAA does not concur that continued flight with any cracking is acceptable. As specified in paragraph (c) of this final rule, any cracking discovered as a result of the required inspections must be repaired prior to further flight. Such repairs may or may not require separating the wing spar chord-to-wing terminal joint, depending upon the severity of the cracking. However, if cracking is found and repaired without separating the wing spar chord-to-wing terminal joint, repetitive inspections would be required. The FAA expects that the operator would propose its inspection program as part of the documentation needed to secure approval of the proposed repair, in accordance with paragraph (c) of this AD. Continued crack growth following repair requires separation of the wing spar chord-to-wing terminal joint in order to positively address continued cracking problems. No change to the final rule is required in this regard.

Two commenters question the reference to ''acceptance/rejection criteria contained in sensitivity level Group IV, MIL–I–25135'' which is contained in paragraph (a)(1) of the proposed rule. One commenter notes that the referenced military specification does not contain acceptance/rejection criteria pertaining to cracks, nor was the specification intended to do so.

The FAA finds that clarification is necessary. The commenter correctly notes that the military specification cited in the proposed rule does not contain acceptance/rejection criteria on cracking. The FAA clarifies that the intent of paragraph (a)(1) is that the dye penetrant inspection be performed in accordance with MIL–STD–6866, using a fluorescent Type 1 penetrant, Method C, Sensitivity Level 3, inspection. Any cracking that is detected must be repaired in accordance with a method approved by the Manager of the Seattle Aircraft Certification Office, FAA, prior to further flight. To eliminate any confusion in this regard, the wording of paragraph (a)(1) of this final rule has been revised accordingly.

In addition, the FAA recognizes that a variety of dye penetrant inspection procedures may be acceptable. Therefore, the FAA has added **Note** 4 to the final rule to clarify that operators wanting to use an alternative procedure may request approval from the Seattle Aircraft Certification Office per the provision of paragraph (d) of this AD.

Clarification of Visual Inspections

The FAA has revised the final rule to clarify that the type of visual inspection required by paragraphs (a)(2), (b)(1), and (b)(2)(i)(C) is a ''detailed visual inspection.'' Further, the definition of this inspection has been included in a new **Note** 8 of the final rule.

Addition of Other New Notes

The FAA has also revised the final rule to include new **Notes** 1 and 11:

As a result of communications with the Air Transport Association (ATA) of America, the FAA has learned that, in general, some operators may misunderstand the legal effect of ADs on airplanes that are identified in the applicability provision of the AD, but that have been altered or repaired in the area addressed by the AD. The FAA points out that all airplanes identified in the applicability provision of an AD are legally subject to the AD. If an airplane has been altered or repaired in the affected area in such a way as to affect compliance with the AD, the owner or operator is required to obtain FAA approval for an alternative method of compliance with the AD, in accordance with the paragraph of each AD that provides for such approvals. Therefore, a new **Note** 1 has been added to this final rule to clarify this long-standing requirement.

In addition, a new **Note** 11 has been added to the final rule to strongly encourage owners and operators of the affected airplanes to coordinate their requests for approvals of alternative methods of compliance or adjustment of the compliance times pertaining to this AD. Coordination of a single request (in lieu of a separate request from each owner/operator) will allow the FAA to more quickly review and respond.

Conclusion

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

Cost Impact

There are approximately 12 airplanes of the affected design in the worldwide fleet. The FAA estimates that 10 airplanes of U.S. registry will be affected by this AD, that it will take approximately 1,500 work hours per airplane to accomplish the required actions, and that the average labor rate is $60 per work hour. Based on these figures, the cost impact of the AD on U.S. operators is estimated to be $900,000, or $90,000 per airplane.

The cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

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 13132, 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, 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:

2001–22–06 Boeing: Amendment 39–12485. Docket 95–NM–15–AD.

Applicability: All Model B–17E, F, and G airplanes, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been 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.

Note 2: For airplanes on which the terminal fitting-to-spar chord joints were separated prior to the effective date of this AD, and inspections of and/or repairs to the wing terminals-to-spar chords were accomplished prior to the effective date of this AD: Applications for approval of an alternative method of compliance to the requirements of paragraphs (a) and (b) of this AD must be submitted to the FAA in accordance with the provisions of paragraph (d) of this AD.

Compliance: Required as indicated, unless accomplished previously.

To prevent reduced structural integrity of the wing of the airplane, accomplish the following:

Inspections and Corrective Actions

(a) Within 180 days after the effective date of this AD, accomplish the requirements of paragraphs (a)(1) and (a)(2) of this AD.

(1) Perform a dye penetrant inspection to detect cracking of each inboard end of the eight aluminum wing spar chords, in accordance with MIL–STD–6866, using a fluorescent Type 1 penetrant, Method C, Sensitivity Level 3, inspection. If any cracking is detected, prior to further flight, repair in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA.

Note 3: The part number (P/N) for the upper wing spar chords is 3–14231–0, and the P/N for the lower wing spar chords is 3–14231–1.

Note 4: Operators desiring to use an alternative dye penetrant procedure may request approval from the Seattle ACO in accordance with paragraph (d) of this AD.

Note 5: The following are the P/N's for the terminal fitting-to-spar chord joint assemblies:

Assemblies	Assembly part number
Left Upper Front Spar Joint Assembly	75–4781–0
Right Upper Front Spar Joint Assembly	75–4781–1
Left Lower Front Spar Joint Assembly	65–4782–512
Right Lower Front Spar Joint Assembly	65–4782–513
Left Upper Rear Spar Joint Assembly	75–4783–0
Right Upper Rear Spar Joint Assembly	75–4783–1
Left Lower Rear Spar Joint Assembly	75–4784–0
Right Lower Rear Spar Joint Assembly	75–4784–1

Note 6: The following are the P/N's for the bolts for the spar chords:

Bolts for:	Bolt part number
Upper and Lower Front Spar Chords	NAS56A36
Upper Rear Spar Chord	NAS56A34
Lower Rear Spar Chord	NAS56A40–5

(2) Perform a detailed visual inspection to detect corrosion of the bolts, as installed, and replace any corroded bolt with a new bolt having a P/N in the NAS 6606 series in accordance with Army Technical Order Number 01–20EF–2. Prior to further flight, for all bolt replacements, accomplish the requirements of paragraphs (a)(2)(i), (a)(2)(ii), (a)(2)(iii), and (a)(2)(iv) of this AD in accordance with Army Technical Order Number 01–20EF–2.

Note 7: The following are the P/N's for the replacement bolts for the spar chords:

Replacement bolts for:	Replacement bolt part number
Upper and Lower Front Spar	NAS 6606–51
Upper Rear Spar	NAS 6606–47
Lower Rear Spar	NAS 6606–56

Note 8: For the purposes of this AD, a detailed visual inspection is defined as: ''An intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at intensity deemed appropriate by the inspector. Inspection aids such as mirror, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required.''

(i) Install a washer having P/N MS 20002C6 under the head of the bolt, a self-locking nut having P/N NAS 1804–6, and a washer having P/N MS 200026 under the nut, for each replacement bolt.

(ii) Torque any replacement bolt to 95–105 inch-pounds.

(iii) Oversize replacement bolts by 1/16 inch, as necessary.

(iv) Apply corrosion inhibiting compound (using BMS 3–23, Type II or equivalent compound) to the spar chord after bolt removal, replacement, or other remedial action.

(b) Within 18 months after the effective date of this AD, accomplish the requirements of either paragraph (b)(1) or (b)(2) of this AD.

(1) Perform detailed visual and high frequency eddy current inspections, that include separating all eight wing terminal-to-spar chord joints, to detect cracking and corrosion of the wing terminals and spar chords, in accordance with a method approved by the Manager, Seattle ACO; or

(2) Accomplish either paragraph (b)(2)(i) or (b)(2)(ii) of this AD.

(i) Perform an equivalent inspection(s) to that required by paragraph (b)(1) of this AD in accordance with a method approved by the Manager, Seattle ACO. To be considered acceptable, the equivalent inspection(s) must include, at a minimum, the criteria specified in paragraphs (b)(2)(i)(A), (b)(2)(i)(B), and (b)(2)(i)(C) of this AD.

(A) The inspection must include removal of all 64 bolts that join the eight wing terminals to the eight spar chords; and

(B) The inspection must adequately detect cracking of the spar chord, and corrosion between the terminal fitting and the spar chord; and

(C) The inspection must include a detailed visual inspection to detect corrosion of the attachment bolts; and a high frequency eddy current, and borescope inspection at 10-power magnification, of the bolt holes common to the spar chord-to-wing terminal interface.

(ii) Perform a dye penetrant inspection to detect cracking of the spar chord tube end; remove the most outboard five bolts in the joint and perform an eddy current inspection to detect cracking of the holes; and perform a 10-power magnification borescope inspection to detect corrosion of the most inboard three bolts. If the criteria specified in paragraphs (b)(2)(ii)(A), (b)(2)(ii)(B), and (b)(2)(ii)(C) of this AD are met, removal of the three most inboard bolts of each terminal-to-spar chord joint is not required. Repeat the requirements of this paragraph thereafter at intervals not to exceed 36 months.

(A) Results of the dye penetrant inspection of the spar chord tube end indicate that there is no cracking; and

(B) Results of the eddy current inspection indicate that the holes of the five most outboard bolts in the joint are free of cracks; and

(C) Results of the 10-power magnification borescope inspection indicate that the most inboard three bolts are free of corrosion.

Note 9: The Boeing Company will make its specifications for eddy current inspections available to operators as needed.

(c) If any cracking and/or corrosion is detected during any of the inspections required by paragraphs (a) and (b) of this AD, prior to further flight, repair in accordance with a method approved by the Manager, Seattle ACO.

Alternative Methods of Compliance

(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 ACO. 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 10: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Note 11: The FAA strongly encourages owners and operators of the affected airplanes to coordinate their requests for approvals of alternative methods of compliance or adjustment of the compliance times pertaining to this AD. Coordination of a single request (in lieu of a separate request from each owner/operator) will allow the FAA to more quickly review and respond.

Special Flight Permits

(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.

Effective Date

(f) This amendment becomes effective on November 30, 2001.

Issued in Renton, Washington, on October 19, 2001.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 01–26951 Filed 10–25–01; 8:45 am]

BILLING CODE 4910–13–U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 99–NE–16–AD; Amendment 39–12486; AD 2001–22–07]

RIN 2120–AA64

Airworthiness Directives; Honeywell International, Inc. LTP 101 Series Turboprop and LTS101 Series Turboshaft Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), that is applicable to certain Honeywell International, Inc. (formerly AlliedSignal, Inc. and Textron Lycoming) LTP 101 series turboprop and LTS101 series turboshaft engines. This amendment requires a new life limitation and removal of rigid tube fuel manifold assemblies and replacement with serviceable assemblies. This amendment is prompted by reports of cracking and fuel leakage of rigid tube fuel manifolds. The actions specified by this AD are intended to prevent engine fuel leakage due to low-cycle fatigue (LCF) cracking of the rigid tube fuel manifold, which could result in an in-flight fire.

DATES: Effective date November 30, 2001.

ADDRESSES: The information in this AD may be examined, by appointment, at the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Robert Baitoo, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712–4137; telephone (562) 627–5245; fax (562) 627–5210.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that is applicable to certain Honeywell International, Inc. (formerly AlliedSignal, Inc. and Textron Lycoming) LTP 101 series turboprop and LTS101 series turboshaft engines was published in the **Federal Register** on March 12, 2001 (66 FR 14346). That action proposed to require a new life limitation and removal of rigid tube fuel manifold assemblies and replacement with serviceable assemblies.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. No comments were received on the proposal or the FAA's determination of the cost to the public. The FAA has determined that air safety and the public interest require the adoption of the rule as proposed.

Economic Analysis

There are approximately 1,600 engines of the affected design in the worldwide fleet. The FAA estimates that 670 engines installed on aircraft of U.S. registry would be affected by this proposed AD, that it would take approximately 2 work hours per engine to accomplish the required actions, and that the average labor rate is $60 per work hour. Required parts would cost approximately $6,000 per engine. Based on these figures, the total cost impact of the proposed AD on U.S. operators is estimated to be $4,100,400.

Regulatory Analysis

This final rule does not have federalism implications, as defined in Executive Order 13132, because it would 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. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

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 the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, 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 by contacting the Rules Docket at the location provided under the caption **ADDRESSES**.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, 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 a new airworthiness directive to read as follows:

2001–22–07 Honeywell International, Inc.: Amendment 39–12486. Docket 99–NE–16–AD.

Applicability: This airworthiness directive (AD) is applicable to Honeywell International, Inc. (formerly AlliedSignal Inc. and Textron Lycoming) LTP 101 series turboprop and LTS101 series turboshaft engines with the following part numbers (P/N's) rigid tube fuel manifolds installed: