

**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 (i) 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 find and fix possible fatigue cracking of the fuselage skin concealed under certain repair doublers, which could result in rapid decompression of the airplane, accomplish the following:

#### One-Time Inspection

(a) Before the accumulation of 15,000 total flight cycles or within 90 days after the effective date of this AD, whichever is later, do a general visual inspection for repair doublers on the fuselage skin at body stations 1961 through 2360 inclusive, between stringers S-46L and S-46R. The inspection is only for doublers that meet all of the following four criteria: External repair doublers, doublers at least 8 inches long longitudinally (in the forward and aft direction), doublers that have fasteners common to a frame, doublers installed due to a tail strike or for unknown reasons. Do the inspection per Part 1 and Figure 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002.

**Note 2:** For the purposes of this AD, a general visual inspection is defined as: "A visual examination of an interior or exterior area, installation, or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight, or droplight and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked."

#### Follow-on Inspections

(b) Except as provided by paragraph (c) of this AD, for any repair doubler subject to the requirements of paragraph (a) of this AD: Remove the repair doubler and do the inspections/assessment (includes external detailed, external visual, and external high frequency eddy current (HFEC) inspections) of the fuselage skin for damage (cracking or scratches) per Part 2 and Figure 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002. Do the inspections at the applicable time specified in paragraph (b)(1) or (b)(2) of this AD. If any crack or scratch

is found, before further flight, do the corrective actions specified in paragraph (f) of this AD.

**Note 3:** For the purposes of this AD, a detailed 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."

(1) If the date of installation of the repair doubler is unknown, or 10,000 or more flight cycles have accumulated since the date of installation of the repair doubler, do the inspections before further flight.

(2) If less than 10,000 flight cycles have accumulated since the date of installation of the repair doubler, do the inspections within 10,000 flight cycles after the date of installation of the repair doubler.

(c) For any repair doubler that meets either of the conditions specified in paragraphs (c)(1) and (c)(2) of this AD: No action is required by this AD for that doubler only.

(1) The repair doubler is common to the S-46 lap splice and does not extend inboard more than 4 inches from the center line.

(2) A skin assessment was done before installing the repair doubler per Figure 6 of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002.

#### Optional Repetitive Inspections

(d) For airplanes that meet the conditions specified in paragraph (d)(1) or (d)(2) of this AD, as alternative to the inspections required by paragraph (b) of this AD: Do the applicable inspections required by either paragraph (d)(1) or (d)(2) of this AD per Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002; at the applicable time specified in paragraph (b)(1) or (b)(2) of this AD.

(1) If the edge of the doubler does not end on a stringer center line: Do an internal mid-frequency eddy current (MFEC) inspection of the fuselage skin for cracking (if the edge of the doubler ends on a stringer center line it is not possible to do the MFEC inspection) per Part 3 and Figure 4 of the Accomplishment Instructions of the service bulletin. If no crack is found, before further flight, do an external HFEC inspection of the scratched area for cracking. If no scratch is found during the external detailed inspection or if no crack is found during the external HFEC inspection; repeat the MFEC inspection at least every 250 flight cycles.

(2) If the doubler is 20 inches in length or less, do an external detailed inspection of the fuselage skin for damage (cracking or scratches) per Part 4 and Figure 5 of the Accomplishment Instructions of the service bulletin. If any scratch is found, before further flight, do an external HFEC inspection of the scratched area for cracking.

If no scratch is found during the external detailed inspection or if no crack is found during the external HFEC inspection, repeat the external detailed inspection per paragraph (d)(2)(i) or (d)(2)(ii) of this AD, as applicable.

(i) If the doubler is 8-15 inches in length, repeat the inspection at least every 200 flight cycles.

(ii) If the doubler is 15-20 inches in length, repeat the inspection at least every 50 flight cycles.

(e) If, during any inspection required by paragraph (d)(1) or (d)(2) of this AD, any scratch is found, but no crack: Within 1,000 flight cycles or 18 months after doing the inspection required by paragraph (a) of this AD, whichever is first, do the inspections required by paragraph (b) of this AD. Accomplishment of this paragraph ends the repetitive inspections required by paragraph (d)(1) or (d)(2) of this AD, as applicable.

#### Corrective Actions

(f) If any crack is found during any inspection required by this AD, or if any scratch is found during any inspection required by paragraph (b) of this AD: Before further flight, repair per the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2489, dated November 26, 2002. Where the service bulletin specifies to contact Boeing for appropriate action: Before further flight, repair per a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or per data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved, the approval must specifically reference this AD.

#### Adjustments to Compliance Time: Cabin Differential Pressure

(g) For the purposes of calculating the compliance threshold and repetitive interval for the actions required by this AD: The number of flight cycles in which cabin differential pressure is at 2.0 pounds per square inch (psi) or less need not be counted when determining the number of flight cycles that have occurred on the airplane, provided that flight cycles with momentary spikes in cabin differential pressure above 2.0 psi are included as full pressure cycles. For this provision to apply, all cabin pressure records must be maintained for each airplane: No fleet-averaging of cabin pressure is allowed.

#### Reporting Requirement

(h) Within 30 days after doing the initial inspections required by paragraphs (b) and (d) of this AD: Submit a report of inspection findings of cracking or scratches of the fuselage skin to the Manager, Seattle Aircraft Certification Office (ACO), FAA, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; fax (425) 227-1181. The report must include the inspection results (airplane line number, size and location of damage, and type of discrepancy found). Information collection requirements contained in this AD have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of