
AIRWORTHINESS DIRECTIVE

On the effective date specified below, and for the reasons set out in the background section, the CASA delegate whose signature appears below revokes Airworthiness Directive (AD) AD/AT/22 Amdt 1 and issues the following AD under subregulation 39.001(1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

Airtractor AT-300, 400 and 500 Series Aeroplanes

**AD/AT/22
Amdt 2**

Wing Centreline Splice Joint

**7/2008
DM**

Applicability: Models AT-300, AT-301, AT-302, and AT-400A aircraft, all serial numbers, that have aluminium spar caps;

Models AT-400 aircraft, serial numbers 400-0244 through 400-0415, that have aluminium spar caps;

Models AT-300 and AT-301 aircraft, all serial numbers, that have aluminium spar caps, and have been converted to turbine power.

- Requirement:**
1. For all affected aircraft without steel web plates, part numbers 20990-1 or 20990-2, or steel spar caps installed, eddy-current inspect the left and right wing spar lower cap outboard holes for cracks in accordance with Snow Engineering Co. Process Specification 197, revised 4 June 2002, or later FAA approved revision:
 - a. For all aircraft:

Initially inspect upon reaching 3,500 total hours time in service on the wing spar lower cap or within 10 hours time in service after 8 May 2008, whichever occurs later;

Repetitively inspect thereafter at intervals not to exceed 450 hours time in service until the wing spar centre splice joint modification or the required wing spar lower cap replacement is done. After each replacement, initially inspect upon reaching 3,500 total hours time in service on either wing spar lower cap, and repetitively inspect thereafter at intervals not to exceed 450 hours time in service until the wing spar centre splice joint modification or the required wing spar lower cap replacement is done.
 - b. For aircraft that have had an eddy-current inspection carried out on the wing spar lower cap within the last 450 hours time in service before 8 May 2008:

Credit may be taken for that inspection;

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Repetitively inspect thereafter at intervals not to exceed 450 hours time in service from the time of the last inspection until the wing spar centre splice joint modification or the required wing spar lower cap replacement is done. After each replacement, initially inspect upon reaching 3,500 total hours time in service on either wing spar lower cap, and repetitively inspect thereafter at intervals not to exceed 450 hours time in service until the wing spar centre splice joint modification or the required wing spar lower cap replacement is done.

For all affected Models AT-300 and AT-301 aircraft with reciprocating engines, the 450-hour repetitive inspections required by this Directive are terminated after the wing spar centre splice joint modification is incorporated in accordance with Requirement 2.b. or when the wing lower spar caps are replaced. The replacement specified in Requirement 2.c. is still applicable.

If cracks are detected during any inspection required by this Directive, before further flight, replace the wing lower spar cap.

2. Replace each wing lower spar cap in accordance with the applicable aircraft maintenance manual, as follows:

a. For all affected Models AT-300 and AT-301 aircraft with reciprocating engines and that do not incorporate the wing spar centre splice joint modification:

Upon reaching 5,000 total hours time in service on either wing spar lower cap or within 25 hours time in service after 7 May 2003 (the compliance time of the previous issue of this Directive), whichever occurs later. Replace each time the safe life limit of 5,000 total hours time in service on either wing spar lower cap is reached. After each replacement, inspect as specified in Requirement 1 until the wing spar centre splice joint modification or the required wing spar lower cap replacement is done.

b. The safe life limit of the wing spar lower cap for aircraft specified in Requirement 2.a. may be extended to 7,000 hours time in service by incorporating the wing spar centre splice joint modification in accordance with Snow Engineering Co. Service Letter 55, revised 23 October 2002; or Snow Engineering Co. Service Letter 55, revised 4 October 2004; or later FAA approved revisions, with the following requirements:

(i) This modification must be accomplished no earlier than 4,600 total hours time in service on the wing spar lower cap, and no later than 5,000 total hours time in service on the wing spar lower cap.

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- (ii) Immediately before incorporating the modification, accomplish an eddy-current inspection for cracks in accordance with Snow Engineering Co. Process Specification 197, revised 4 June 2002, or later FAA approved revision.
- (iii) After each replacement, inspect as specified in Requirement 1 until the wing spar centre splice joint modification or the required wing spar lower cap replacement is done.
- c. For all affected Models AT-300 and AT-301 aircraft with reciprocating engines that do incorporate the wing spar centre splice joint modification accomplished in accordance with Requirement 2.b:

Upon reaching the safe life limit of 7,000 total hours time in service on either wing spar lower cap or within 25 hours time in service after 7 May 2003 (the compliance time of the previous issue of this Directive), whichever occurs later; then replace each time the safe life limit of 7,000 total hours time in service on either wing spar lower cap is reached. After each replacement, inspect as specified in Requirement 1 until the wing spar centre splice joint modification or the required wing spar lower cap replacement is done.

- d. For all affected AT-302, AT-400, and AT-400A aircraft with aluminium spar caps; and all affected Models AT-300 and AT-301 aircraft with aluminium spar caps that are, or have ever been converted to turbine power:

Upon reaching 4,450 total hours time in service on either wing spar lower cap or within 25 hours time in service after 7 May 2003 (the compliance time of the previous issue of this Directive), whichever occurs later; then replace each time the safe life limit of 7,000 total hours time in service on the wing spar lower cap is reached. After each replacement inspect as specified in accordance with Requirement 1, until the required wing spar lower cap replacement is done.

Note: FAA AD 2008-09-10 Amdt 39-15491 refers.

Compliance: As specified in the Requirement section of this Directive.

This Amendment becomes effective on 8 May 2008.

Background: The FAA received a report of an in-flight separation of a wing from a Model AT-400A aircraft. Investigation revealed that fatigue caused the lower aluminium spar cap to fail across the 3/8-inch hole, 6.5 inches outboard of the fuselage centreline in the centre splice connection. The actions specified in this Directive are intended to detect and correct cracks in the centreline splice joint. Undetected cracks could eventually result in in-flight separation of the wing.

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Amendment 1 further reduced the mandatory wing spar lower cap replacement times; in response to inspection results from FAA AD 2002-13-02.

Amendment 2 is issued in response to a new FAA AD, which was prompted by a recent report of cracks found on a Model AT-301 aircraft at hours below the specified modification time. A repetitive eddy-current inspection is added to the AD requirements.

The original issue of this Airworthiness Directive became effective on 24 July 2002.



David Villiers
Delegate of the Civil Aviation Safety Authority

6 May 2008