



AIRWORTHINESS BULLETIN

Cessna 150/152 Series Aircraft Horizontal
Stabiliser Spar Cracking

AWB 51-003 **Issue :** 2
Date : 8 February 2012

1. Applicability

All Cessna 150, 152 and A152 series aircraft.

2. Purpose

The purpose of this bulletin is to advise operators and maintenance organisations that cracks may exist in the vertical fin attachment bracket P/N 0432004-9, horizontal stabiliser spar P/N 0432001-56 and/or its reinforcement P/N 0432001-15 and to provide a method for a visual inspection to detect these cracks if they exist.

3. Background

During inspections for the cracking in the vertical fin attachment bracket nut plates in accordance with AD/CESSNA 150/31 Amendment 4, several operators have noticed cracking along the edge of the plate welded to the forward face of the fin attach bracket. On very rare occasions, this cracking may extend into the horizontal stabiliser spar and its reinforcement. The vertical fin attach bracket is attached to this spar by twelve fasteners (6 each side) and when the bracket cracks, the additional loads are transferred directly into the spar, causing cracking. The cracking in the vertical fin attachment bracket is a slow, progressive failure during which time the tailplane assembly is still capable of withstanding the original design loads. Once the crack has extended into the stabiliser spar, the tailplane structural strength may be reduced below the original design strength.

AD/CESSNA 150/31 Amendment 4 provides for an inspection for cracks in the vertical fin attach bracket, nut plates and fittings. The visual inspection specified in this AD will not normally detect cracks the stabiliser spar and reinforcement, because these areas are hidden from view and not accessible without disassembly of the structure.

Previous experience has shown that the cracking in the spar is a fatigue phenomenon, driven by in-flight cyclic loads on the tailplane structure. There have been no reported cases of in-flight horizontal stabiliser failure due to these cracks and only seven reported incidents of cracking in the type's history.

4. Recommendations

While inspecting the vertical fin attachment bracket in accordance with AD/CESSNA 150/31 Amendment 4, the following actions are recommended:

1. If any cracks are found in the fin attach bracket itself (not the nut plates) during inspection per CASA AD/CESSNA 150/31 Amendment 4, the vertical fin attach bracket should be removed so that the horizontal stabiliser spar and reinforcement can be inspected for cracks. Particular



AIRWORTHINESS BULLETIN

Cessna 150/152 Series Aircraft Horizontal
Stabiliser Spar Cracking

AWB 51-003 **Issue :** 2
Date : 8 February 2012

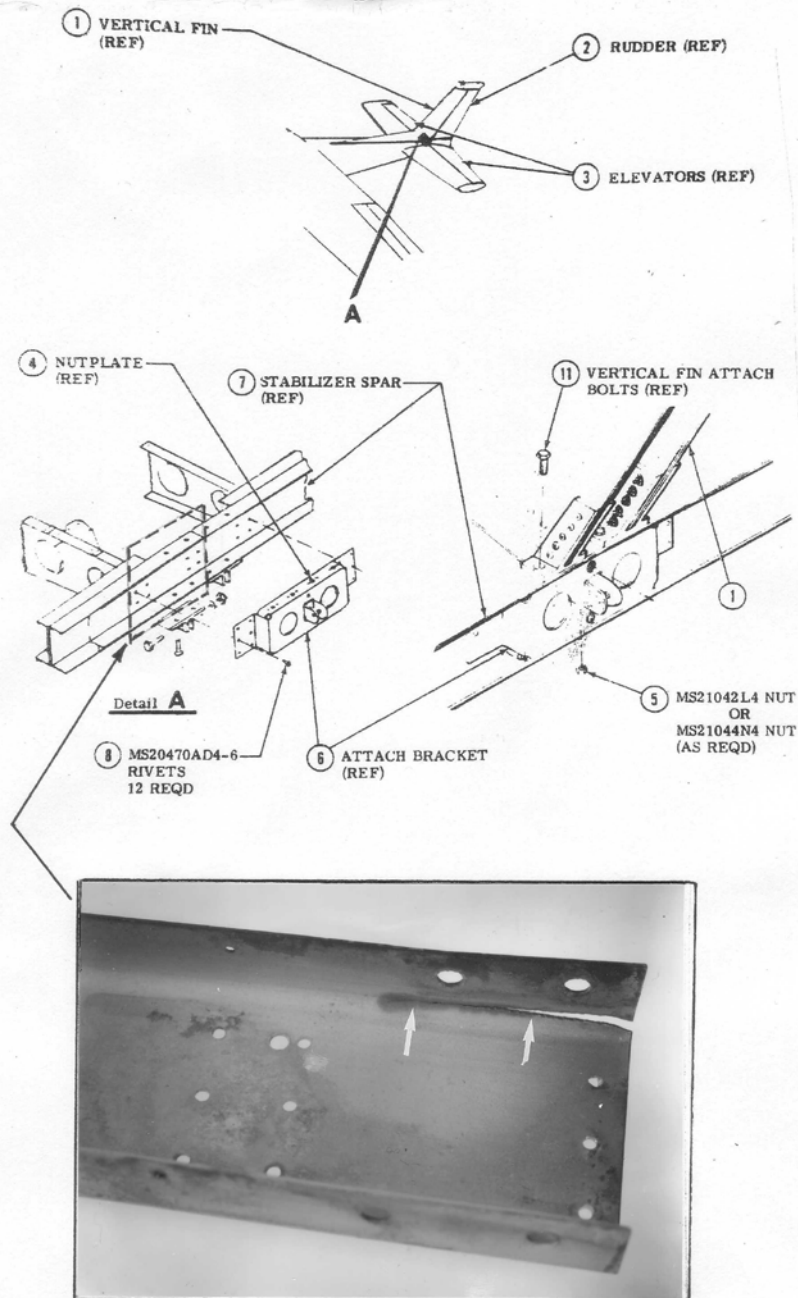
attention should be paid to the weld at the top, forward corner of the fin attachment bracket and the corresponding sections of the spar and reinforcement doubler.

2. Visually inspect the horizontal stabiliser spar and reinforcement for cracks using a bright light source, removing protective coating where necessary. See figure 1 for inspection location.
3. Re-protect the subject area with an approved protective treatment and return the aircraft to its original condition per the Cessna maintenance manual.
4. Report any cracks found in the stabiliser spar or reinforcement to CASA via a Defect Report form.



Cessna 150/152 Series Aircraft Horizontal
Stabiliser Spar Cracking

AWB 51-003 Issue : 2
Date : 8 February 2012





AIRWORTHINESS BULLETIN

Cessna 150/152 Series Aircraft Horizontal
Stabiliser Spar Cracking

AWB 51-003 **Issue :** 2
Date : 8 February 2012

5. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

AirworthinessBulletin@casa.gov.au

or in writing, to:

Airworthiness & Engineering Branch
Civil Aviation Safety Authority
GPO Box 2005, Canberra, ACT, 2601