

Alpi Pioneer Aircraft (All Types)

Inspection of Control Surface Hinge Attachment Cap-Bolts

LAA/AWA/19/23
28th November 2019
Superseding LAA/AWA/19/21

In December 2016, Alpi Aviation, the manufacturer of the Pioneer range of aircraft, issued a Safety Alert ([Notice 2016-03](#)) affecting all Pioneer types. The alert required all the cap-bolts securing control surface hinges to the airframe and the bushings in all the hinge assemblies to be replaced every 500 hours or each five years in service, whichever occurs first.

Though not mandated by LAA Engineering, this manufacturer's Alert has been brought back into focus because of recent events reported to LAA Engineering, where a number of hinge attachment bolts were found to have become loose in service. When an attachment bolt becomes loose, it can reduce the corresponding control surface's range of movement and, in the worst case, introduces a serious risk of the control surface becoming detached. When these loosened bolts were removed fully for inspection, some were found to be quite badly corroded.

Following an event where the owner of an Alpi Pioneer 300 suffered an in-flight elevator control restriction, we wrote to all Alpi Pioneer owners suggesting that they check the security of the cap-bolts securing the hinge to the airframe and the flight control surfaces. A number of owners reported that the cap-bolts on their aircraft had become loose in service. LAA Engineering followed up this letter by issuing an Airworthiness Information leaflet (AIL) for each aircraft type requiring the control surface attachment cap-bolts to be wire-locked, this was to be completed within five flying hours (or 28 days whichever occurred sooner).

Following feedback from Pioneer aircraft owners and LAA Inspectors, LAA Engineering has reissued the AIL to allow more time before the full cap-bolt inspection and wire-locking process is completed; though the cap-bolts securing the centre elevator hinge (which support the control stop bushings) must still be inspected and wire-locked within five flying hours (or 28 days whichever occurred sooner).

We wrote about these events in the May 2019 edition of Safety Spot, a copy of which can be downloaded [HERE](#).

LAA Engineering has issued an Airworthiness Information Leaflet requiring a repetitive inspection of the control surface hinge attachment cap-bolts for each Pioneer type operating under an LAA administered Permit to Fly.

Pioneer 200: LAA/MOD/334/004 issue 2 can be downloaded [HERE](#).

Pioneer 300: LAA/MOD/330/004 issue 2 can be downloaded [HERE](#).

Pioneer Hawk: LAA/MOD/330A/004 issue 2 can be downloaded [HERE](#).

Pioneer 400: LAA/MOD/364/003 issue 2 can be downloaded [HERE](#).

Alpi Pioneer Safety Alert Notice 2019-04, referred to in the AIL, can be downloaded [HERE](#).

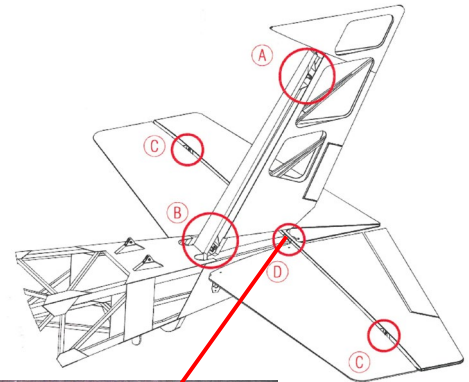


Fig 1. (Top) This sketch shows the inspection points within the empennage of all Pioneer types.

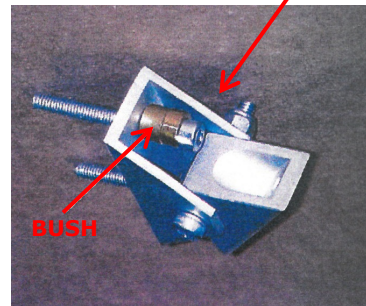


Fig 2. (Left) This Picture shows the centre hinge assembly from a P.300. Note the bushings (arrowed) which act as a primary control stop.



Fig 3 (Left) Shows severe corrosion in a cap-bolt as removed from a Pioneer aircraft operating in an overseas coastal environment, .

Fig 4. (Centre) Shows a conventional method of wire-locking pairs of bolts.

Fig 5. (Right) Shows a suitable alternative method of wire-locking a pair of bolts where the wire-locking may interfere with correct hinge operation.