

## Technical Information Notice

TIN No.:	<b>TIN-02-2018</b>	Revision No.:	<b>1</b>	Issue Date:	<b>01/03/2018</b>
Title:	<b>Owners Service Bulletin – OSB 31 Issue 2</b>				
Applicability:	<b>Ikarus C42A &amp; B models with A-strut passing through main fuselage tube</b>				
Information Type(s):	<b>MANDATORY</b>				
Modification:		Airworthiness / MPD	✓	Maintenance / Operation	
Parts:		Inspection		Other	
Importance:	<b>ESSENTIAL</b>	✓	<b>HIGH</b>	<b>ROUTINE</b>	✓
Subject Summary / Description of Problem:					
<p>An aircraft with severe cracking of the main fuselage tube emanating from the upper cut-out for the A-strut was also found to have suffered severe cracking of the A-strut around its entire circumference, this is no longer an isolated occurrence after three have now been found in the UK, they have all been high hours (circa 4000) but not all involved in an accident.</p> <p>This was hidden within the outer sleeve positioned at the connection between the A-strut and the upper surface of the main fuselage tube. The load path was maintained by the single small rivet used to locate the outer sleeve on the A-strut. See Figures 1 &amp; 2.</p> <p>It is believed that the cracking was a result of excessive loads placed upon the A-strut due to the near-failure of the main fuselage tube. One other similar historical case is known to have occurred abroad, on an aircraft known to have suffered landing gear damage.</p> <p>However, it is also possible that the cracking may also be related to fatigue due to flexing of the A-strut at this point. Therefore inspection on high-hours aircraft is essential, as well as those which have suffered damage which could have applied excessive loads to the A-strut.</p>					

In the event of any questions relating to this Information Notice please contact  
 The Light Aircraft Company: [www.g-tlac.com](http://www.g-tlac.com) e-mail: [info@g-tlac.com](mailto:info@g-tlac.com) Tel: +44 (0) 1328 878809



**Figure 1** - A-strut attachment to upper surface of main fuselage tube. Lower attachment bolt visible beneath main fuselage tube at aft end of bracket attached to nose leg

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**Figure 2** - Failed A-strut removed from outer sleeve part on right of picture. Circled holes show location of the rivet which was holding the parts together.

## **Airworthiness Implications**

If such cracks are allowed to propagate the structural integrity of the A-strut will be compromised.

## **Aircraft Affected**

C42 A & B model aircraft with the A-strut passing through the main fuselage tube. Late C42 aircraft which have the A-strut terminating above the main fuselage tube, and therefore do not have the lower end of the A-strut protruding beneath the main fuselage tube, are not affected by this service bulletin.

## **Hours of Operation**

The aircraft exhibiting the cracked A-strut had in excess of 4000 hours of operation and had suffered damage to the main fuselage tube (reference TLAC TIN-01-2018 OSB-29 Main Fuselage Tube Cracking).

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Parts / Assemblies Affected:

**N/A**

Action Required:

**(A) Inspection**

- (1)** For aircraft which have previously suffered damage which may affect the A-strut, such as nose gear damage or any severe crash damage where excessive loads may have been applied to the A-strut such as a wing-tip strike: It is essential that before next flight the internal surface of the A-strut in the region of the bolt passing through it at the connection to the upper surface of the main fuselage tube is visually inspected for cracks.

A USB borescope - similar to that shown in Figure 3 - used with a smart 'phone, tablet or laptop, can be adequate for this task. USB borescopes - also known as USB endoscopes - can be bought for less than £20 online.



**Figure 3** - generic USB borescope (aka endoscope)

Use the borescope inserted from the lower end.

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**Figure 4** - endoscope in operation

Figure 4 shows an endoscope being used to inspect a C42 front strut. The area of interest is approximately 200mm up the front strut.

#### USB borescopes:

- Incorporate adjustable LED illumination in their heads. This illumination normally has to be set to its maximum to satisfactorily inspect inside the front strut.
- Are available with a semi-rigid or flexible lead. The flexible lead type requires the head to be attached - using insulation tape or similar - to a thin rod so that it can be guided up the front strut. The borescope head may need to be attached at a slight angle to the rod so that it can focus on the side of the tube.



**Figure 5** - photograph of crack emanating from side of hole taken with a USB endoscope

Figure 5 shows a crack emanating from the side of the bushed hole.

- (2) For aircraft with no history of damage as described above in (1) and less than 2000 airframe hours: No action.
- (3) For aircraft with no history of damage as described above in (1) and with more than 2000 airframe hours. Undertake Inspection at the next annual or 100hr inspection, whichever comes first, the internal surface of the A-strut in the region of the bolt passing through it at the connection to the upper surface of the main fuselage tube is visually inspected for cracks, using a borescope inserted from the lower end.

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(4) Repeat the inspection at 100hr or annual inspections, whichever occurs first for aircraft with more than 2000hrs.

**Notes:**

- (a) If the A-strut has been previously replaced then the airframe hours or exposure to the possibility of damage should apply to the operating time since replacement.
- (b) The person conducting an inspection should be competent in the use of a borescope for visual crack detection.
- (c) On aircraft fitted with a parachute system it may be necessary to remove the front parachute bridle from the A-strut before inspection. Please consult TLAC for instructions.


**(B) Actions**

- Record the inspection in the aircraft logbook.
- Amend the Pilot's Operating Handbook, 100hr/annual inspection schedule to include this inspection.
- If any cracks are found DO NOT FLY the aircraft. Please contact sales@g-tlac.com for instructions for fitment of a replacement A-strut.

Authorised on Behalf of TLAC: **Paul Hendry-Smith**

Position:	<b>Chief Executive</b>	Signature:	
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Authorised on Behalf of COMCO IKARUS : **Paul Welsh**

Position:	<b>Certification Engineer (C42 Type)</b>	Signature:	
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