

BGA Inspector Continuation Training October 2024





Königlicher Reich

DM-4444

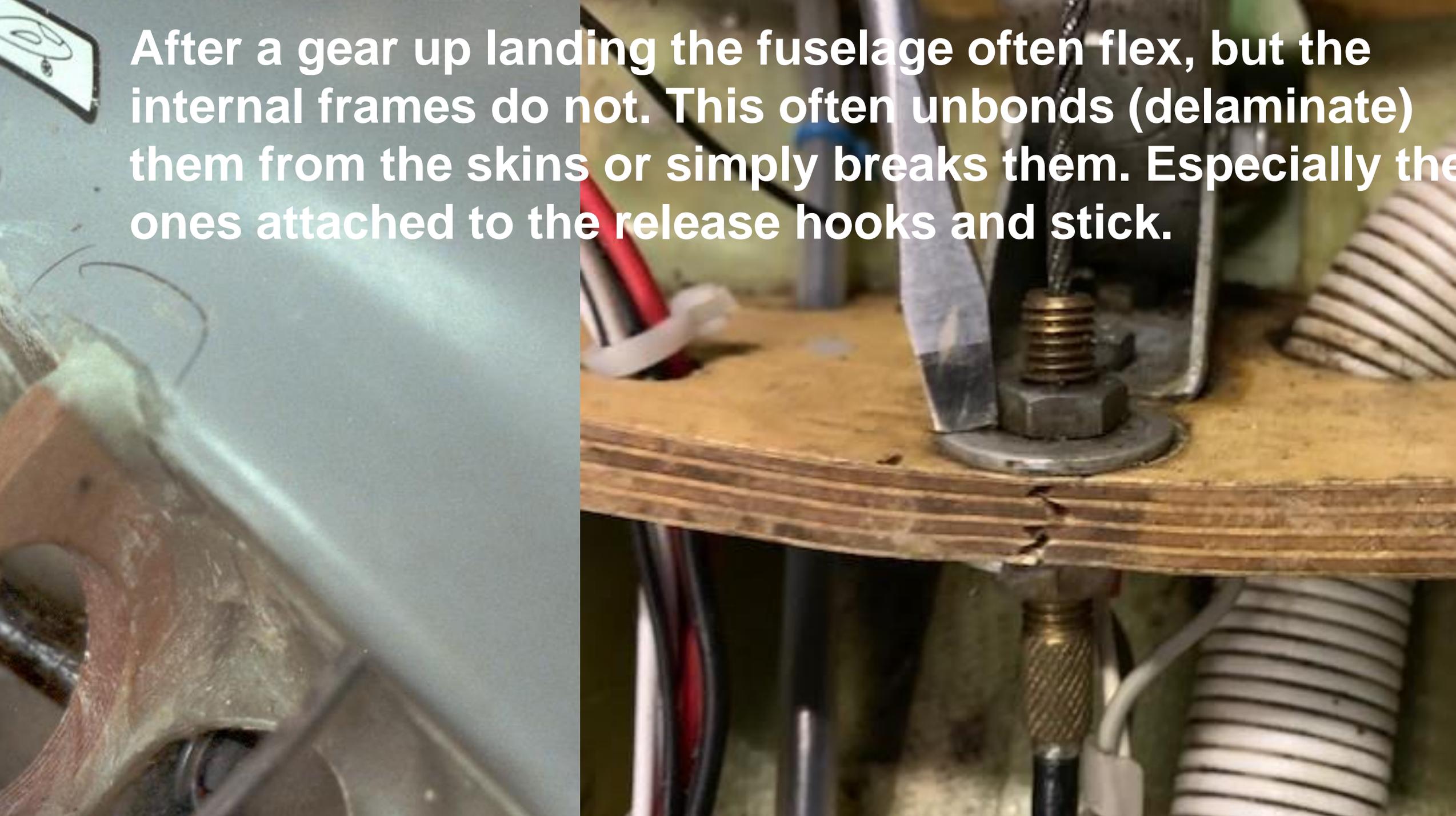
EK

Why it's a bad idea to lift the tail to put the gear down.



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After a gear up landing the fuselage often flex, but the internal frames do not. This often unbonds (delaminates) them from the skins or simply breaks them. Especially the ones attached to the release hooks and stick.



Programme

- Battery care and crash worthiness
- Finding damage
- How CAA airworthiness regulation works instead of EASA
- EASA/CAA form 1s and owner approved parts.
- CS Stan 4
- Self Declared maintenance program (EASA 302)
- Pilot owner maintenance. How should they certify it.
- ARCs and NARCs. Changes since Brexit.
- Glue and aging aircraft problems
- Part M light
- Uncommonly seen problems



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Educate owners that towing a glider with dragging brake disc is a major fire risk.



SH
NG
TION

*Battery care!
Do not drop them.
Do you know how to put out a fire?*



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FES Fire



Where the Fod is believed to broke the insulation

Terminal screw hole



What battery chemistry is the safest?



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| Feature | LFP | NCM | NCA |
|----------------------------------|------------------------|---------------------------------------|--------------------------------------|
| Cathode material | Lithium iron phosphate | Lithium nickel manganese cobalt oxide | Lithium nickel cobalt aluminum oxide |
| <u>Energy density</u> (Wh/kg) | 130-160 | 180-250 | 250-325 |
| Cycle life (cycles) | 10,000-20,000 | 5,000-10,000 | 5,000-10,000 |
| Safety | Safe | Safe | Less safe |
| Cost | Affordable | Expensive | Expensive |

Battery crashworthiness

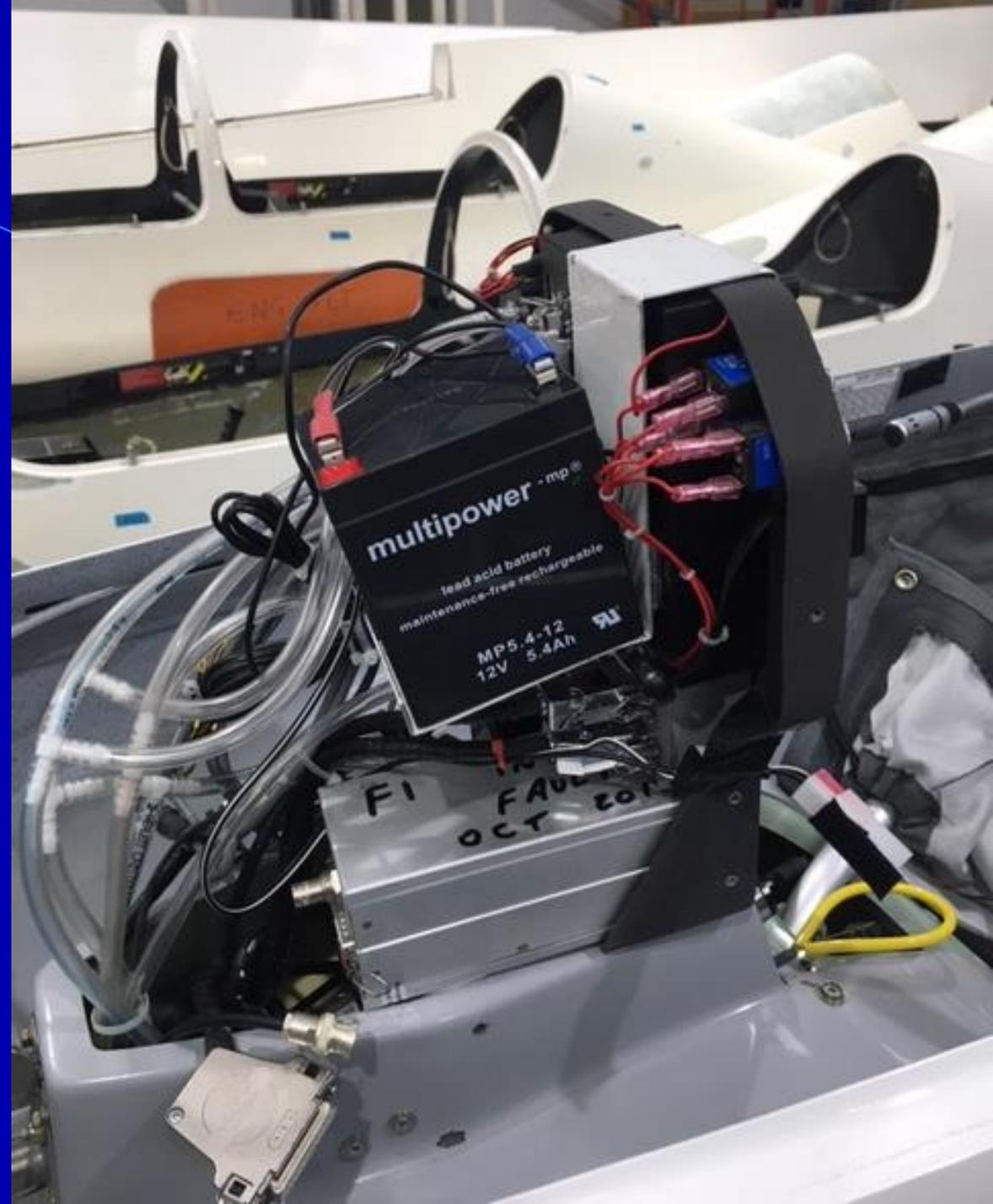


Battery maintenance and testing (AMP 4-9).pdf



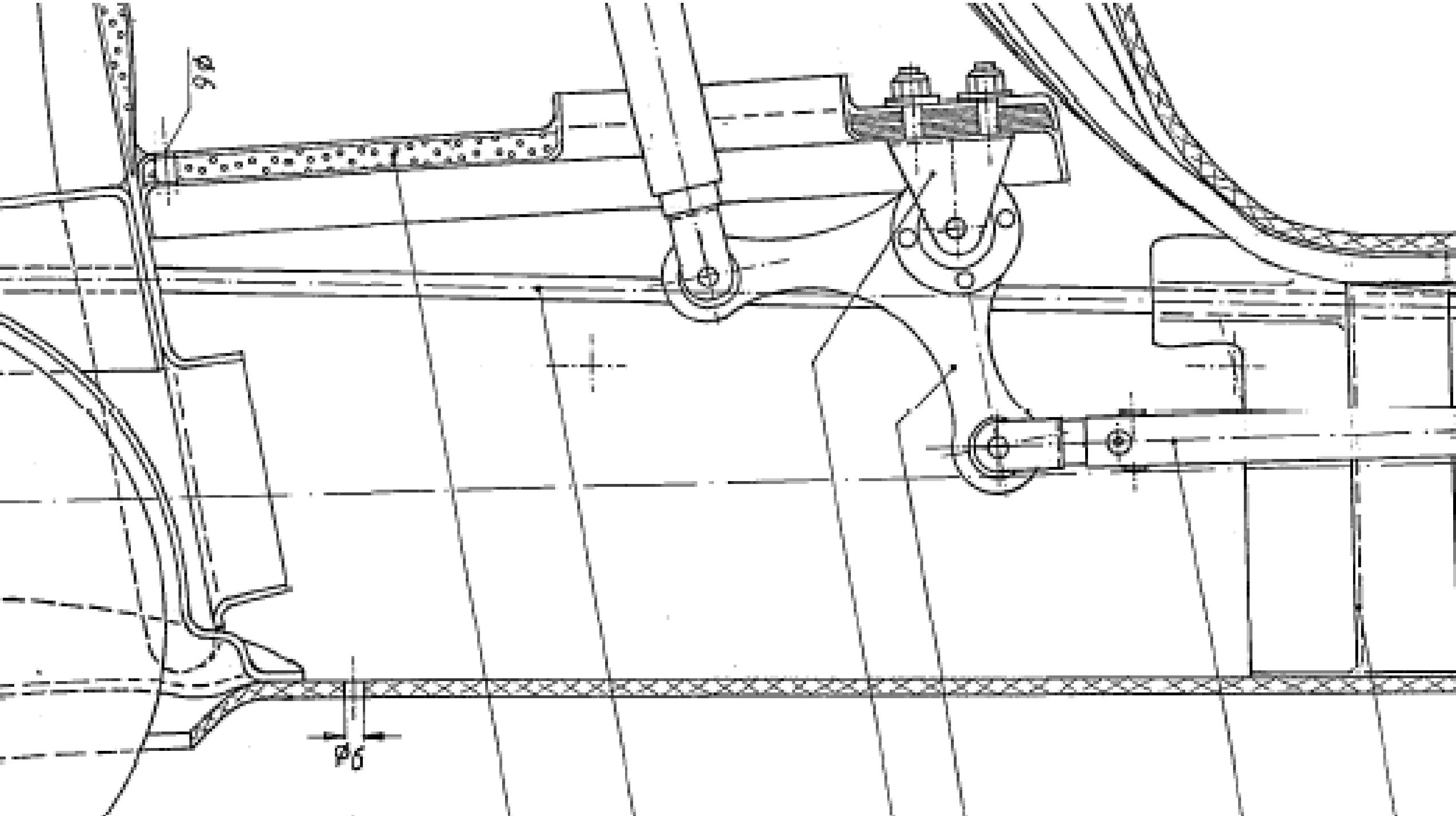
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How not to install a battery!



Minimum equipment. 3.9 mm camera with built in light source. A posh one with its own colour screen is £35 amazon/ebay





Would you spot this
on Annual/ARC DI?

Commonly found on
release, turbo
decompressor and
pedal adjustment



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Lose spar bushes



Look at the damage in the spar

Tap test for delamination



The dent uncovered



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Foam core removed



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Repair scheme

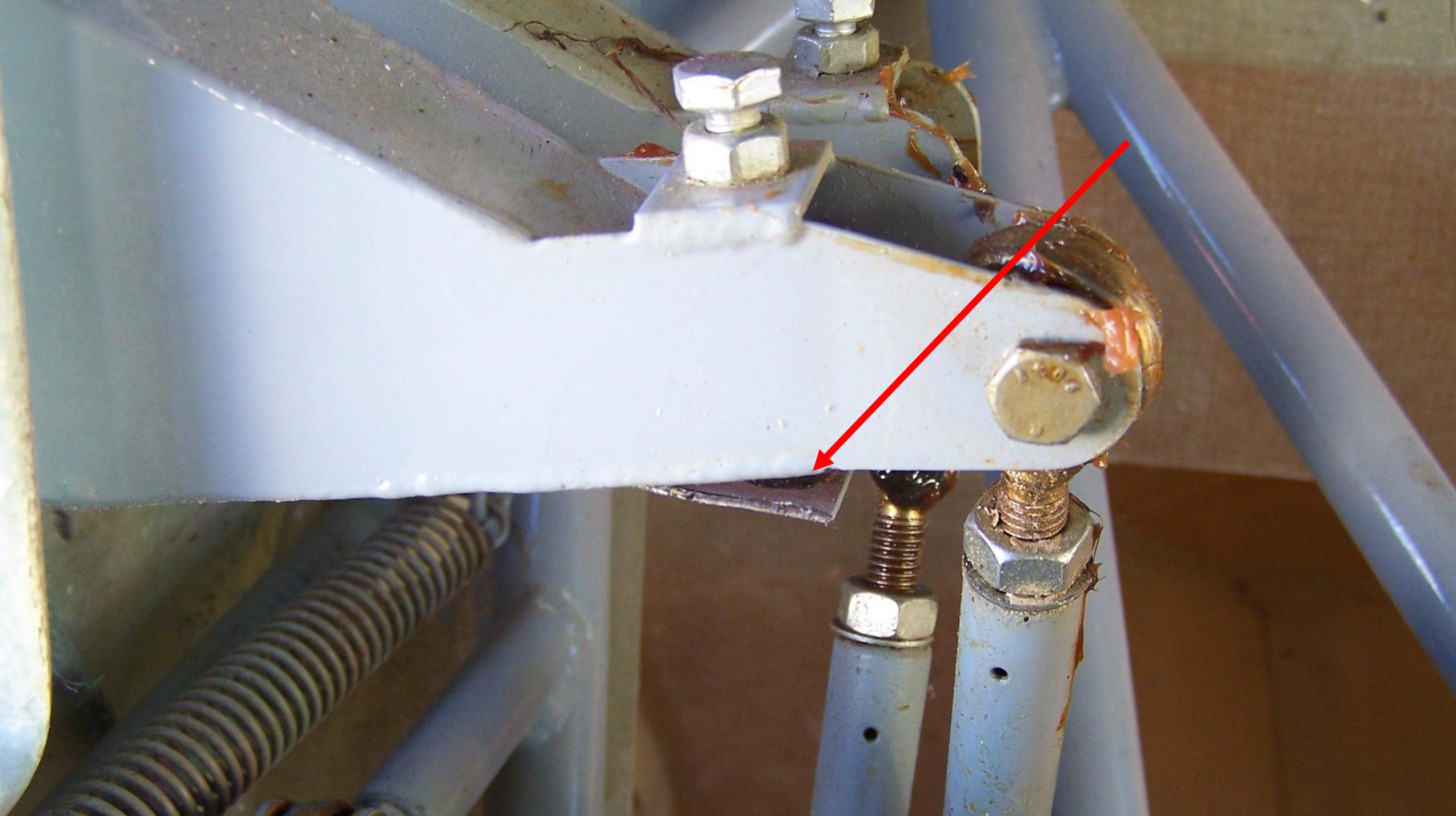


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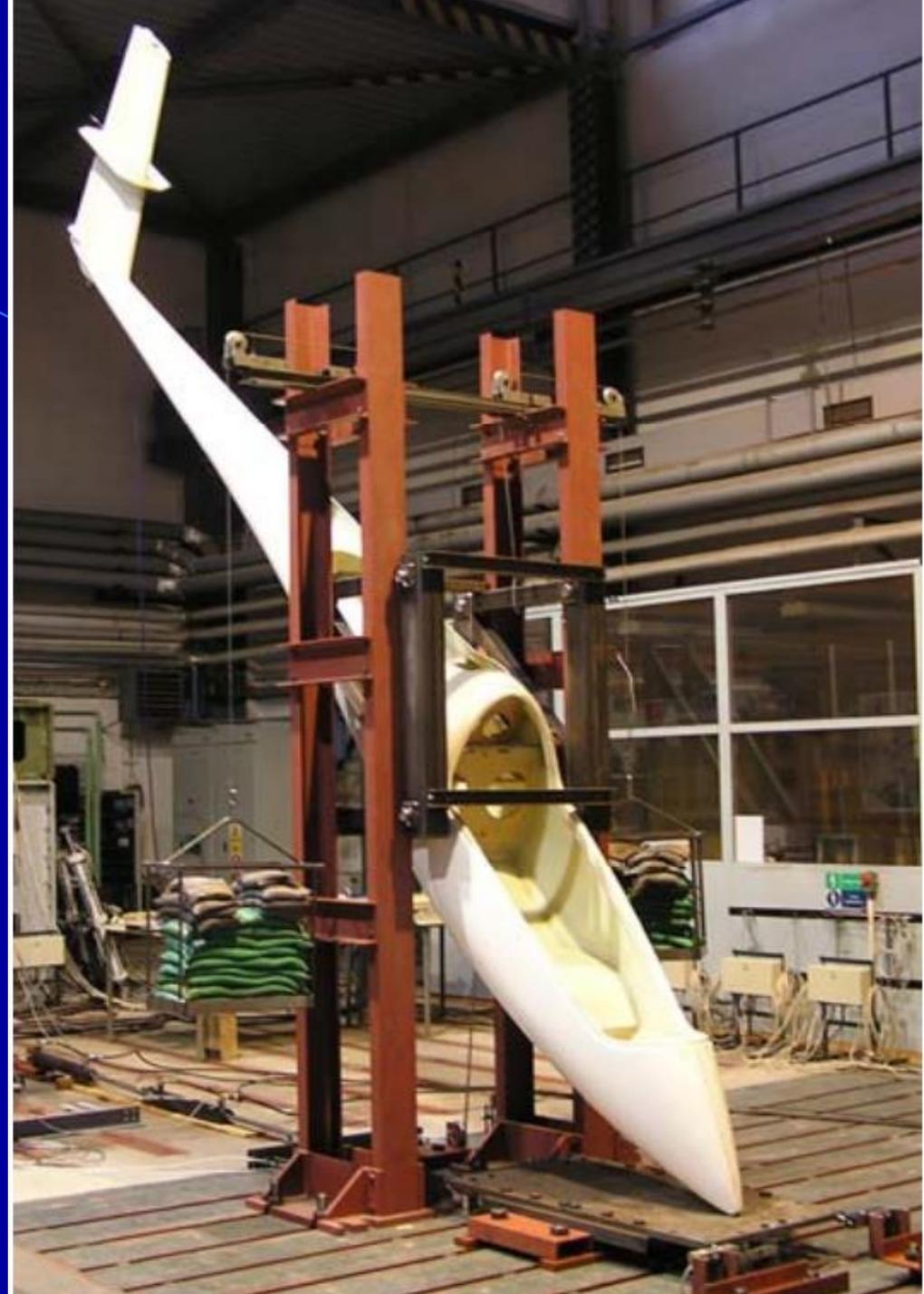
Open cirrus repair manual exert..pdf







Since 2009, all new EASA certified designs must take 9G at 45 degrees for 3 seconds with little cockpit deformation.



Broken fins that were missed on inspections



K21 rear elevator/aileron pushrod support



Puchacz fin



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Part M Light

- Only applies to light aircraft less than 2730kgs. Rule book smaller!
- Adopted on 24th march 2020. But the full guidance was only published on 11th March and full of errors that are still present.
- The exposition had be totally changed to reflect this.
- All our forms had to have new CRS

BGA worksheet 205



New BGA 205 21st October.pdf

Brexit and not being in EASA?



- The CAA are now in charge
- Former EASA aircraft are now called Part 21
- Former Annex 2 aircraft are now called Non Part21
- EASA rules still apply until at least 2023 (most likely much longer)
- Government intent is to stay aligned with EASA rules. Every time EASA makes a new rule. We adopt the same rule about a year later.
- If an aircraft loses Design support. It no longer becomes an orphan (SAS) but becomes a Part 21 permit aircraft. This is much worse and more bureaucratic than being an orphan.

Brexit and not being in EASA flying abroad?



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- In Europe and world wide, ICAO rules apply to us instead of EASA rules.
- EASA cannot be a ICAO signatory, as it is not a country.
- All European countries are ICAO signatories.
- European countries should recognise BGA Aircraft with a previous EASA/CAA issued C of A, as it is ICAO compliant. South African registered JS1 is example of ICAO working.

Brexit and not being in EASA for exports?



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- Exporting aircraft to EASA will require an export C of A issued by C of A
- This procedure is well known to us as we currently export gliders to none EASA countries using this method.
- A CAA surveyor audits the aircraft and issues a 60 day export C of A immediately before export.
- Importing an aircraft will require an export C of A from the Country it is leaving.
- Brand new aircraft come with an EASA form 52 will still be recognised.

Brexit and not being in EASA anymore



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- EASA permit to fly aircraft can only fly 28 days a year in UK airspace.
- New aircraft types will have to be approved Nationally. For example new types of glider not approved by EASA upon leaving EASA or any new type Permit type not yet in possession of a TCDS.
- The CAA process for to recognise EASA TCDS is improving. For an amendment it is £250 and lots of paperwork. For a brand new type it is over £7000. Like in EASA, most sailplanews companies do not make new types, just variants of old ones (a bit like Boeing 737!)

Getting your aircraft maintained abroad

- After 2023, European maintenance providers (including the factories that built your aircraft) cannot sign a CRS for work on G Reg aircraft unless they become CAA approved companies. This is not simple or cheap.
- So far except for one refinisher, who says they will apply to be a CAA company, none of the European manufacturers or refinishers are legal to work on G reg aircraft in 2023.
- However they can treat it like a component and use an EASA form 1 instead.
- There are no negotiations happening to fix this between the EU and UK. Its entirely political.

Junior.

Would you spot this on annual?



BGA 286 Owner declared parts



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BGA 286.pdf

How to approve Limbach engines and their parts now Limbach have lost all its EASA approvals (but still make/repair engines).

[The latest information on Limbach aircraft engines \(limflug.de\)](http://limflug.de)

- A very recent CAA adoption of a new Part ML regulation helps. The owner MUST formally approve the part before the inspector can.



CAA Part ML 502.pdf

Part 21.A.307 from July 2024



21A307 Release of parts and appliances for installation from july 2024.pdf

Using CS Stan



- Most recent CS Stan 4 for standard changes and standard repairs. This does not mean you can do stuff the TCDS says you cannot do. Like spar repairs etc.
- Very useful for instrument changes and repairs to non supported (SAS) aircraft
- Requires owners and inspectors to sign CAA Form 123
- Approves parts of FAA AC43 to be “approved data”
- Can used on Non Part 21 T61 and other non Part 21 tugs (like Supercubs and Chipmunks)

CS STAN 4



CAA CS-STAN Issue 4 (1).pdf

Since Brexit CS Stan must now have a
CAA form 123 rather than an EASA 123

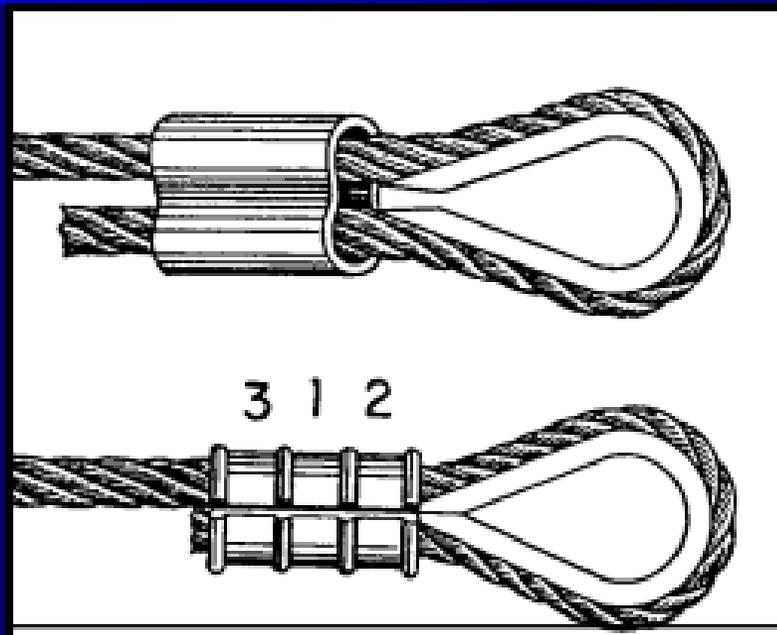


CAA form 123.pdf

These crimps were all flying and should never have passed the AD

Nico Press AD, FAA AC43 chapter 8

<https://www.casa.gov.au/file/78291/download?token=5BLBBxxD>





The string is used to secure the vent cover for the opening between
the string and the wall. Always check the
opening for any other openings in the wall.

Self Declared Maintenance Program (SDMP)



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- Why the need to change to this from the previous GMP?
- Why can we not use the old big grey logbooks anymore?
- What is a MIP? Can I not just use the Maintenance Manual as the law suggest?
- Who checks the programs are satisfactory?
- What about Pilot owner maintenance?

BGA SDMP 267 revision is coming.



- There are 4 configurations of sailplane it will become the Minimum Inspection Program for.

1- Pure Sailplanes

2- 2 and 4 stroke internal combustion engine powered sailplanes

3- Part 21 approved Jet sailplanes JS series and HPH Shark.

4- Electric propulsion (every manufacture now)

Delete all the sections that do not apply

- Allows parts to have their recommended lives to be deviated.

What the New Template is likely to look like



BGA SDMP 267 template proposal October 2022.pdf

Annuals using a BGA SDMP 267 (MIP)



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- The SDMP has to be reviewed by the inspector
- Inspector has to agree that deviated items are still airworthy
- Look very closely at items performed under pilot owner maintenance.
- Look very closely at all Deviated items
- Make sure all ADs and lified items are still satisfactory and pink pages upto date!
- Check Factory Service Bulletins and Technical Notes.
- Not to sign CRS if owner has not signed for deviations and SDMP declarations.
- Does not have to be part of the workpack.

Inspection Intervals of SDMP



- For Tugs and TMGs, every annual or 100 h interval, whichever comes first, to which a tolerance of 1 month or 10 h may be applied. Note, Grob 109 have a 100 hour AD cannot be extended until complied with.
- For pure, sustainer and retractable engine (includes Stemme S10) sailplanes, every annual interval to which a tolerance of 1 month may be applied. The next interval shall be calculated as from the time the inspection takes place . This is the owners decision, not BGA.
- But ARCs can never be extended. Only anticipated.

SDMP BGA CAO requirements



- If wooden construction Glue check every 3 years
- Reweigh at least every 10 years
- Stick grip attached to stick
- Mandatory BGA inspections
- Tape/mylar must be in good condition
- Carry out all BGA CAO requirements
- If no max play in manual specified, it must never more than 3mm at trailing edge. Especially K6Es, Kestrels flaps and all trim tabs!

Air Reg decals and paint schemes



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cap-523 Display of Nationality and Registration Marks.pdf

Performing ARCs with SDMP



- ARC signatory has to be satisfied the SDMP is legal, otherwise **NO** ARC can be issued.
- Close look at deviated items
- Close look at all Pilot owner Maintenance
- Revised ARC form 276 from November 22
- All required documents have to present. Not just a few sampled. This should have always been the case.....
- Noise certificates are required for anything with engine. Found on EASA website noise TCDS
- Must have CAA style logbook with pink pages for AD recording

New BGA 276. Note SDMP review bit!



BGA 276 March 2023.pdf

What if the owner and inspector do not agree on deviations or SDMP



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- This is not a race to the bottom in terms of standards, tell the BGA office
- We can verify how the issue was dealt with at next ARC issue.

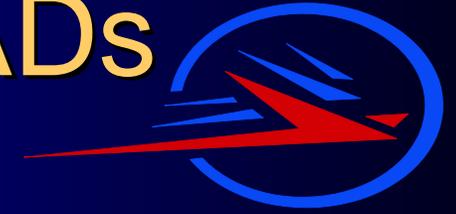
Common recurring Airworthiness Directives (AD) and Mandatory lified items



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- AD1993-001/3 and AD1994-001/2 Checking of L'Hotellier fittings
Measure annually and recommend change at 3000 hours
- LBA AD1989-018/3 Tost hook condition and life (mandatory 10000 actuations and recommended 4 years life) Annually
- AD82-216 Nicopress sleeves inspection after cable replacement.
- Airframe life. Typically 12000 hours with 3000 hour overhauls.

Possible Equipment deviations (ADs never!)



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- Straps
- Magnetos
- Propellers
- Engines
- Fuel/oil/Hydraulic lines
- Hooks (only the 4 year bit!)
- Hotellers
- Cables

EASA product list is replaced with CAA product list. EASA one is not valid after Brexit



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- If it is new type or variant after Brexit. Is it CAA approved? Look in aeroplane section! New types certified after Brexit very slow to get CAA approval <https://www.caa.co.uk/commercial-industry/aircraft/airworthiness/type-certificate-and-type-approval-data-sheets/part-21/approval-of-part-21-sailplanes/>
- Contact BGA if not sure.

- EASA product list if curious!



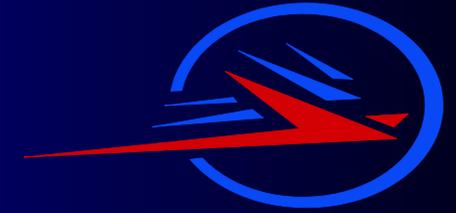
EASA TCDS October22.pdf



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Where did the
rudder cable
adjustment go?!

Where to find AD's



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- CAA ADs (not user friendly and quite random)

[List of UK Airworthiness Directives \(caa.co.uk\)](http://caa.co.uk)

- CAA CAP 747 (even more not user friendly and most ADs missing)

[CAP 747: Mandatory Requirements for Airworthiness \(caa.co.uk\)](http://caa.co.uk)

- EASA ADs

<http://ad.easa.europa.eu/>

- LBA AD's

https://www.lba.de/EN/Airworthiness/Airworthiness/ADs/AD_node.html

- Manufacturer

<https://www.alexander-schleicher.de/en/>

- BGA compendium

<https://members.gliding.co.uk/airworthiness-2/airworthiness-directives/>

How to check for new Technical Notes or service bulletins



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- <https://www.alexander-schleicher.de/en/>

K21 Wing root cracks





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K21 Wing root cracks





K21 Wing root cracks

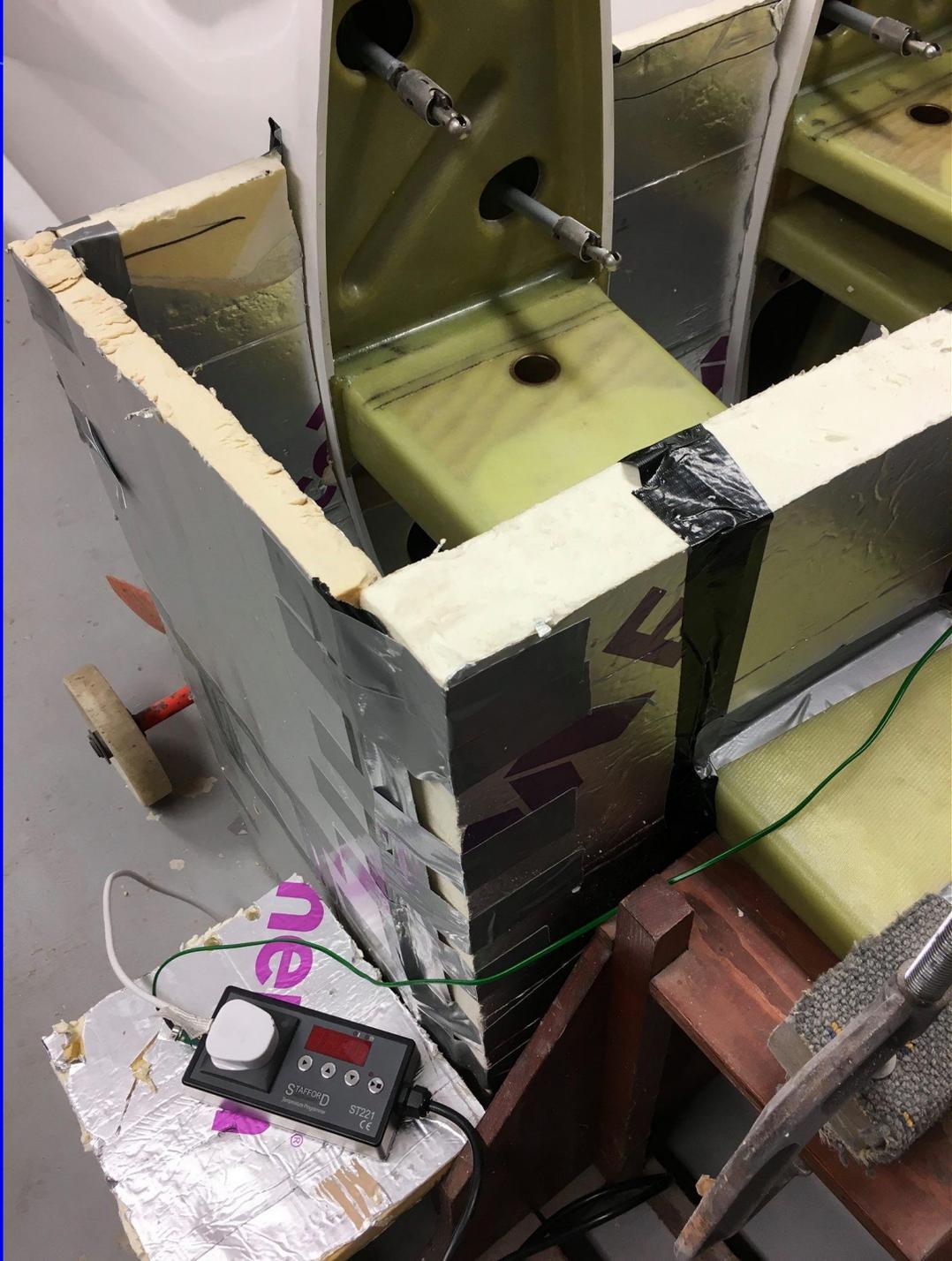


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K21 Wing root cracks





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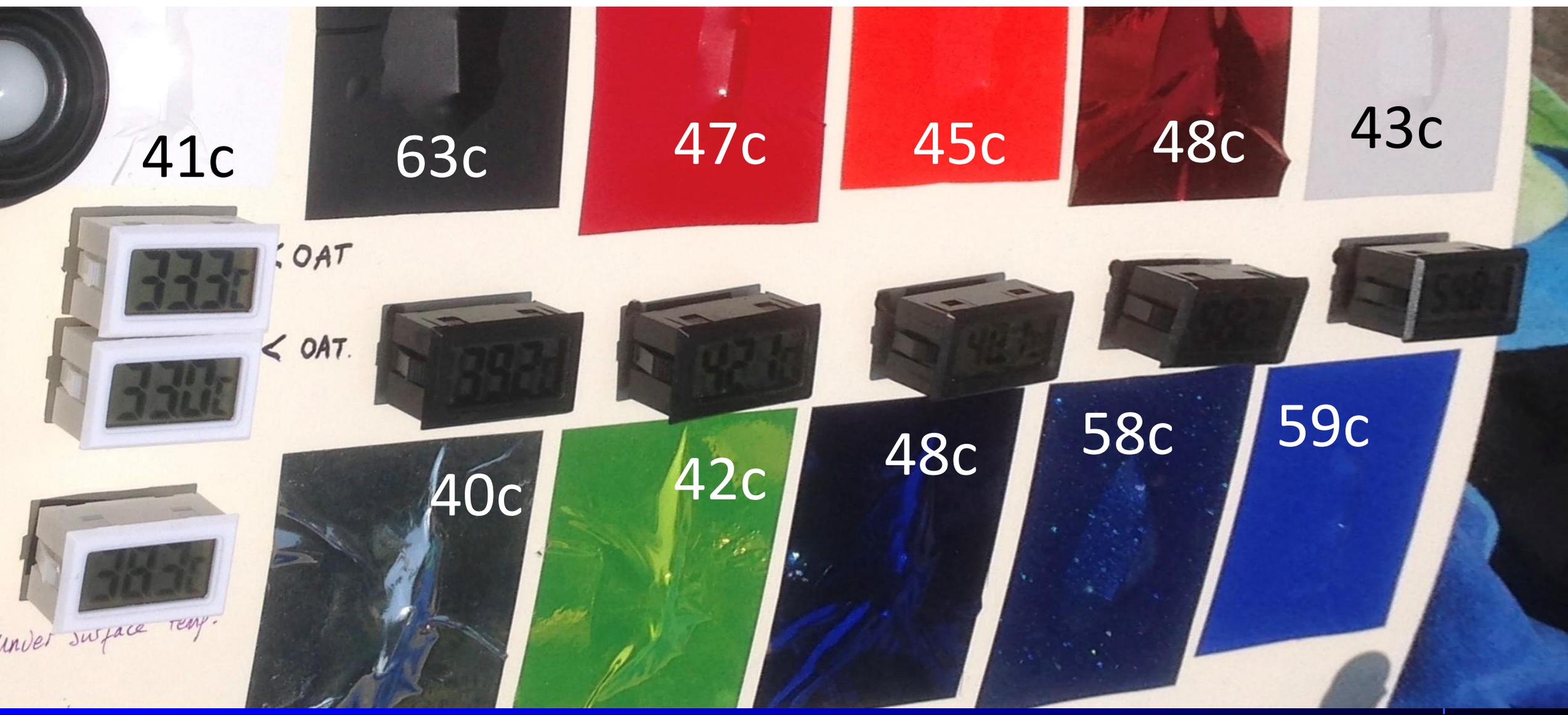
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Why can
Piks and
ASG 32 be
different
colours?

Here different colour foils are tested at an outside air temp of 33c. CS22 The EASA design code specifies that all gliders are cured at 54c (usually for 15 hours) and painted white to make sure they never exceed 54c in sunlight.



AMP Leaflet 4-8
Inspection of Seat Harness
Inspector to check but own
responsible



Effects of UV on Polyester webbing used in parachute harnesses.
Most glider straps have a recommended life of 12 years.
Scrap them when they become very faded.

See BGA AMP document
Link below

<https://members.gliding.co.uk/library/airworthiness/amp-4-8/>

Sunlight Test Results Type 7b Webbing



| Days Exposure/Ultimate Strength |
|---------------------------------|
| 0 days/6738Lbs |
| 40 days/6482Lbs |
| 80 days/5676Lbs |
| 120 days/4401Lbs |
| 160 days/3556Lbs |

Sunlight Test Results Type 7b Webbing



| Days Exposure/Ultimate Strength |
|---------------------------------|
| 200 days/3421Lbs |
| 240 days/3156Lbs |
| 280 days/2821Lbs |
| 320 days/2957Lbs |
| 360 days/2891Lbs |

Some types have known weaknesses



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ASK21 rotten spar web.

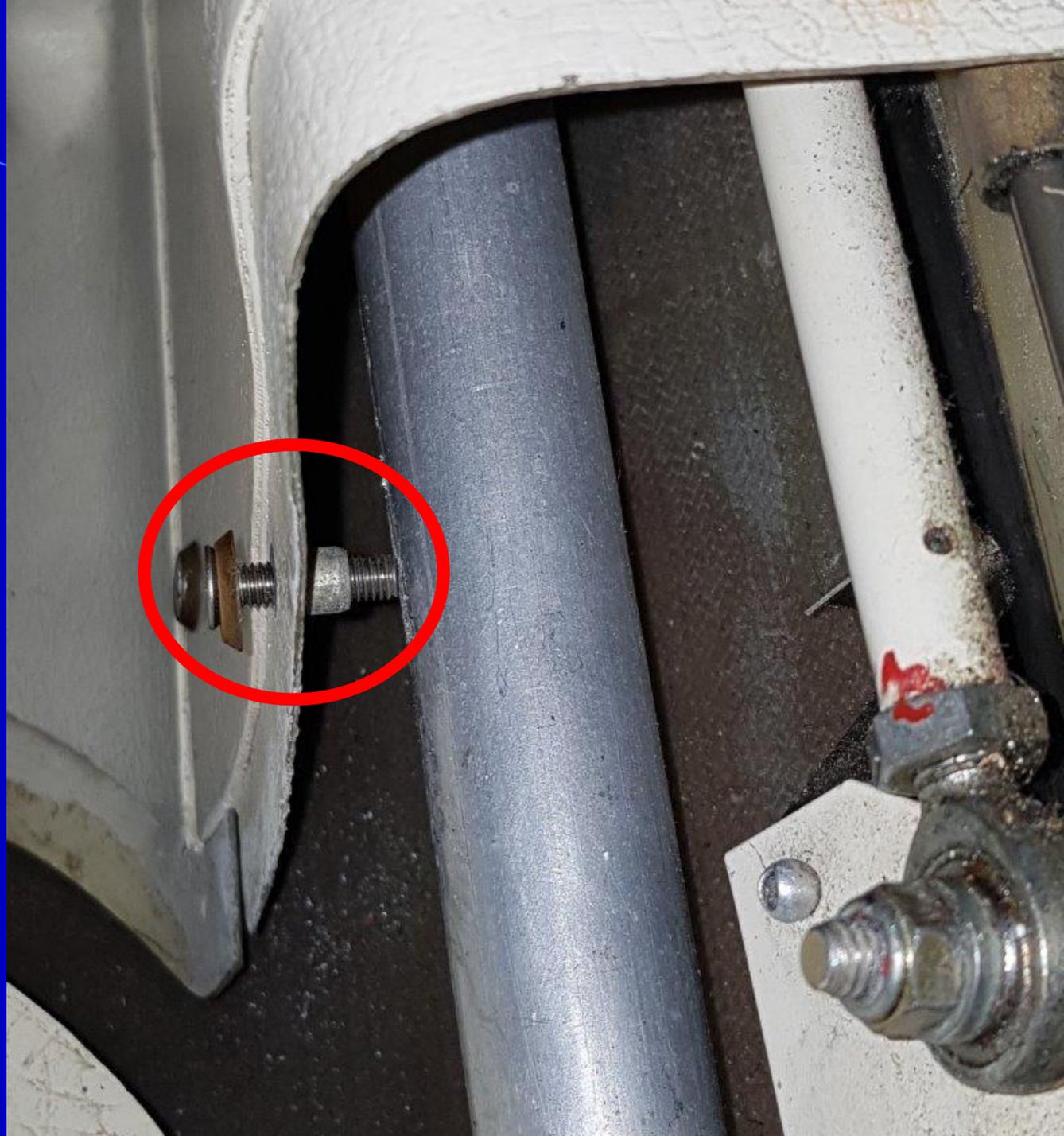
Owners modifying sticks!



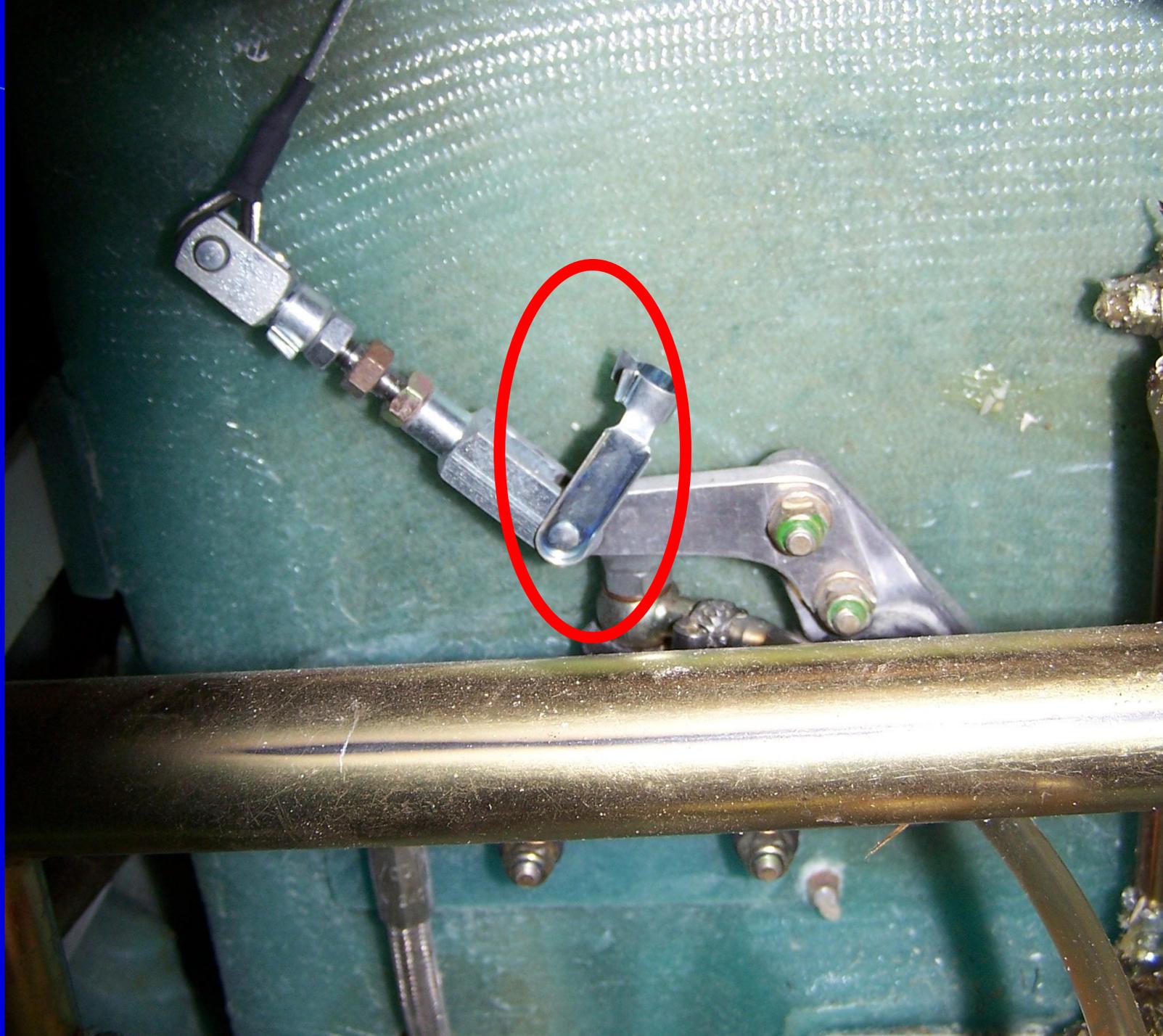
11. enter the CRS in the logbooks as mentioned in point (d) of point M.A.803 when performing pilot-owner maintenance without exceeding the limits of the maintenance tasks list as declared in the approved AMP as laid down in point (c) of point M.A.803;

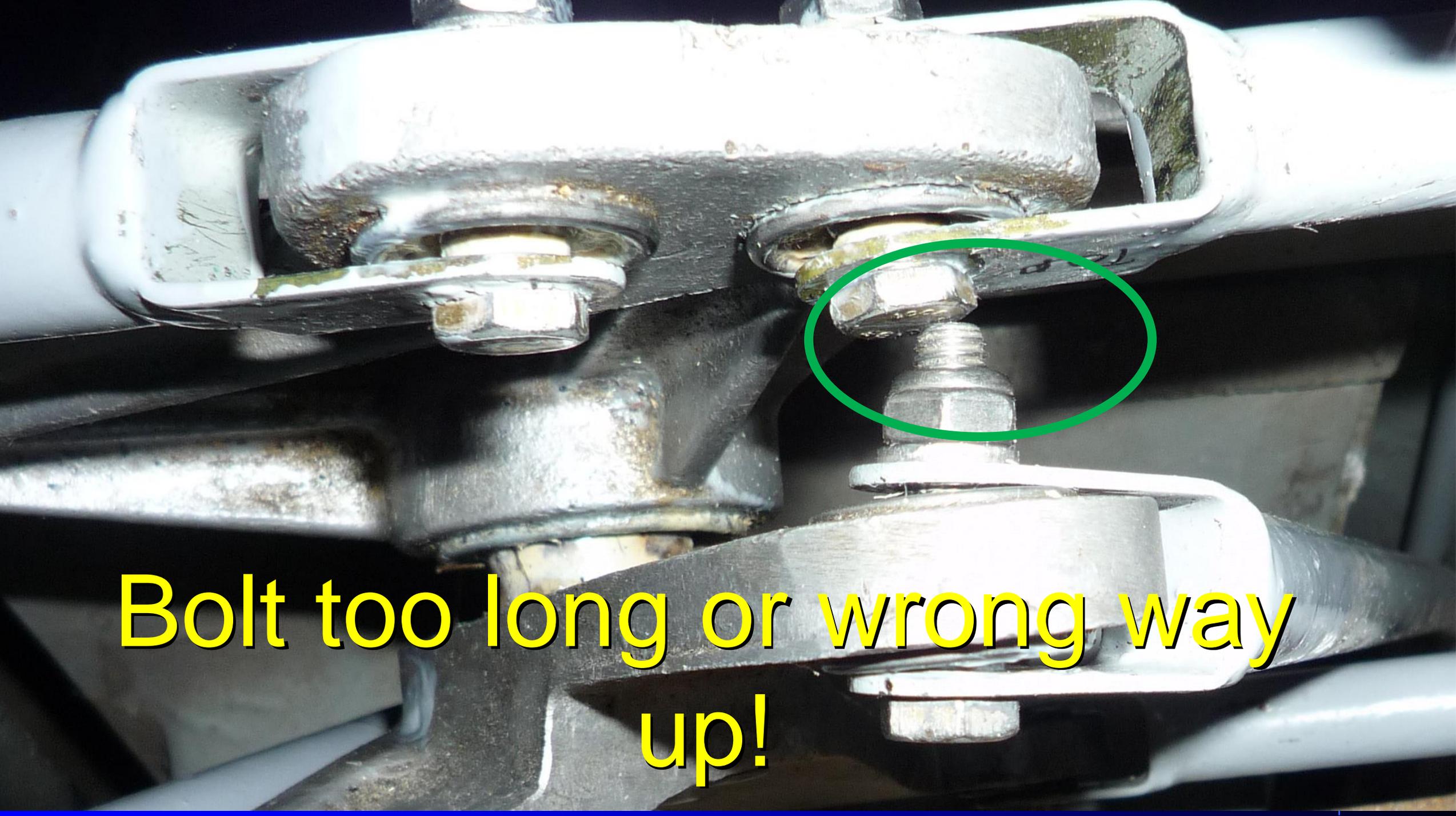
This is surprisingly
common.

Some gliders
deliberately have
screws of different
length. It would be
great if they were
labelled or the manual
mentioned it!



This was a brand new glider.





**Bolt too long or wrong way
up!**

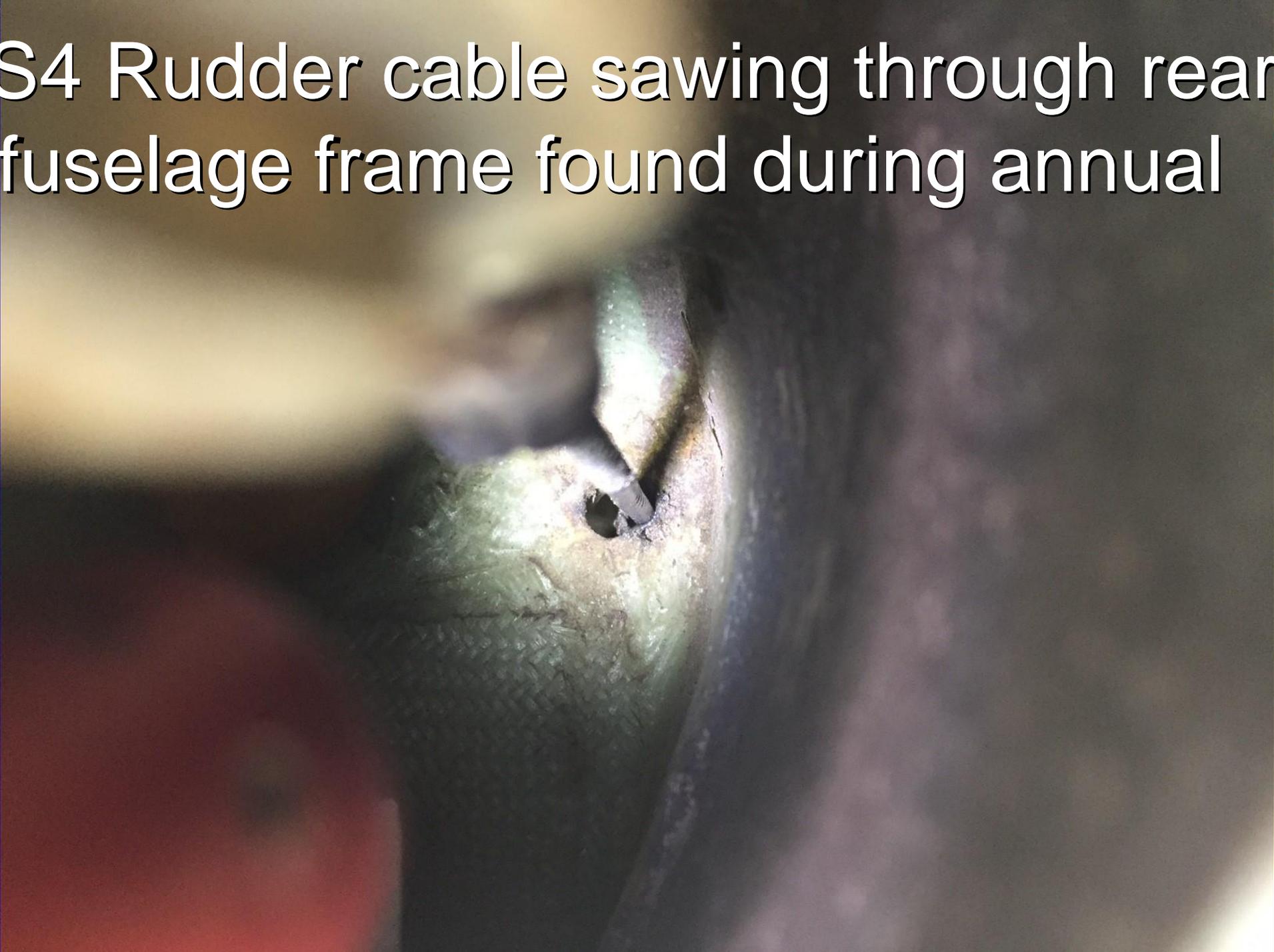
This is not serviceable



LS U/C rubber perished and distorted



LS4 Rudder cable sawing through rear fuselage frame found during annual



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Puchacz rear seat back. We are told
this will become an AD



<https://www.youtube.com/watch?v=IO08vZqNkuY>
[youtube.com/watch?v=IO08vZqNkuY](https://www.youtube.com/watch?v=IO08vZqNkuY)

CATEGORIES OF STRUCTURE



- **PRIMARY.** Anything that if it was damaged would endanger further flight. Examples, Mainspars, pushrods, D box, Main pins, control cables, seat backs to name but a few items.
- **SECONDARY.** Anything that if damaged is not immediately endangering to further flight but if left will become so. Examples, Worn tyres, Worn skids, Cracks in canopy that are not drilled, holes in fabric, a few minor bent tubes in a fuselage etc.
- **TERTIARY.** Damage to items that are of little consequence. Examples, Wheel fairing, very small fabric holes, tatty paintwork, worn upholstery etc

Schliecher briefing on spars!

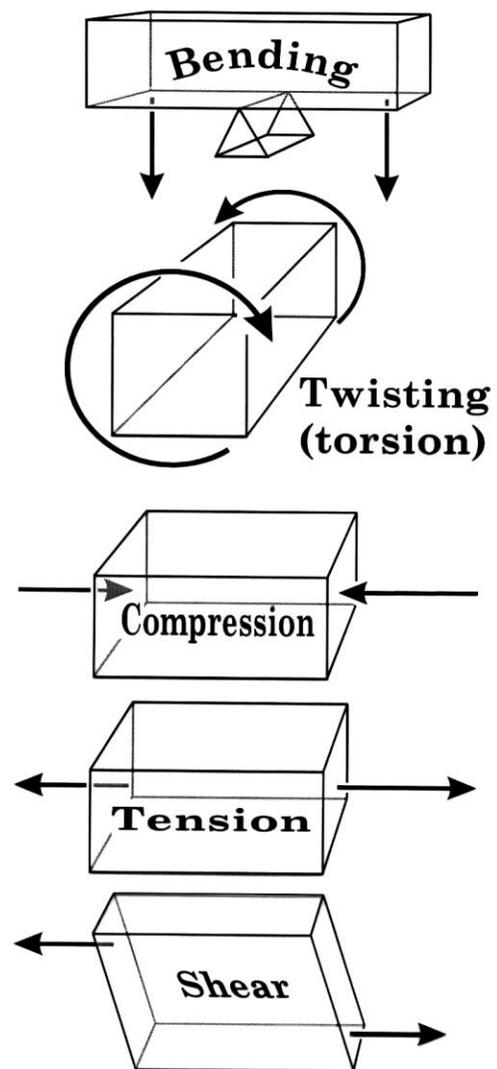


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- [The Wingspar | ASSegelflug \(alexander-schleicher.de\)](http://www.alexander-schleicher.de)

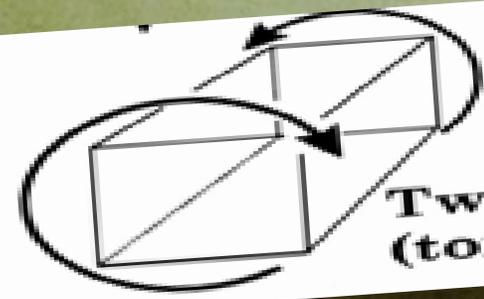
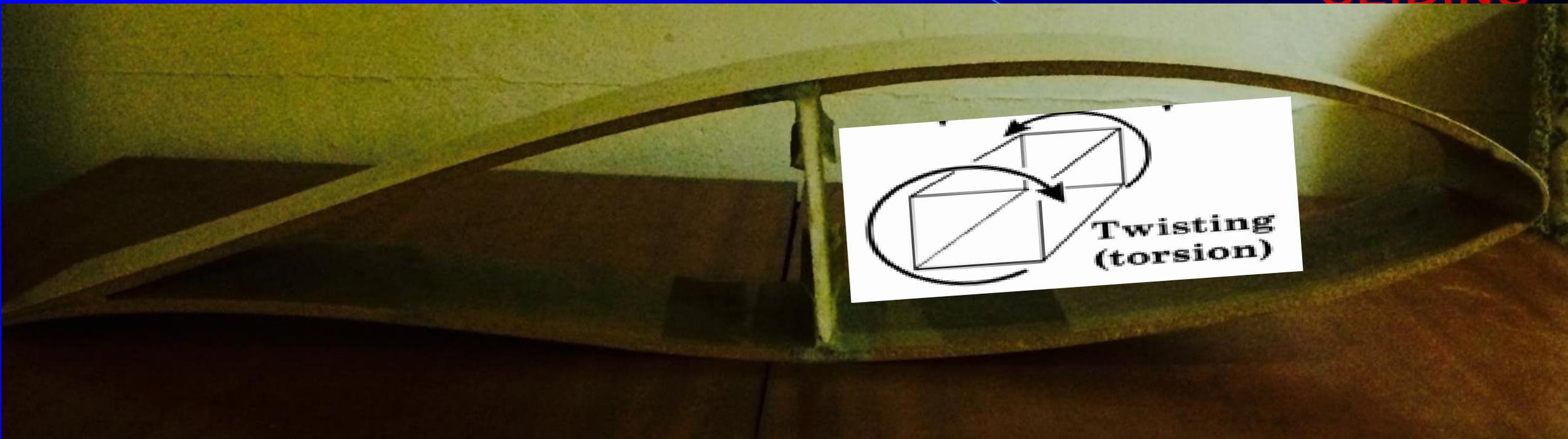


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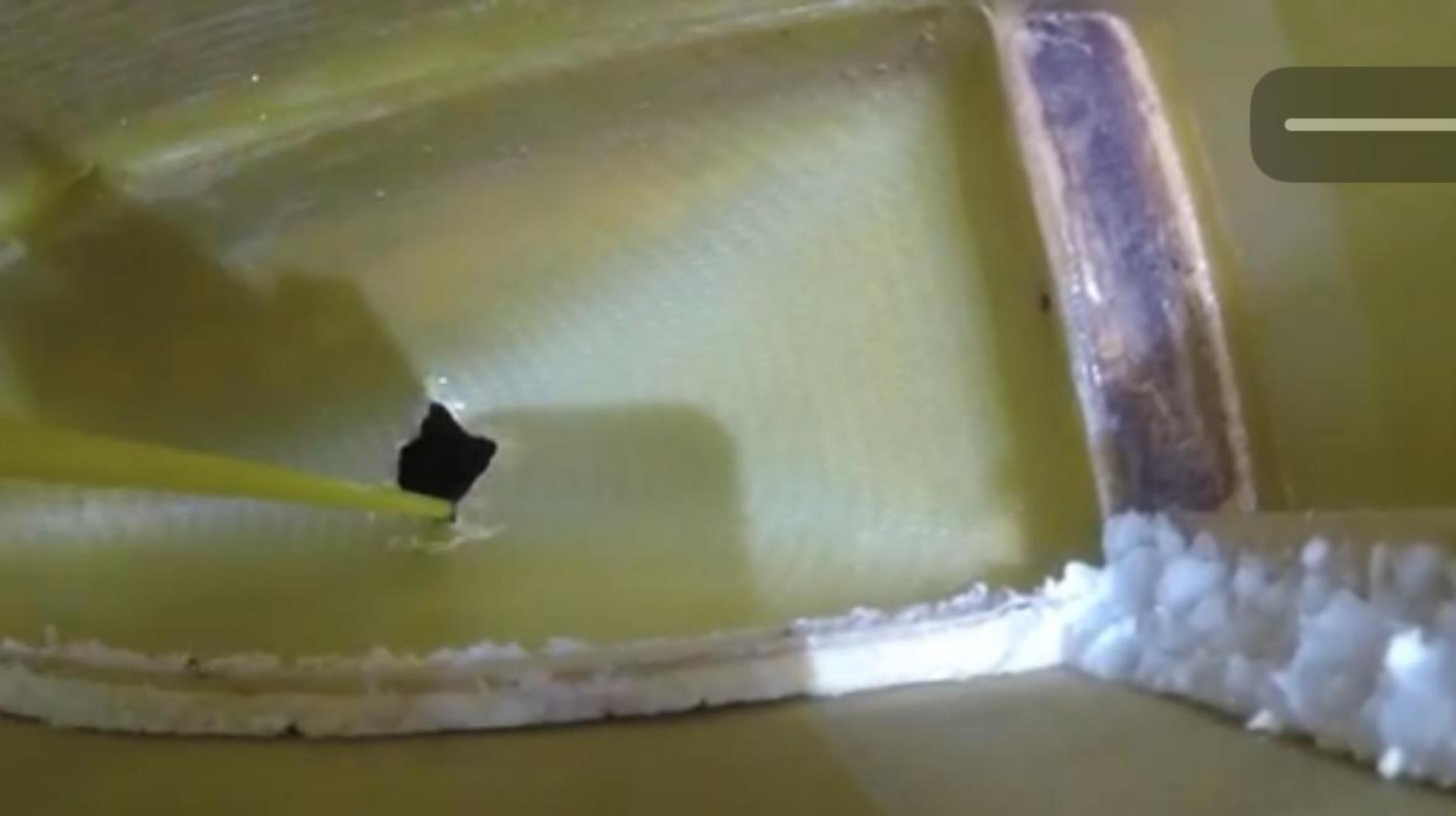
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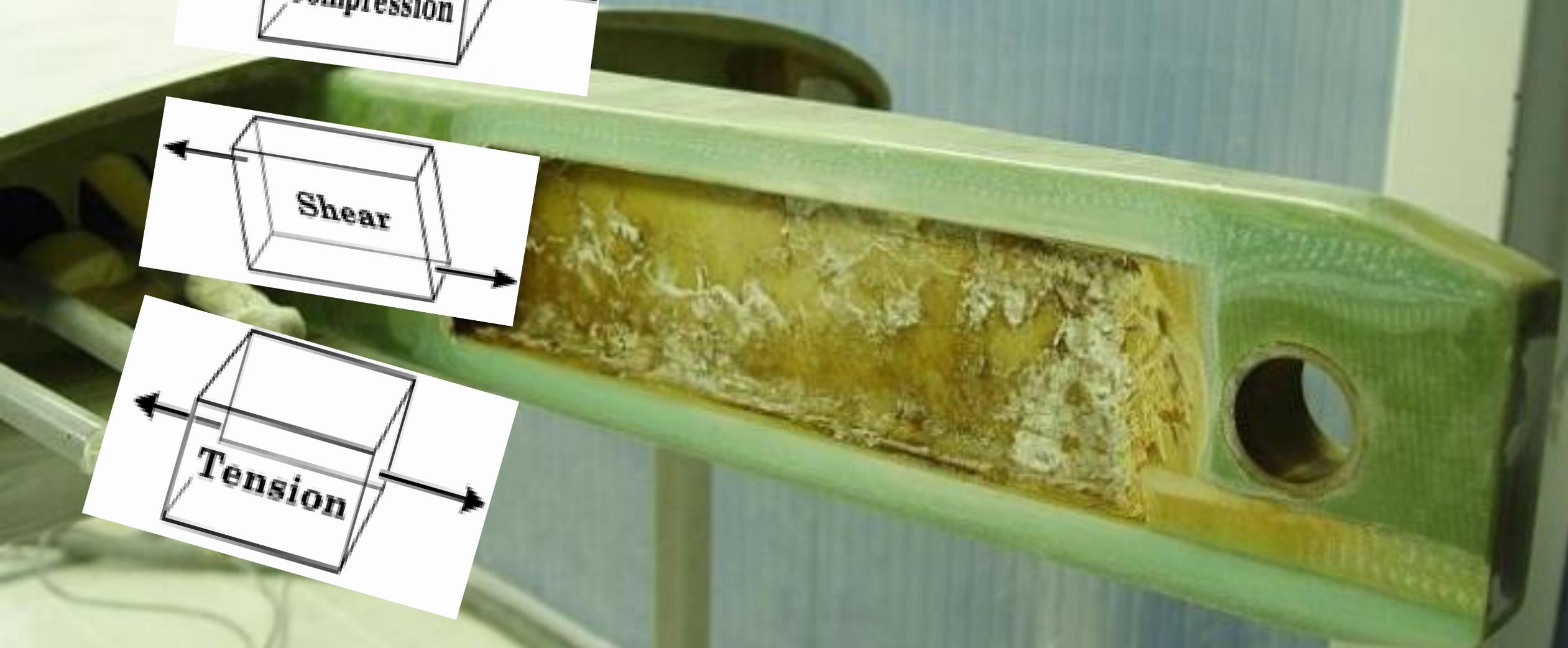
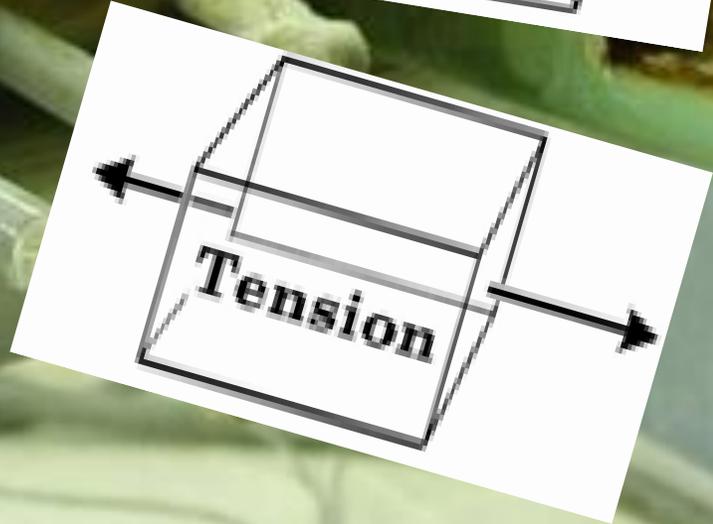
**Twisting
(torsion)**

This is how modern sailplanes can have thin wings





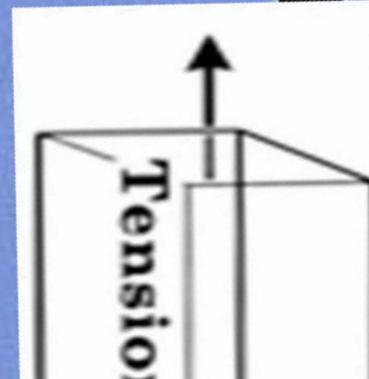
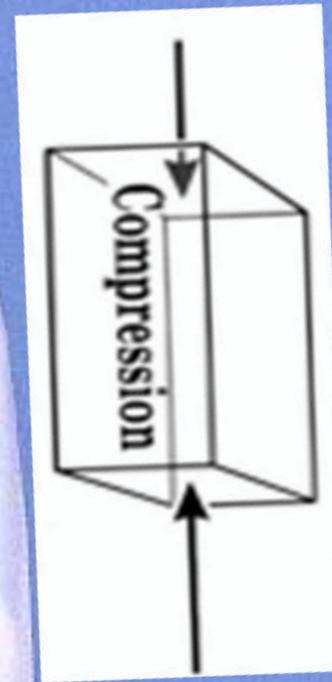
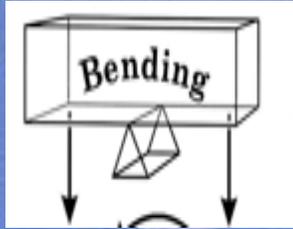
ASW20 spar web damage



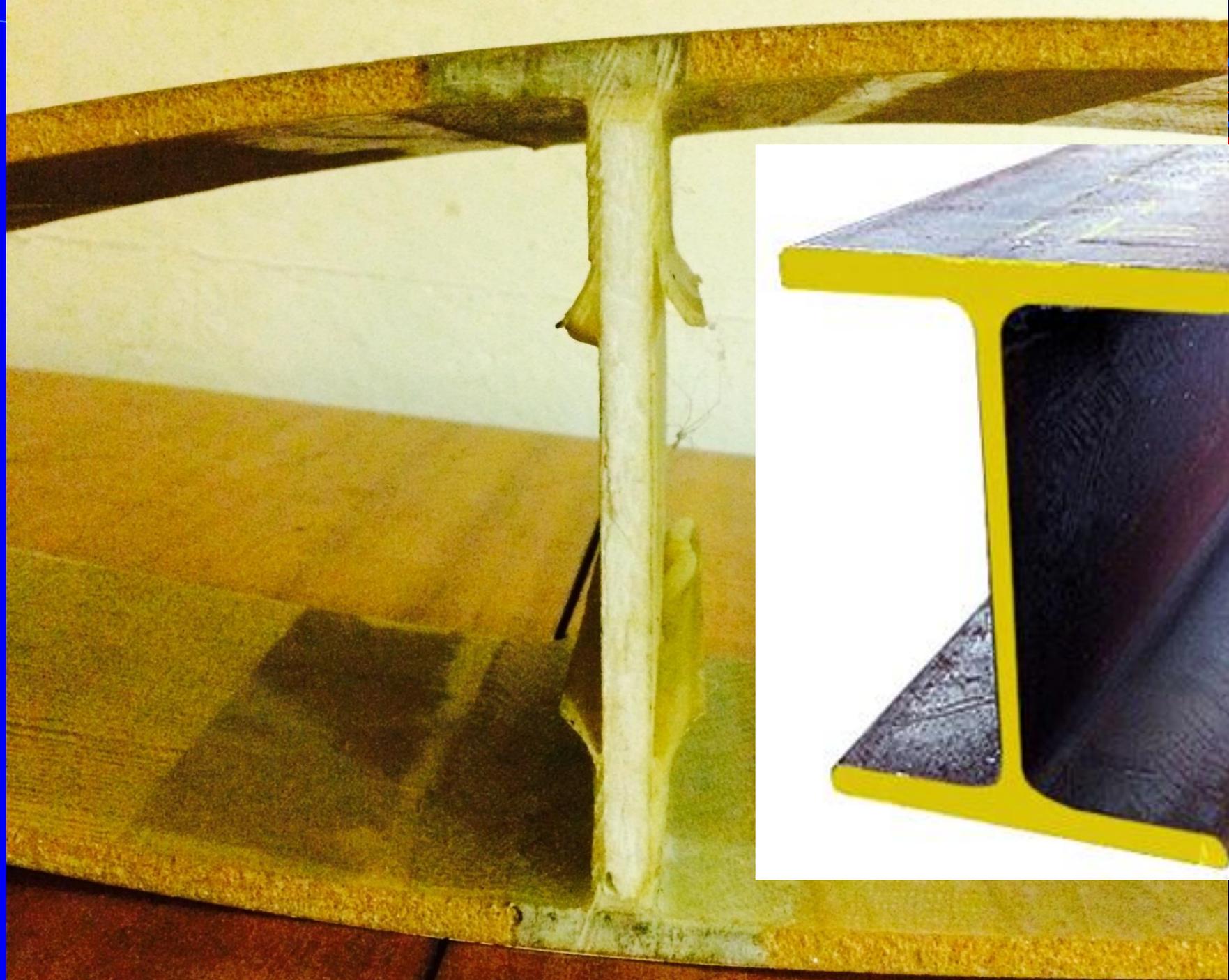


ASW20 spar web repair. Note slots cut in root ribs to allow big enough splice.

A picture of stress



Poor build
quality
and
jigging of
main spar
caps



Before you start work. Maintenance work order?



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Not required if you are working on your own club glider or you are the owner.



BGAmaintenace work order_1-3a23.pdf

Airworthiness Support



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- Airworthiness Support is valid for up to 3 months after the BGA ARC has expired
- Part 21 aircraft only
- After that the aircraft is NOT covered and BGA inspectors are not authorised or insured to work on or certify it

BGA Airworthiness Support Form



BGAAirworthinessSupportApplicationDec09.pdf

CAA (National) NARC Airworthiness Review



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- The airworthiness review is recorded on form BGA 278 “Airworthiness Review Checklist”
- This is an aide-memoir and certification document.

BGA 278



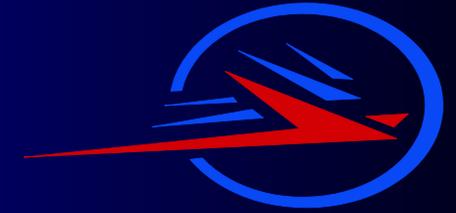
278form_1-3a15.pdf

Workpack contents sheet



Document Control Sheet
This worksheet may be used for Gliders, Motor Gliders and BGA Tugs.

| Reg: | | Type: | File Ref: | |
|---|---------|-------------|-----------|-----------------------|
| Date: | | Check/Zone: | Sheet: | of |
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| Use more contents sheet if required. | | | | |
| Certificate of Release to Service (please tick Annex II or EASA box) | | | | |
| All work has been recorded in the appropriate logbook and all additional worksheets and every entry in this workpack is closed. | | | | |
| <input type="checkbox"/> Annex II - The work recorded above has been carried out i.a.w. BGA Airworthiness Exposition 4.9. BGA Approval No. DAI/B378/73. | | | | |
| <input type="checkbox"/> EASA Aircraft - Certifies that the work specified, except as otherwise specified, was carried out in accordance with Part-M and in that respect is considered ready for release to service. BGA Approval No. UK.MF.0007. | | | | |
| (* Written signature required) | | | | |
| Inspector Name: | | Signed *: | Date: | BGA Authorisation No: |



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When to refinish? Human factors and commercial pressure!



My account always has stopped for the last 10 minutes. This is very bad but what
do I do at the factory house? I'm going to be a good refinisher now.



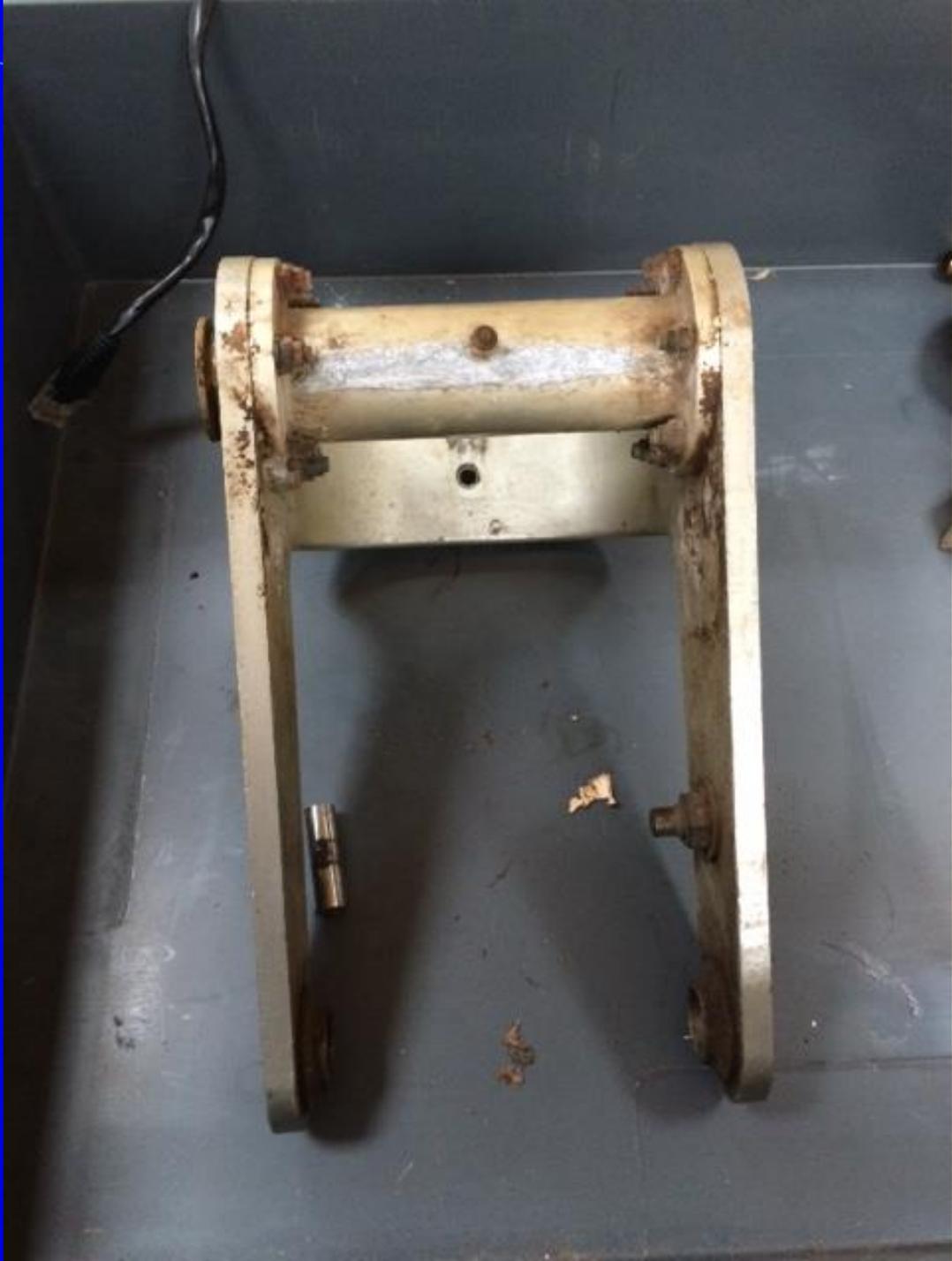
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ASSOCIATION



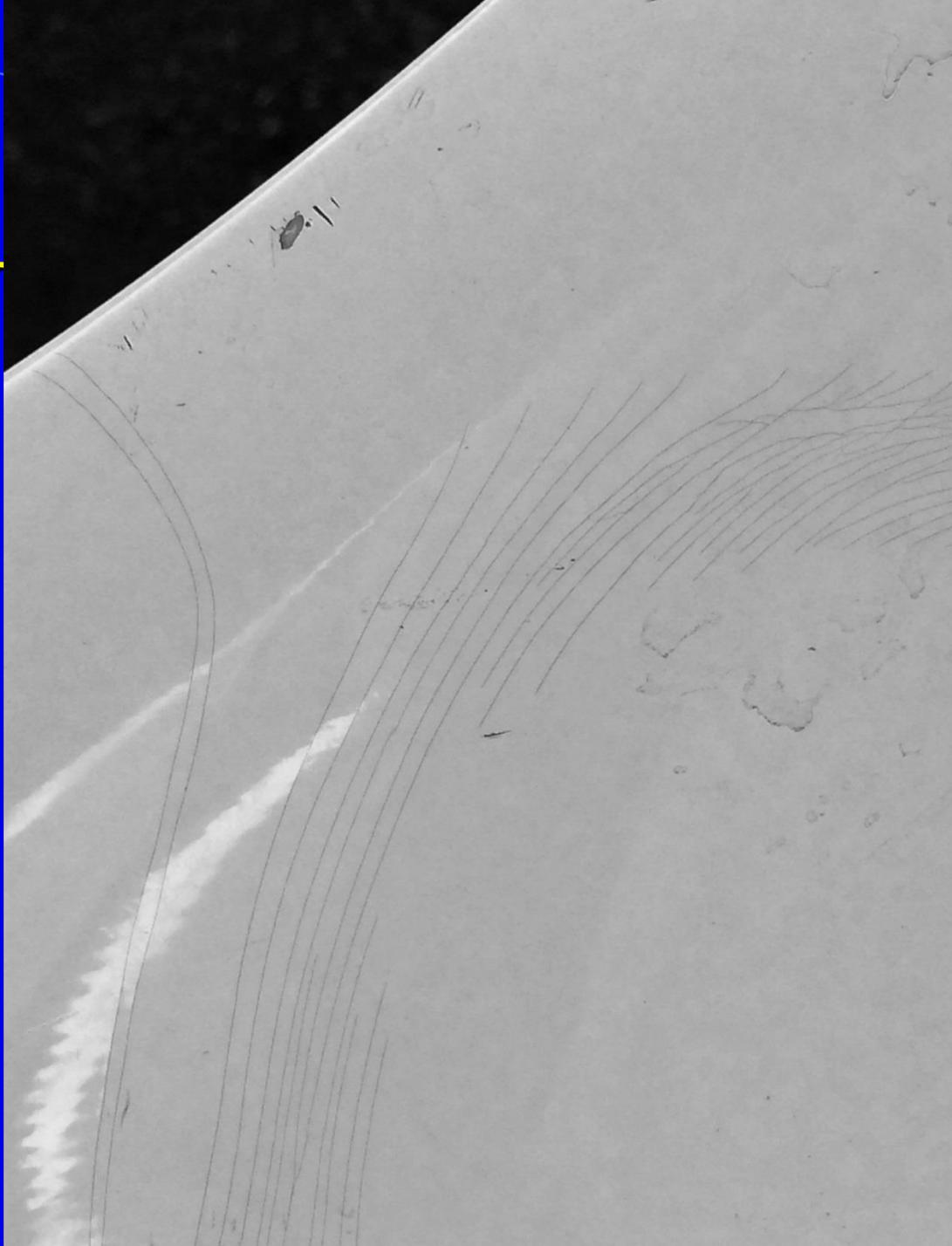
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Found on audit



- This has been broken for many years!
- Owner thought the cracks might be dolly damage or gel crazing
- To the trained and experienced GRP/CRP repairer its obvious damage.
- But if you do not have that experience would you spot the damage?

Would
Cr



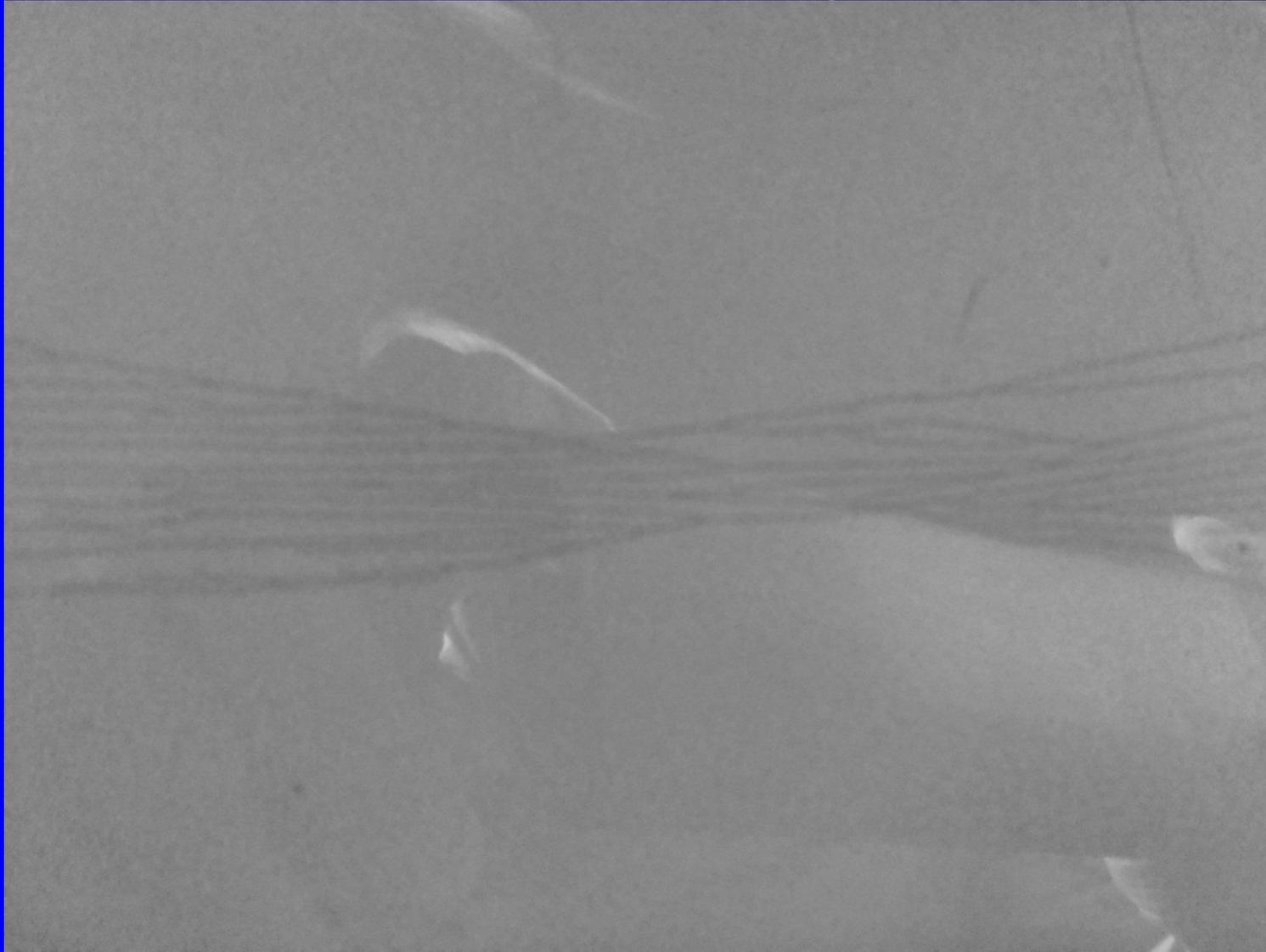
fin?



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Overstressed gelcoat often indicates broken structure skin or ribs underneath

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04 06 2015





Upon initial visual inspection
it does not look to bad.



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A very small amount
pressure showed the joint
had failed



K6 in flight glue failure of trailing edge ribs that failed at 95 knots in straight flight.



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Glue failure K6 fuselage



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K13 fin mount. Not glue failure.



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Rust is
common





Wood rot



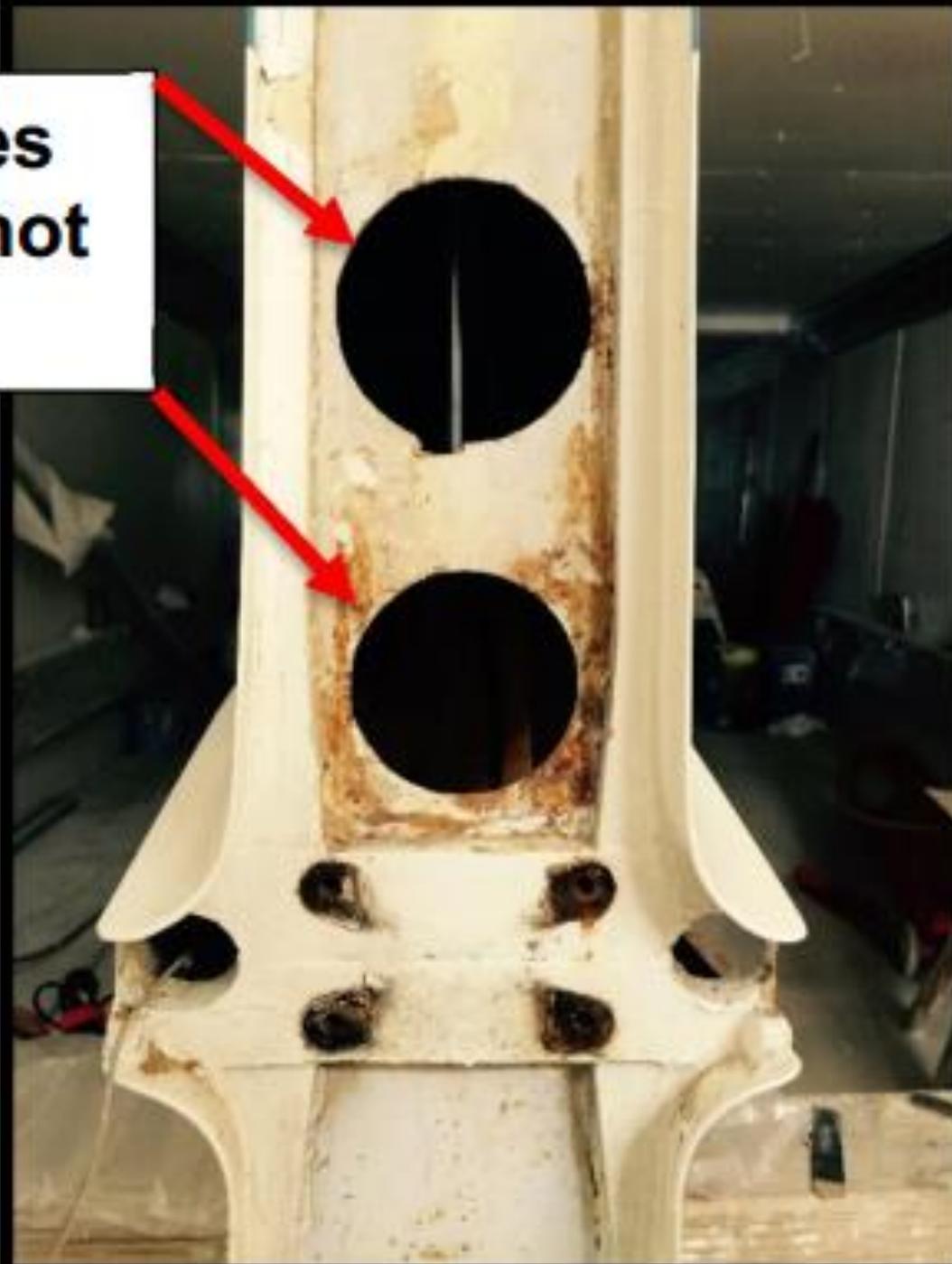
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Glue failure K13 aileron spar



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**The holes
should not
exist**



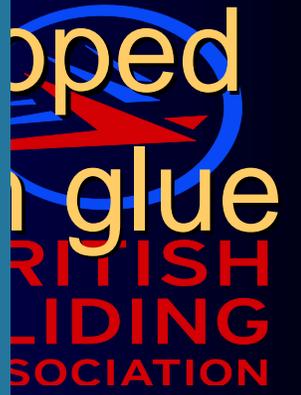
**SH
NG
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GLUE, Version 7 coming



042-07-2004-issue-6-16th-March-2017-r3.pdf

How
beca









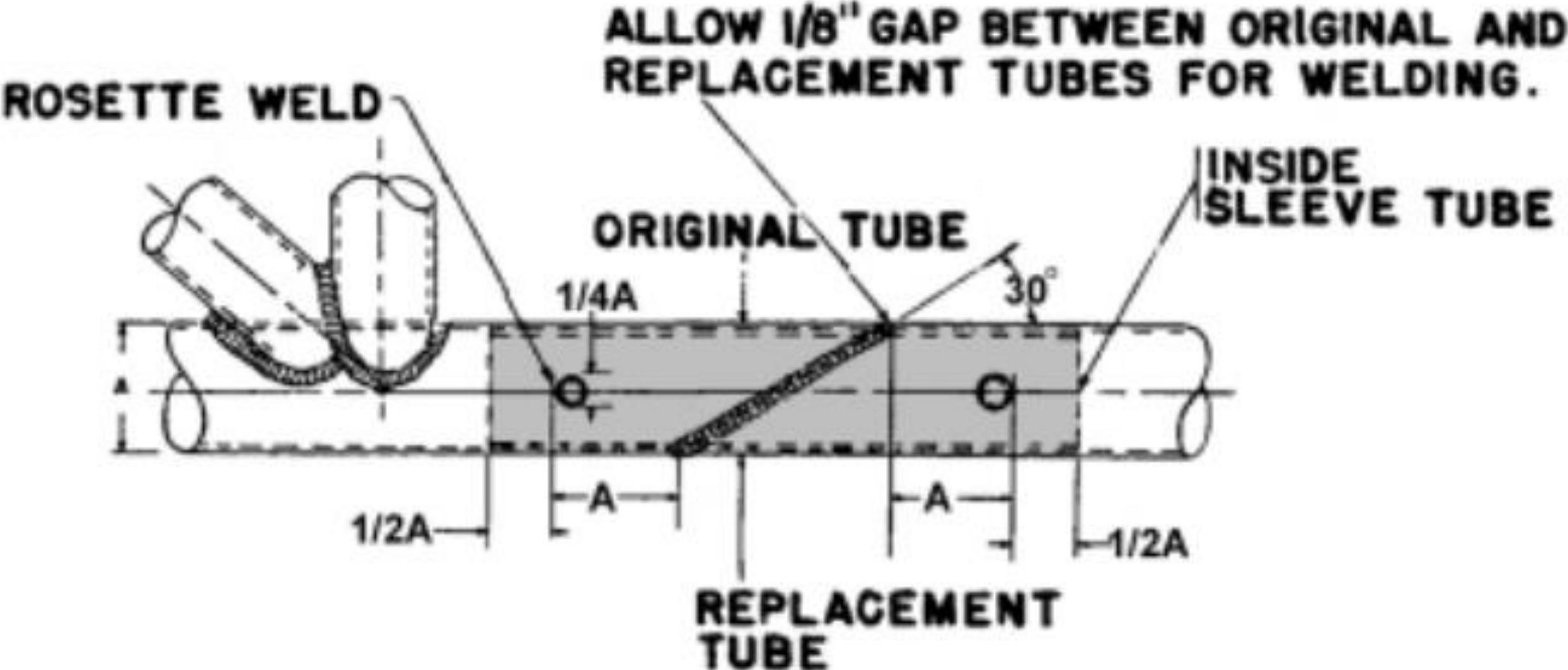


and



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Standard steel tube repair scheme from FAA AC43



Steel tube repairs



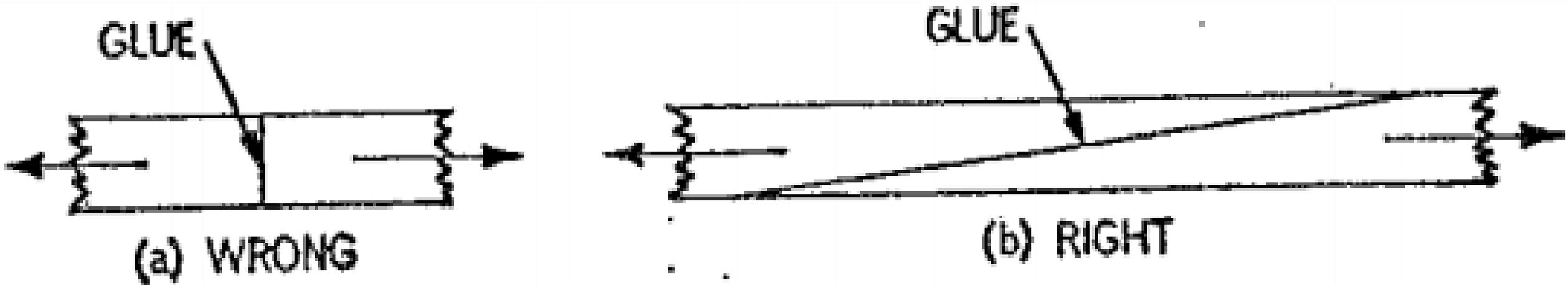
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- **Size matters. ALL German gliders are metric**
- **None available in UK. Best supplier is Scheibe aircraft Germany.**
- **Read Chapter 4 AC 43.13-1B CHG 1 page 4-53 for acceptable repair schemes.**
- **No Butt welding ever. Always has to be sleeved or wrapped as above**
- **The Manufacturers might well not permit repairs of primary parts.**
- **Note Scheibe must be gas welded but most other things can have TIG.**
- **All welders must be CAA approved. Get their approval certificate!**
- **The inspector is responsible for the repair scheme but not the weld.**

Wood, Glass and Carbonfibre repairs- the splice.



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Splice angles. Note making them bigger does not usually cause problems



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- Balsa. 4 to 1
- Spruce (most old British gliders) 15 to 1
- Laminated beech (Falke spars) 30 to 1
- Pine (most German gliders) 20 to 1
- Gaboon plywood (Mostly old British gliders) 15 to 1
- Birchplywood (Most wooden aircraft and Scheicher GRP) 15 to 1
- Glass fibre 30 to 1 or as specified in aircrafts own repair manual
- Carbon fibre 100 to 1 or as specified in aircrafts own repair manual
- Kevlar as Carbon, but has other issues. Specialist knowledge required.

Composite Repairs

- The materials & processes may be different
- The scarf angles & layup are be different between gliders
- Legacy resin systems no longer available may be used
- Some structures like Kevlar and Dynema are virtually unsplicable and may not repairable without a weight/size increase
- A lot of control surfaces have no spare weight for repair
- **DON'T ASSUME – CHECK!**



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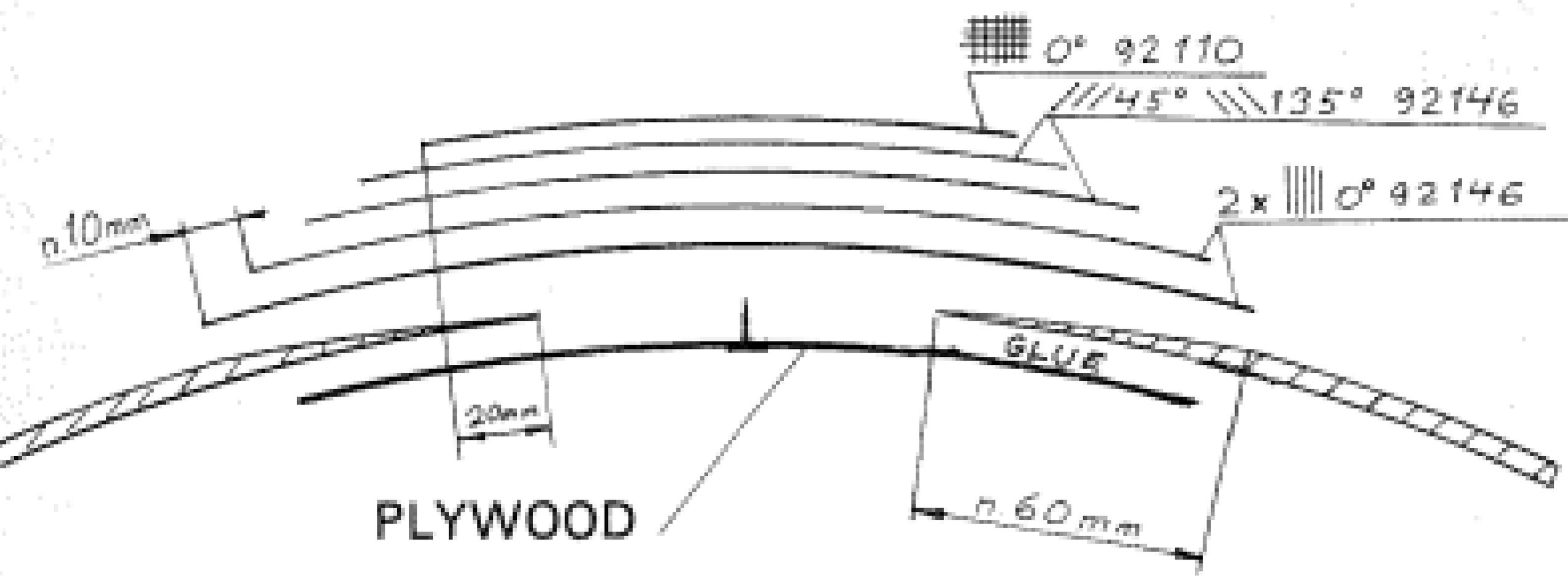
Discus Belly

4 layers of 92140 and 1 layer of 92110



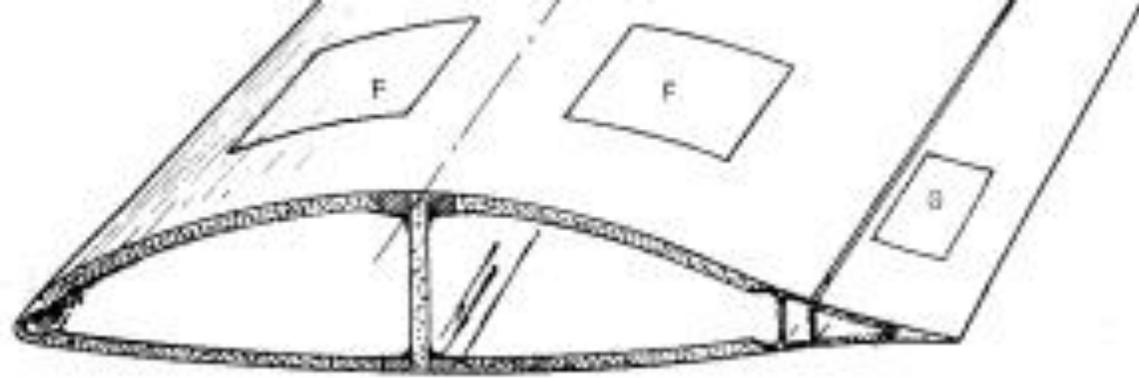
Just like Plywood veneers, the glassfibre patches filament direction must be the same as the original.

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Typical lay up drawing of a wing

Pik 20 in this case



WING

Surface paint

45° 90070

45° 92145

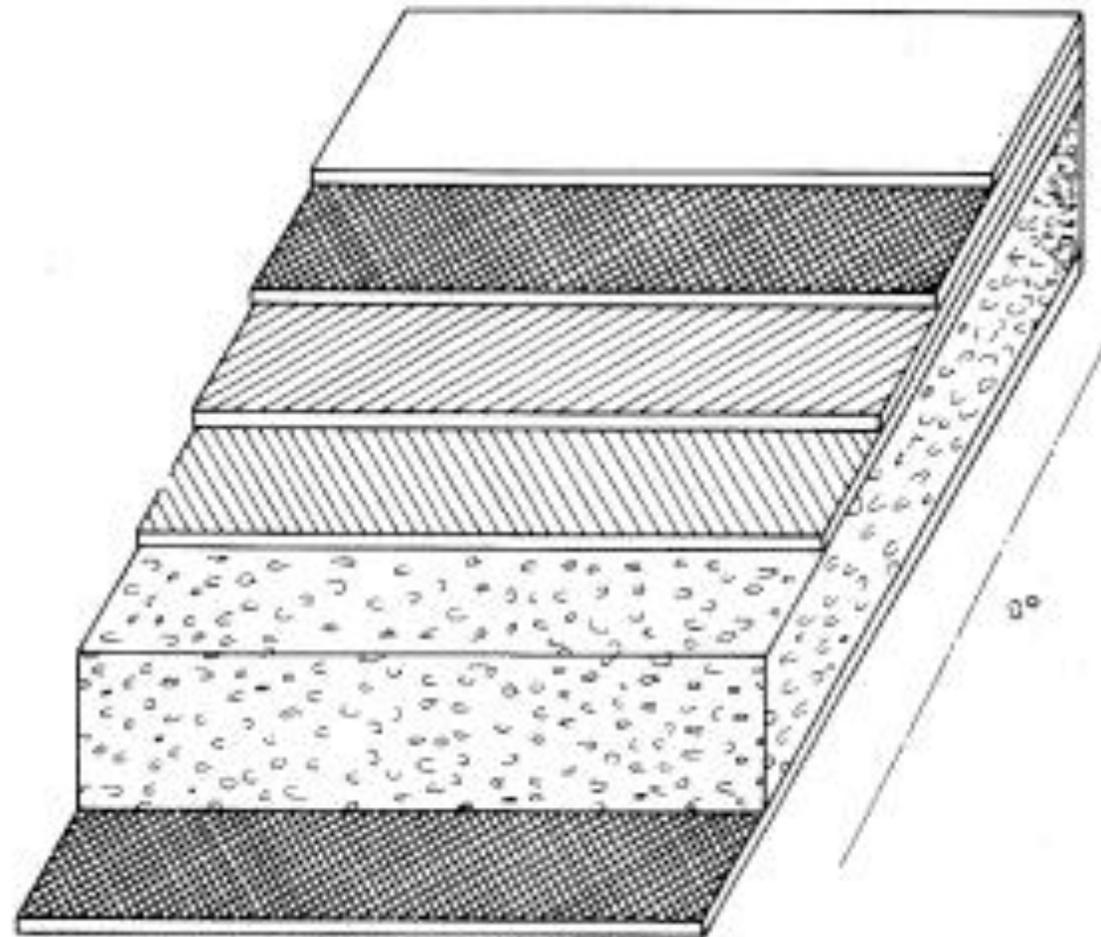
135° 92145

10 mm

PVC-foam

Lynizel 4060

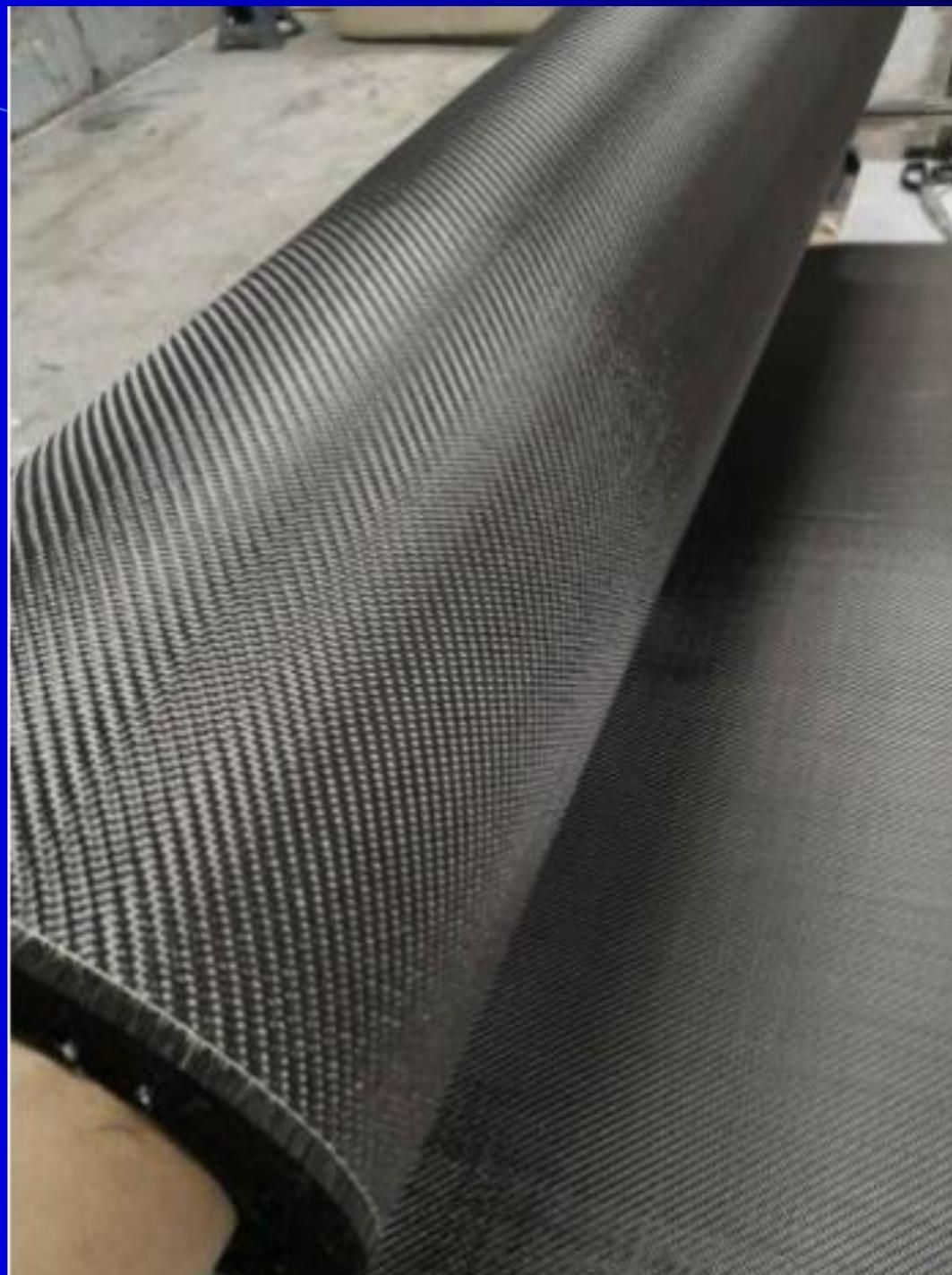
45° 92110



**Glass fibre
(GRP) and
Carbon Fibre
(CRP) is stored
on rolls with no
folds**



Carbon cloth
is black.
Sometimes it
has a trace
of glassfibre
cloth to keep
the edges
from fraying



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Kevlar is
yellow and
very hard to
cut.



Chop strand
matt

GRP

Heavy and
random
strength.

Can be folded
and nobody
cares!



Please do not
ever use this in
gliders. Canoes
and flower pots
only!



Discus ready to lay the new skins onto it.



Inspection Standards

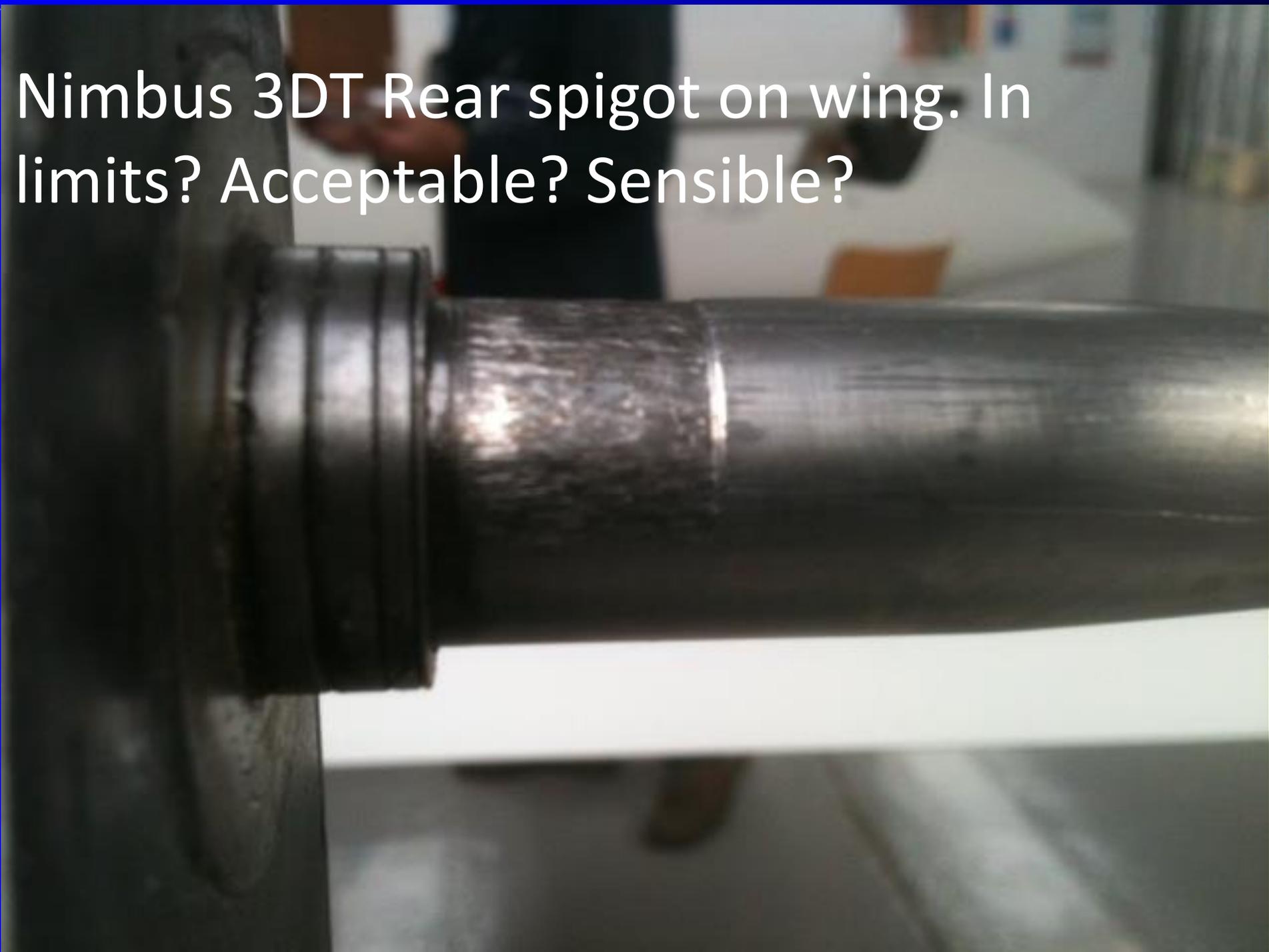


- Many of our aircraft are getting older and hence things are starting to wear out, repairs can become difficult due to lack of spares. Assessing wear can be difficult, especially where the aircraft manufacturer has not defined wear limits, so your judgement has to come into play
- The temptation to say it can stay in service because spares are not available or difficult to obtain is very great

Nimbus 3DT Rear spigot on wing. In limits? Acceptable? Sensible?



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4 year old Duo Discus XLT lower rudder hinge. Defined limits of rust? What to do about it? Replace or treat?



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What new Aerodynamic technology did the Slingsby T65 Vega develop that has become popular again?



JS3, ASG32, AS33 plus more on the way.



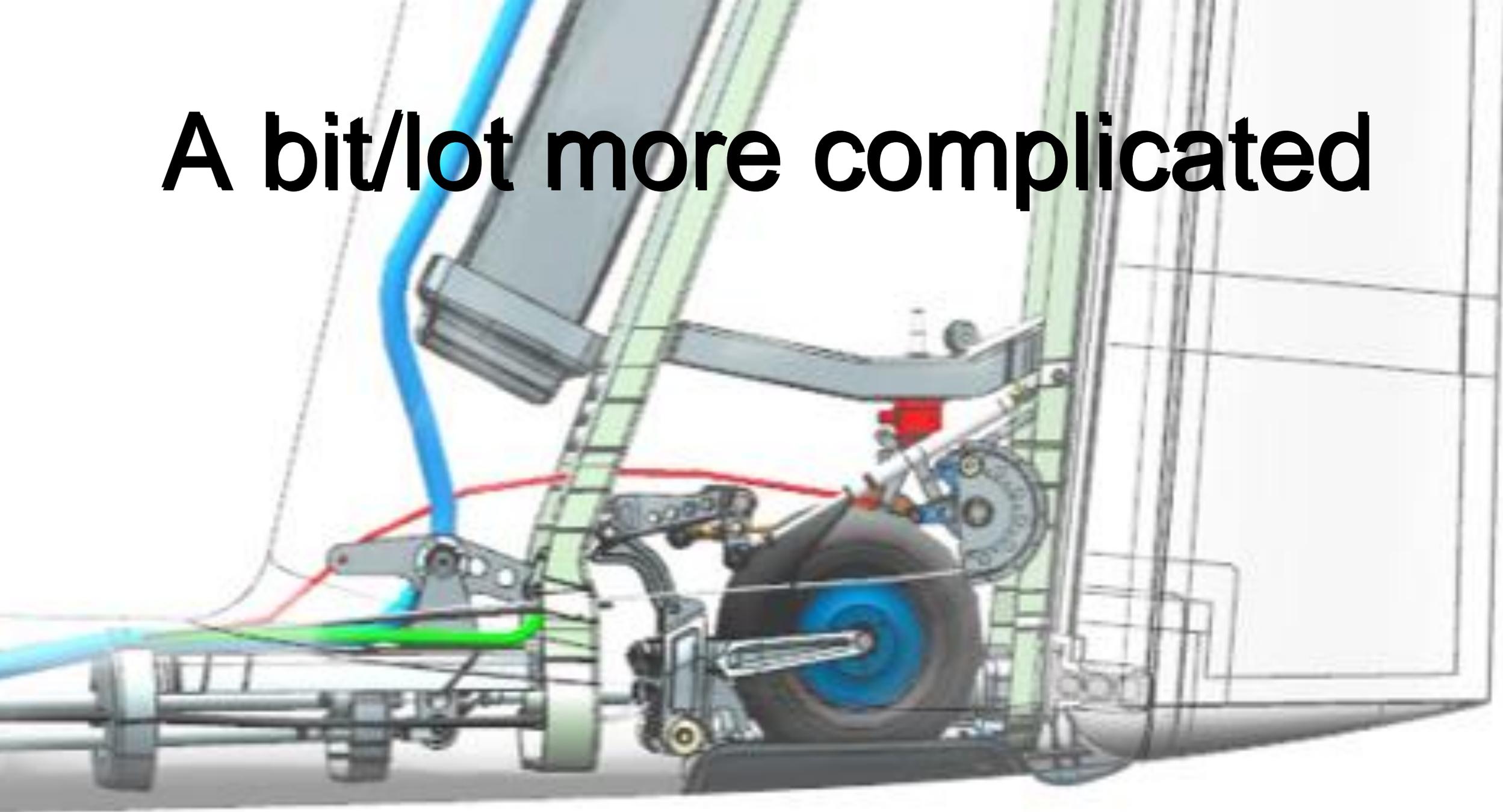
AS33 retractable tailwheel is proving popular



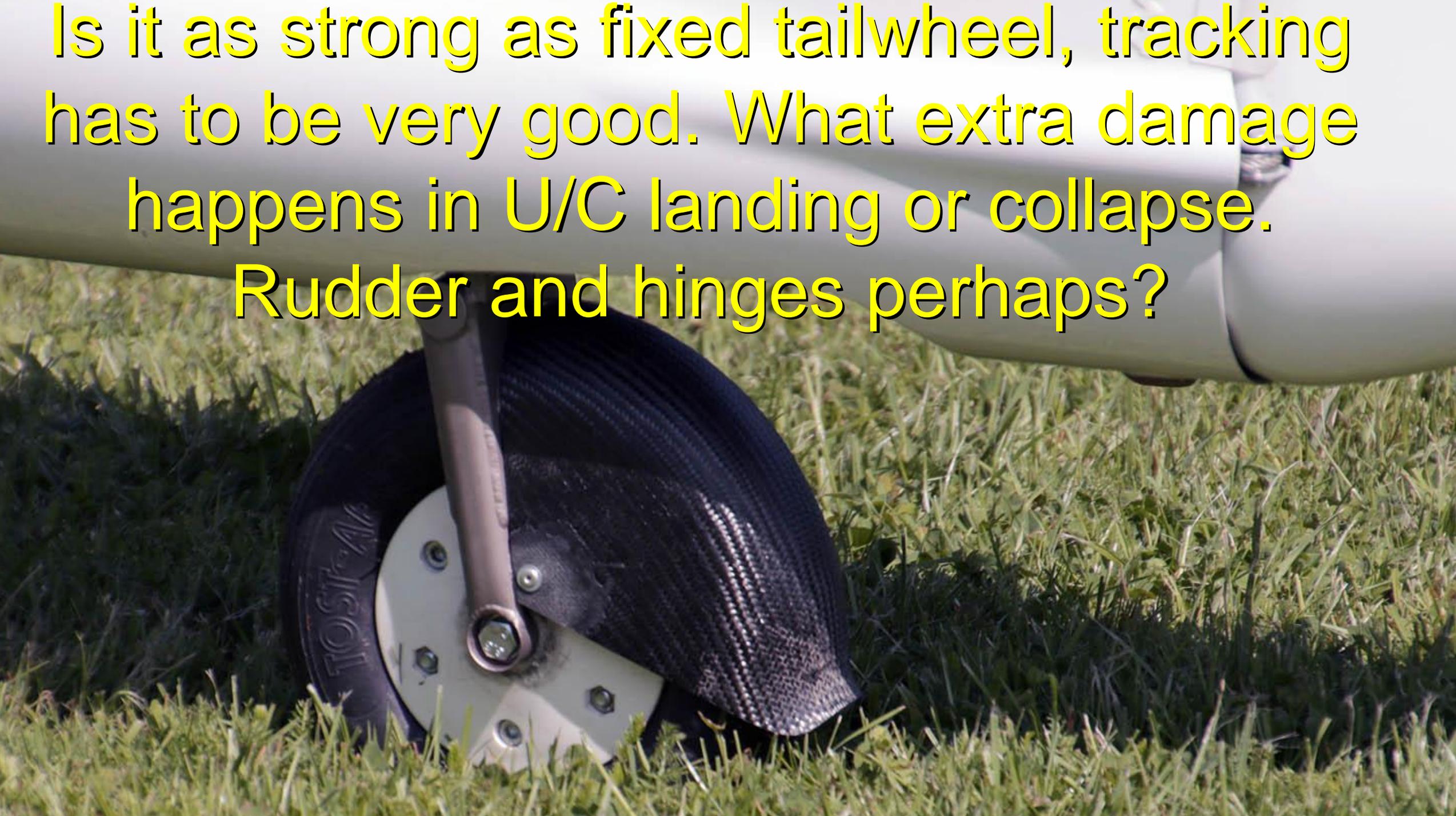
BRITISH



A bit/lot more complicated



Is it as strong as fixed tailwheel, tracking has to be very good. What extra damage happens in U/C landing or collapse. Rudder and hinges perhaps?





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JS1, JS3 and
HPH jet is now
fully certified.



- HPH Shark



- Jonkers JS



Ventus 2 jet never
and they must be
removed.

Retro fit of jet engines via To ASW20 and 27 via EASA STC (Supplemental Type Certificate) PSR Jets. But PSR has discontinued it. What next?????



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<http://www.psr-jet-system.com/> 010 content EN/ 010 News/ indexhtml.html

Jet start



Inspection Standards

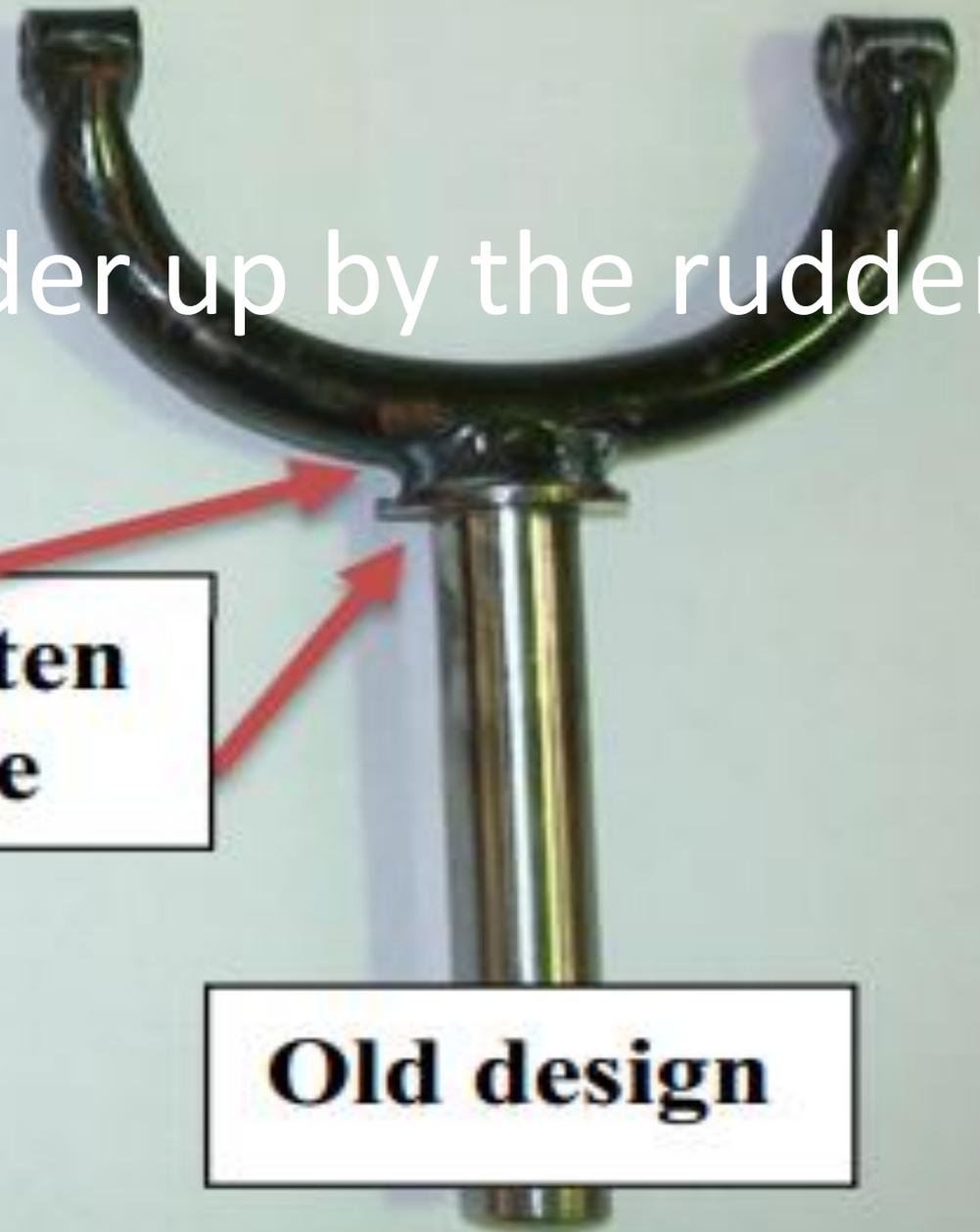


- “On Condition” inspections
- Remember that “On Condition” does not mean there are no limits and the life is forever!
- It actually means that you must inspect the item to assess serviceability in accordance with published guidelines or limits

Never pick a Glasflugel glider up by the rudder!



Newer design



**Cracks often
found here**

Old design



Teflon PTFE tape

Shrinkage is excessive. This tape needs changing



8 year old tyre
kept in a hangar



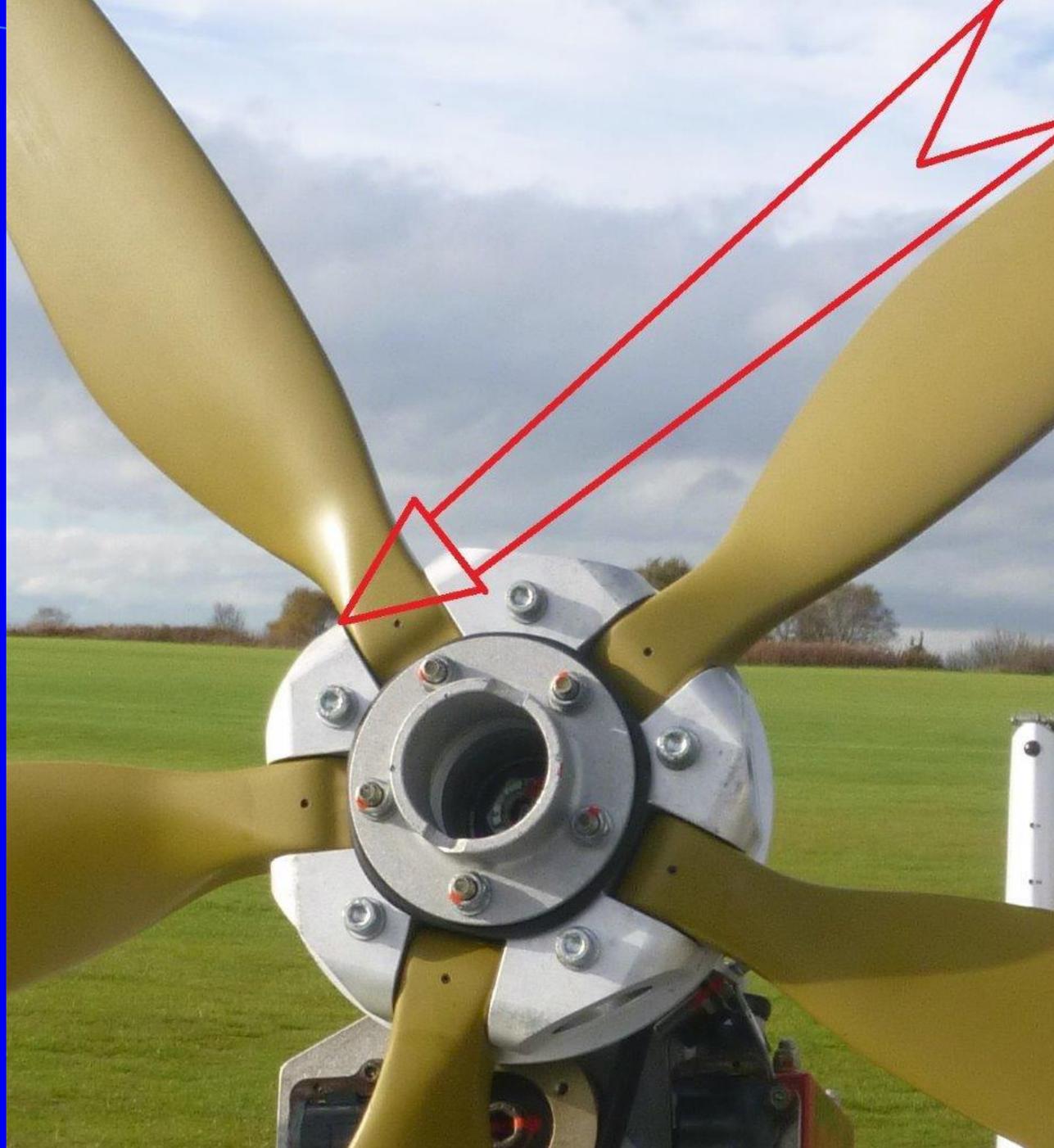




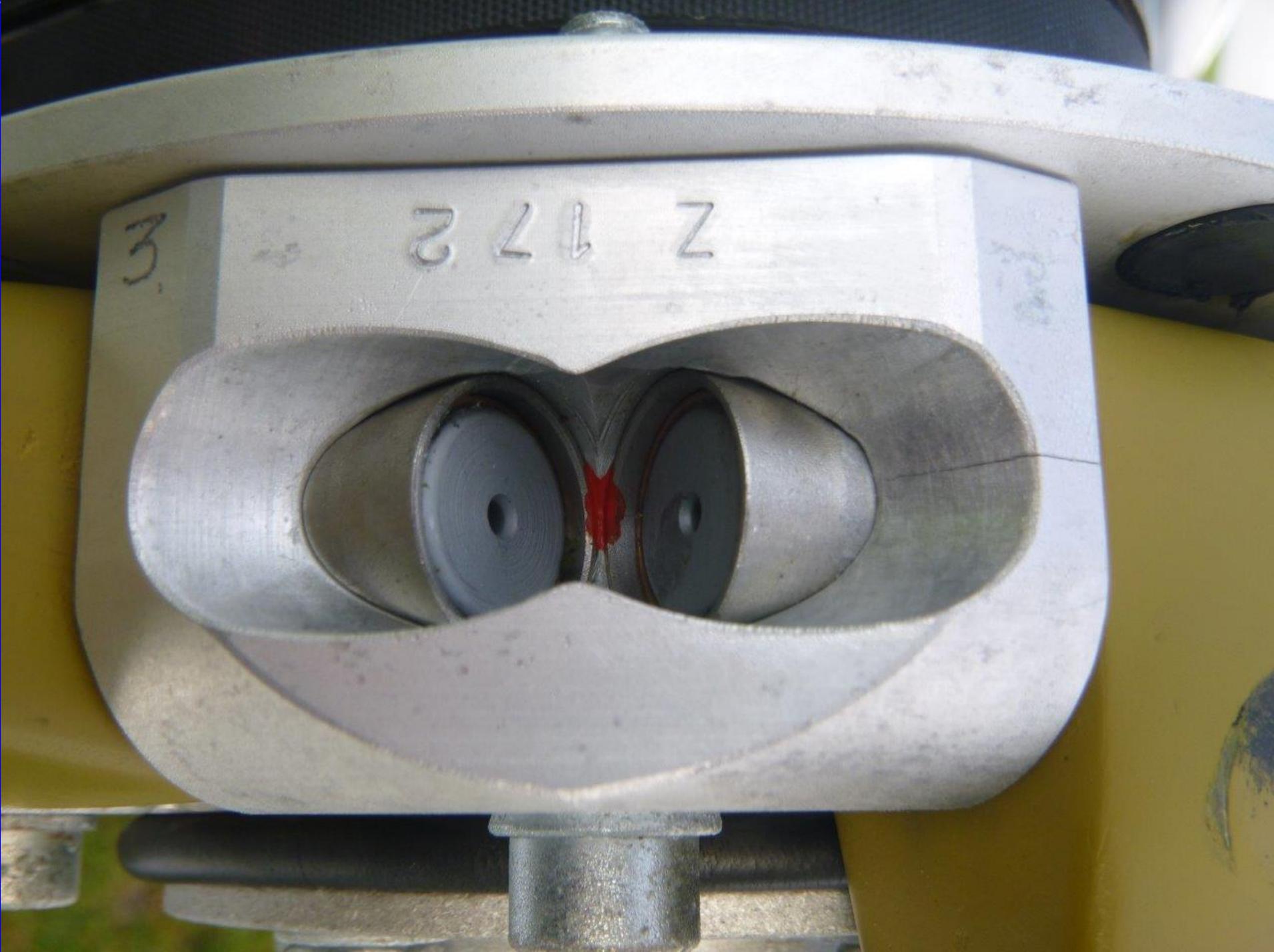
A bent axle that is very close to failure. A good reason why you should always take the wheels out at every annual.

Photo George Sanderson





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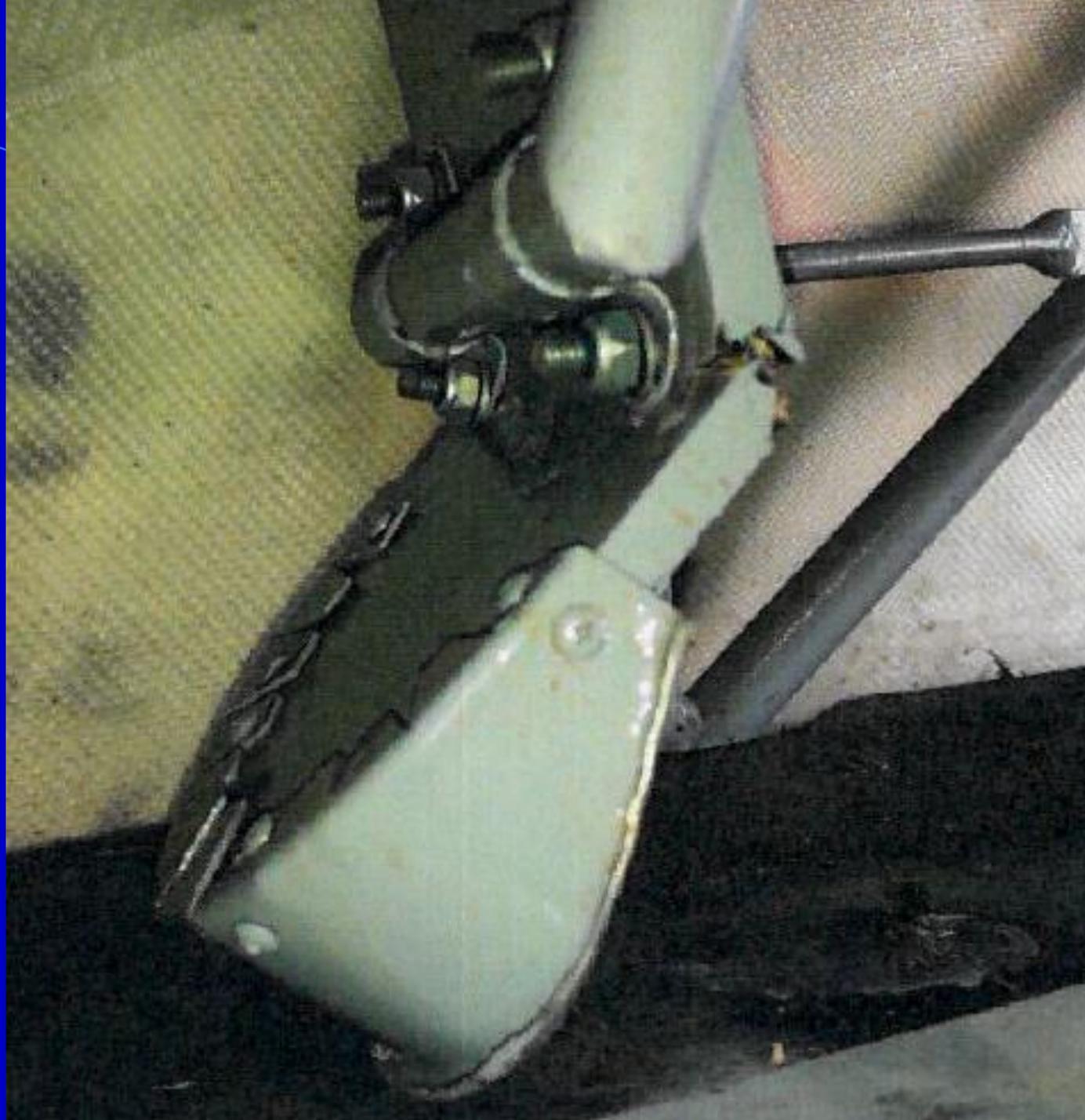
New design, but
where do owners
find out about
this





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ASK13 Front
Rudder pedal
footbrake
failure



ASK21 front canopy to gas trust
hinge bolt.



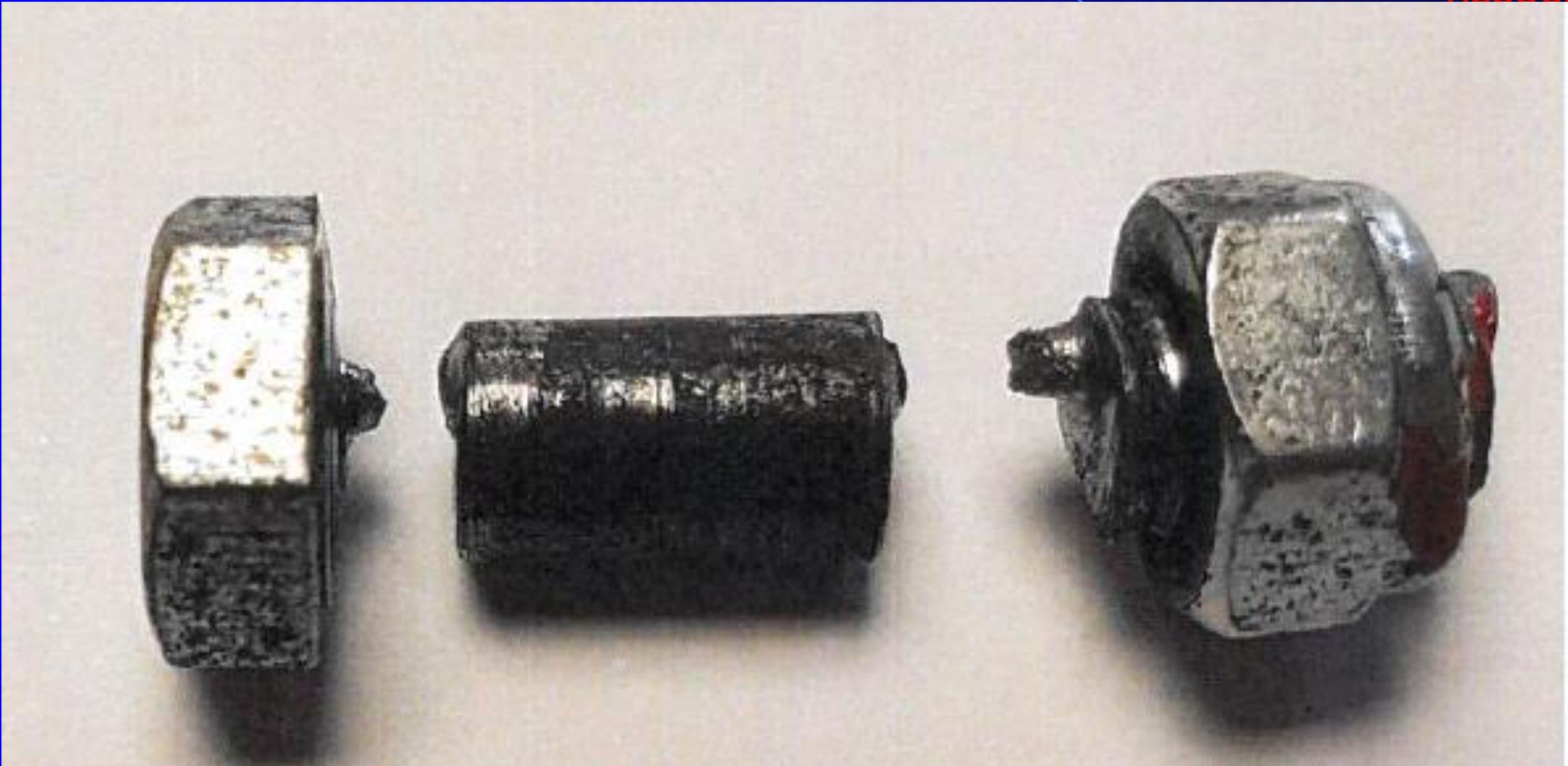
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ASK21 front canopy to gas trust hinge bolt.



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Ventus CT blocked fuel pipes

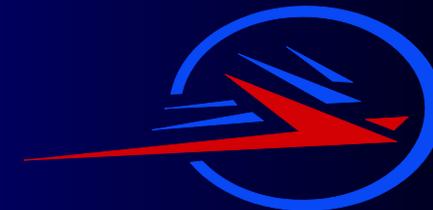


Ventus CT
blocked fuel
pipes





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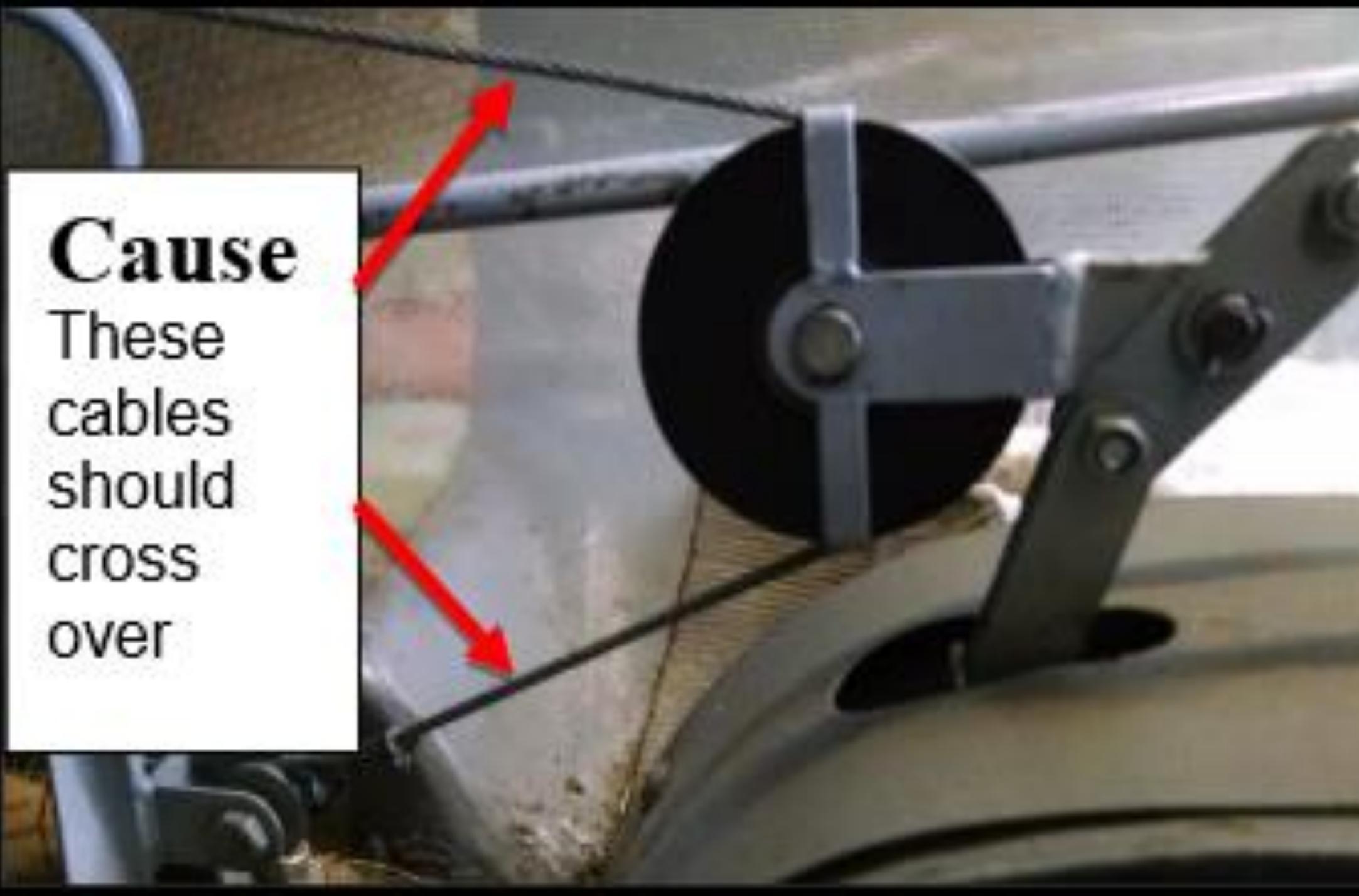
Effect



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Cause
These
cables
should
cross
over





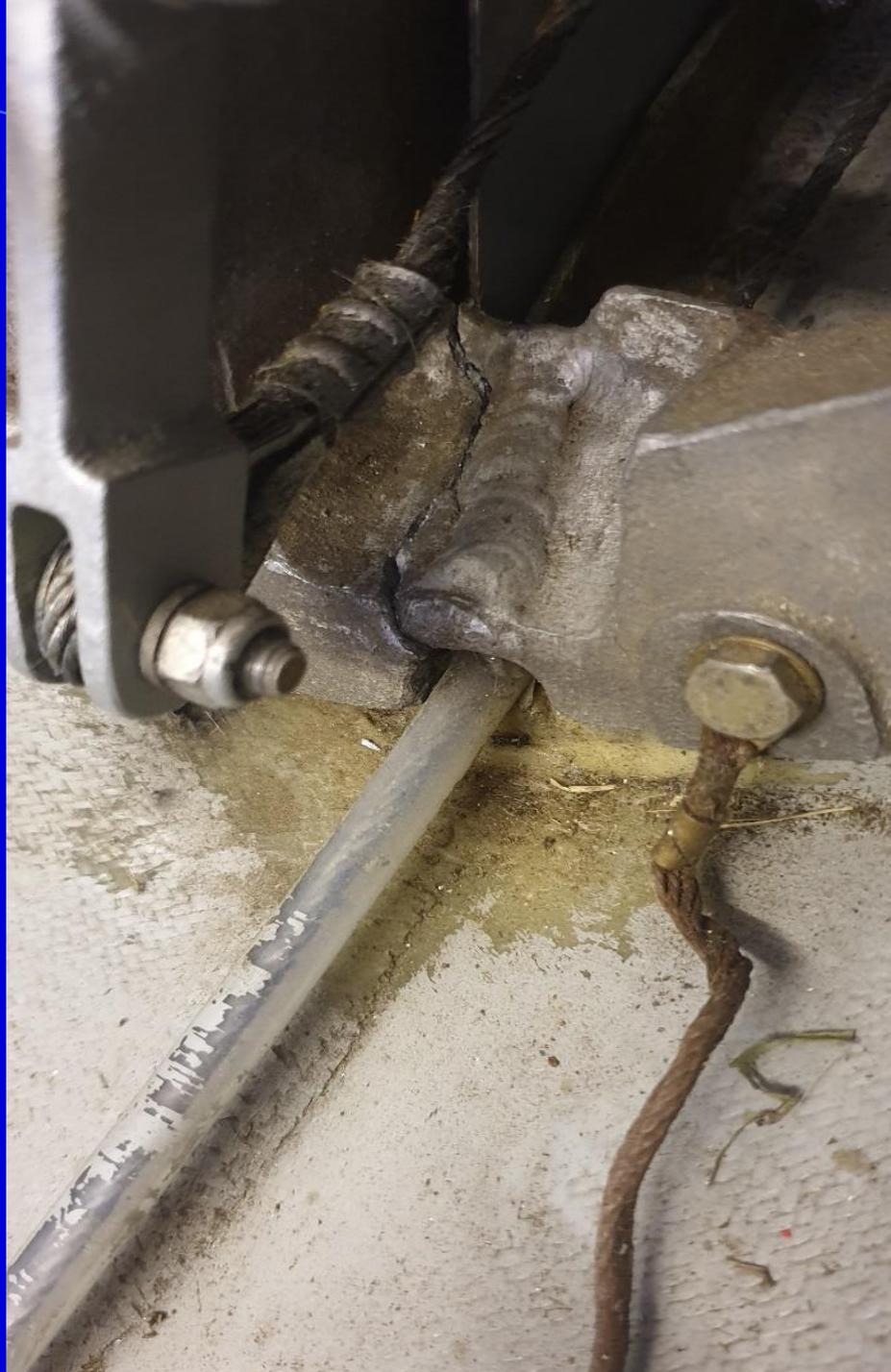
Astir repaired
main frame
broken.

The Astir manual
and FAA AC43
says do not
repair castings.



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Astir repaired
main frame
broken



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Astir repaired
main frame
broken



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A close-up photograph of a mechanical assembly. A central component, possibly a valve or actuator, is mounted on a grey metal frame. The component has a cylindrical body with a smaller pipe extending from the top. The surrounding frame shows signs of wear and repair, with some rust and uneven paint. A white cable or hose is visible on the right side, connected to the assembly.

Astir repaired
main frame

A close-up photograph of a newer mechanical assembly. The central component is similar to the one in the first image but appears more robust and better finished. It is mounted on a grey metal frame that looks cleaner and more solid. The overall appearance is that of a newer, stronger version of the component.

Astir new
main frame from Lindr
A bit stronger



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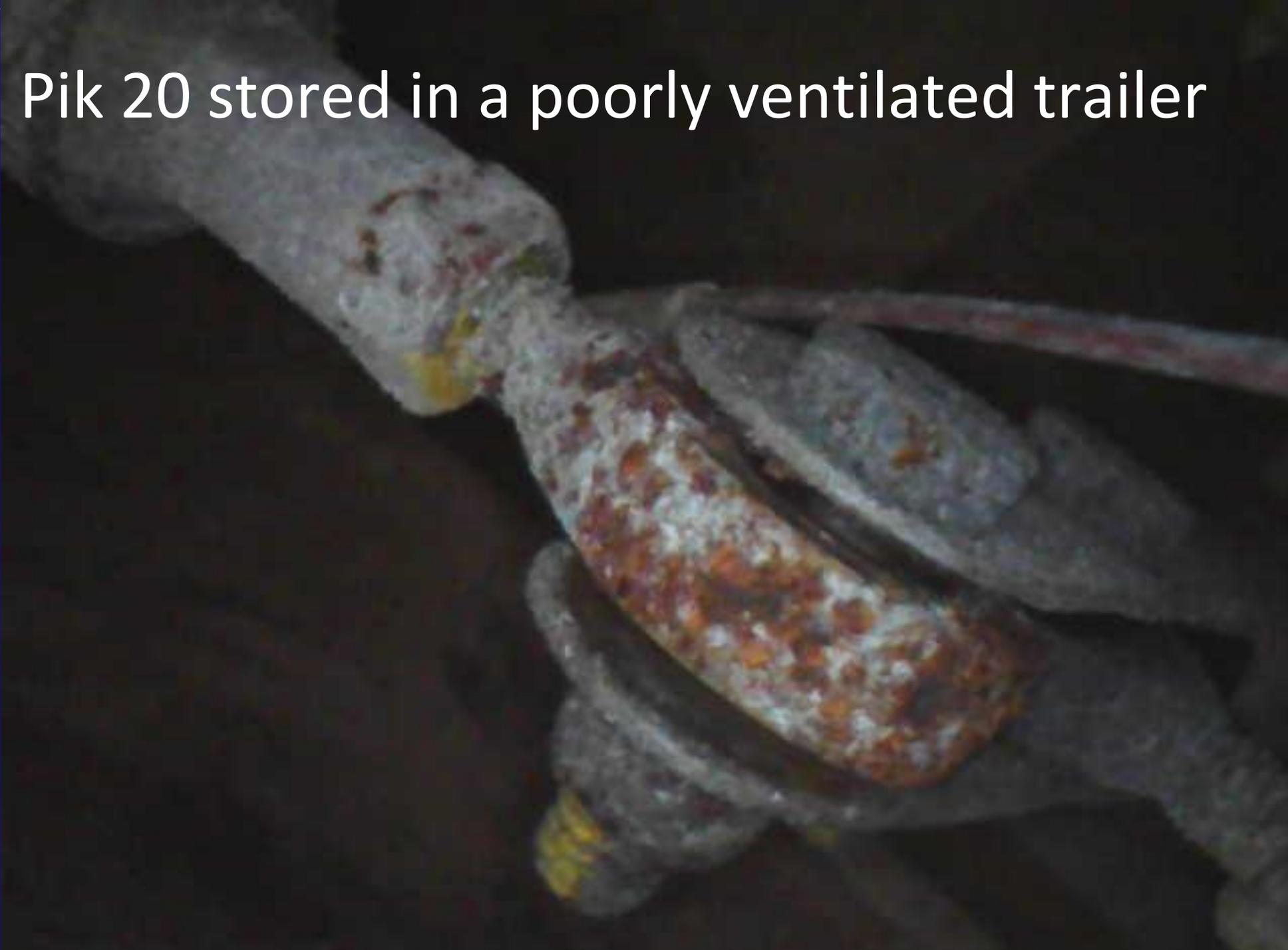
Storage Conditions

- The message on leaking, damp, mouldy and non ventilated trailers used for storage needs reinforcing again. Good cause of glue failure and internal corrosion
- Poor storage DOES affect the airworthiness and value of gliders
- Assess storage conditions when deciding how deep your inspections need to be

Not enough ventilation caused this expensive rudder pedal replacing rust



Pik 20 stored in a poorly ventilated trailer



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ASW20 Control Guides



ASW20 control guides.pdf

ASW20



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Teflon tapes often go clear in UV. In this case it exposes a broken Astir hinge (caused by rust!)



ASW20

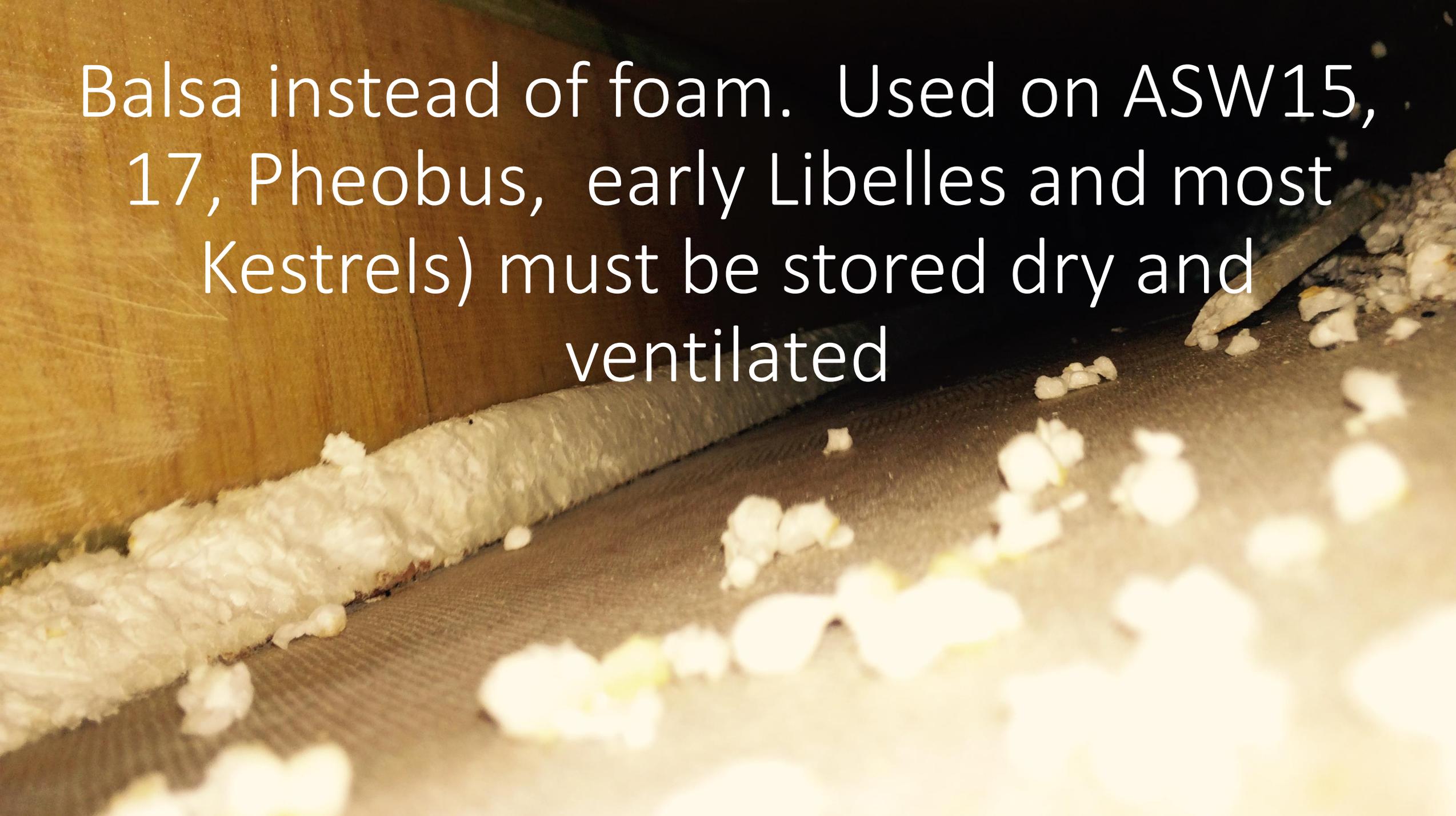


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Lak17 left outside. Control horn filled full of water.



Balsa instead of foam. Used on ASW15,
17, Pheobus, early Libelles and most
Kestrels) must be stored dry and
ventilated



Could have easily been prevented. £72

Flettner 2000 Rotating Wind Driven Van Roof Air Vent Black



Black Flettner 2000 Rotating Wind Driven Van Roof Airvent.

The Flettner 2000 rotary vehicle vent provides round the clock ventilation for vans, buses, ambulances, 4x4s, boats and buildings.

Discrete, low-profile unit.

Tough polypropylene and glass reinforced nylon construction.

Stainless steel spindle and bearings.

Integral weather shield (prevents water ingress).

Complete with shutter.

Ultra reliable.

No maintenance required.

Complete with fitting guide.

Tool Control & FOD



- Inadequate tool control and FOD (Foreign Object Debris/Damage) are inevitably linked
- Loose a tool in an aircraft and sooner or later it becomes FOD and may cause a problem
 - Jammed or restricted controls
 - Injury to occupants
 - Worse!

Tool Control



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- Not that difficult;
 - Shadow Boards
 - Use clip on rails for sockets
 - Use spanner racks
 - Foam cut-outs for other tools
 - Avoid “Box or Bin” tool boxes
 - Use tool storage tote when working



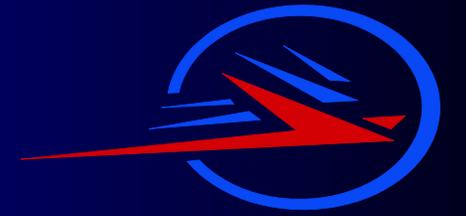


Dead mouse in top of Std cirrus Fin. Could be seen through the slot in the top of fin. Missed on many previous annuals but spotted by Lucy Wootton

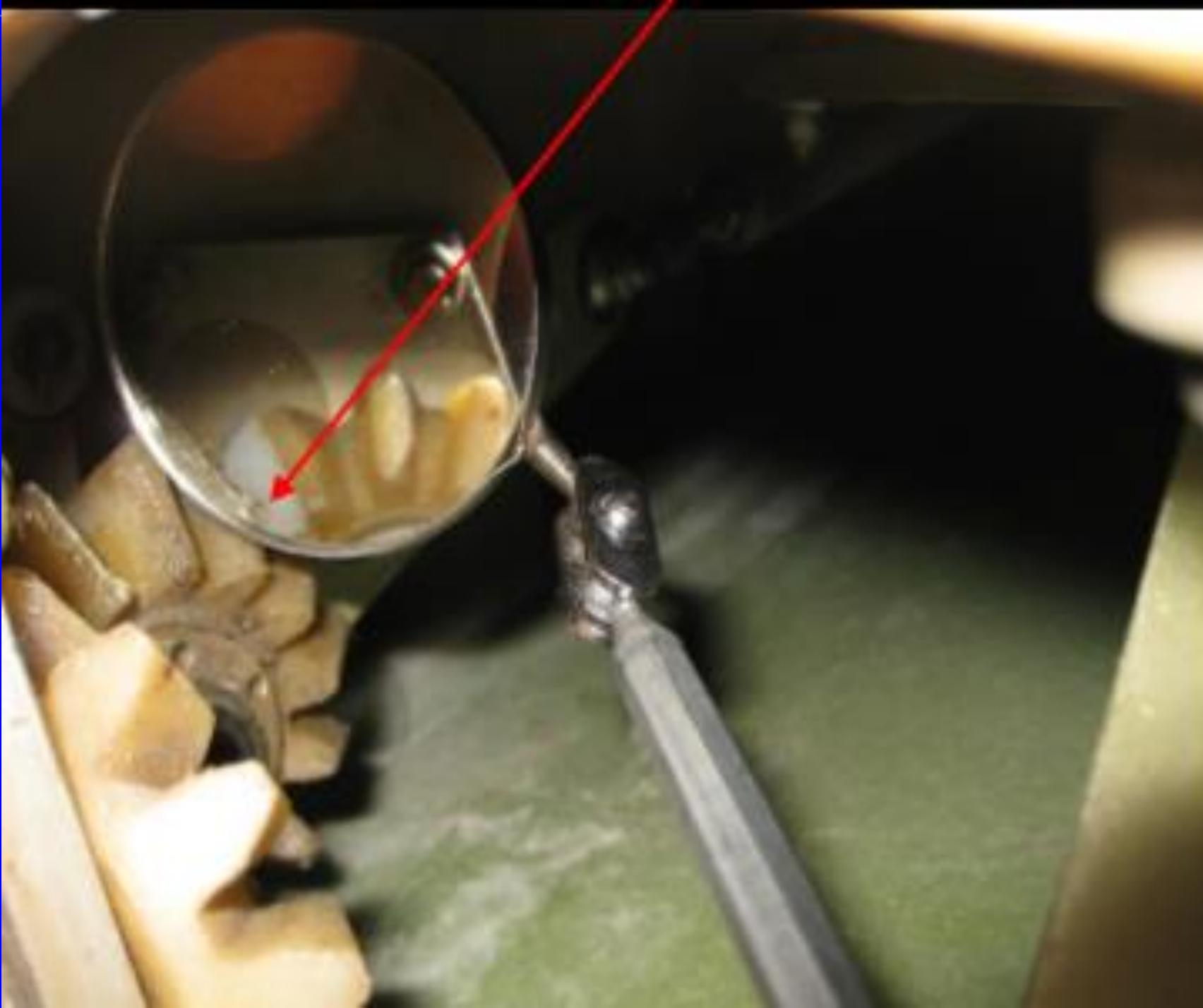


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ASW15 found by owner. Mirror in amongst controls. Suspicion was it had been there for a year or 2.



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Tools organised?



Anything missing?



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Facilities



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- Part ML only gives broad requirements;
“The area in which maintenance is carried out shall be well organised and clean in respect of dirt and contamination

All maintenance shall be performed within any environmental limitations specified in the M.A.401 maintenance data

In case of inclement weather or lengthy maintenance, proper facilities shall be used”

Note access to internet is a now requirement

Facilities



- General guidelines;
- Keep it tidy and clear of junk
- Arrange the working area to allow room to work and avoid climbing over or under other aircraft or equipment
- Provide segregation of aircraft and non-aircraft work, especially in shared accommodation





Recording the independent inspection



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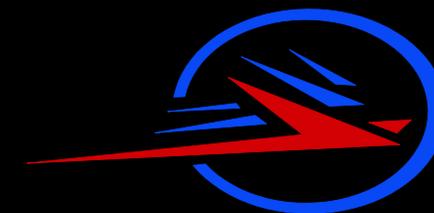
- The inspection must be recorded on a BGA 205 worksheet or similar in such a way it is obvious what is being inspected
- Both parts of the inspection must be recorded separately and signed for by the individual who had carried it out

Rectification Worksheet

This worksheet may be used for Gliders, Motor Gliders and BGA Tugs.



| Reg: G-CHIG | | Type: Grob G109b | File Ref: S/IG/240712 |
|--|---|---|-----------------------|
| Date: 24 July 2012 | | Check/Zone: Ind. Insp | Sheet: 4 of 4 |
| No. | Defect | Action | Completed |
| 1 | Remove rudder and elevator control rod | Removed | FB |
| 2 | Carry out corrosion inspection i.a.w MSB 817-64 | Balance weight removed. Tube internal and weight inspected found satisfactory. Inhibited with LPS 3. New lower bolt fitted. | FB |
| 3 | Refit elevator control rod and rudder | Elevator rod and rudder refitted Nyloc nuts replaced | FB |
| 4 | Carry out independent inspection of elevator control rod | 1 st inspection carried out – satis. <i>A Smith 1/C/1334 25 July 2012</i> | FB |
| | | 2 nd inspection carried out – satis <i>E Jones 1/C/2345 26/07/2012</i> | |
| 5 | Carry out independent inspection of rudder installation and control connections | 1 st inspection carried out – satis <i>A Smith 1/C/1334 25 July 2012</i> | FB |
| | | 2 nd inspection carried out – satis <i>E Jones 1/C/2345 26/07/2012</i> | |
| 6 | Refit tail plane | | |
| <p>Annex II Aircraft: <input type="checkbox"/> The work recorded above has been carried out i.a.w. BGA Airworthiness Exposition 2003, 3.8 & 4.9. (2006 version Part 3, 3.2 & Part 4, 8.2)</p> <p>EASA Aircraft: <u>BGA Inspector or Part 66 Engineers Certificate of Release to Service (Part M.M.A.801)</u> <input checked="" type="checkbox"/> Certifies that the work specified, except as otherwise specified, was carried out in accordance with Part-M and in that respect is considered ready for release to service.</p> <p><u>Pilot-Owner Certificate of Release to Service (Part M.M.A.803, Appendix VIII & BGA AMP Leaflet 2-1)</u> <input type="checkbox"/> Certifies that the limited pilot-owner maintenance specified, except as otherwise specified, was carried out in accordance with Part M and in respect to that work the aircraft is considered ready for release to service</p> | | | |
| Signed: | | BGA Authorisation/pilot No: | Date: |
| <p>#Tick appropriate box. BGA Approval No. DAI/8378/73, M.F. 0007.</p> | | | |



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Complex Tasks



- Need to fill out a form 277
- Details of the approved repair scheme will be required and you must follow the approved process
- All complex tasks will require a closure visit or review before the aircraft is released to service.
- A copy of the work pack must be filed with the BGA
- Must have pictures of the job in work pack.

Complex? Can be a small repair in terms of size.



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K13 overhaul/recover complex?



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Paperwork Issue



- If you store forms, templates, manuals on your computer for convenience or have printed copies ready for use, regularly check they are the latest issue please.
- Be careful if using old data on forms, it may have changed or you might be perpetuating a previous error.
- 3 year storage requirement. Must give owners work packs.

BGA engineering site support visits



- These are not audits
- They are informal engineering support visits where anything can be pragmatically discussed (especially the questions you are afraid to ask!) openly and transparently.
- We want visit every club at least every 4 years
- You can ask for these if you want advice or help

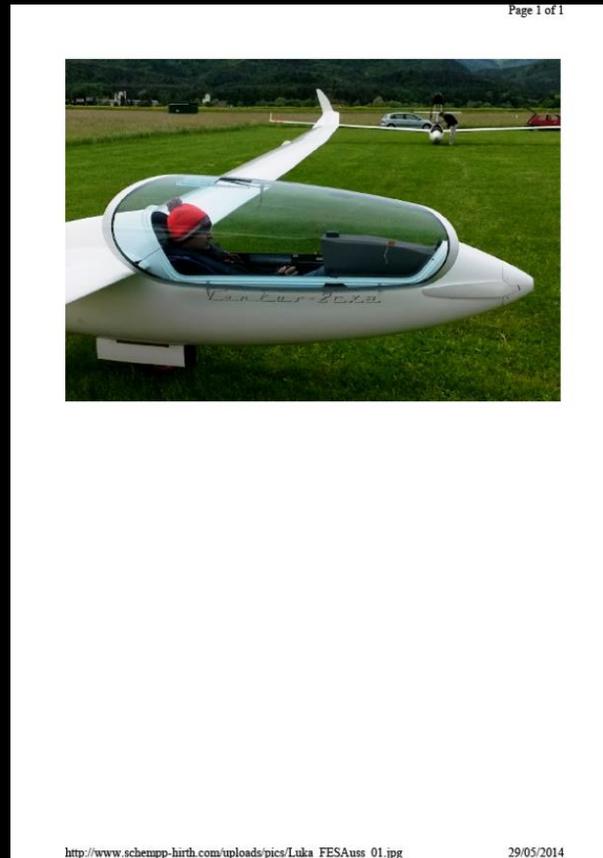
SSDR



- CAA have deregulated single seat self launching micro light aircraft under 300kgs (315kg with **Ballistic** chute) .
- Silent 2 Electro and 2 stroke variants are popular.
- Not in the BGA scope of maintenance
- What to do if some asks to maintain or repair a SSDR?



Electric sustainer



Protection for You and Others

- Barrier Cream
- First Aid
- Eye wash
- Fresh air and ventilation
- Mats and kneelers
- Wash and hygiene facilities
- More.....



EMERGENCY EYE WASH STATION



ADDS 16oz FL. OZ. EMERGENCY USE OR CHEMICAL INJURIES
USE FOR MILD EYE IRRITATIONS ONLY



EYE WASH FOR EMERGENCY EYE INJURIES

USE FOR EMERGENCY EYE INJURIES. USE FOR MILD EYE IRRITATIONS ONLY.



How to Use:
Tilt your head back, up to 45 degrees. Remove contact lenses. Remove eye makeup.
Hold the eye wash bottle over the eye and gently squeeze the bulb. Do not touch the eye with the nozzle.
Repeat for the other eye. Wash your hands with soap and water after use.

MILD EYE IRRITATIONS

USE FOR MILD EYE IRRITATIONS ONLY. USE FOR EMERGENCY EYE INJURIES.



How to Use:
Tilt your head back, up to 45 degrees. Remove contact lenses. Remove eye makeup.
Hold the eye wash bottle over the eye and gently squeeze the bulb. Do not touch the eye with the nozzle.
Repeat for the other eye. Wash your hands with soap and water after use.

Safe Working



- Notices and Signs
- Manual Handling awareness
- Clean up spills and remove trip hazards
- Discourage onlookers, especially on a wet flying day
- Visitors and especially children, may not be aware of the hazards involved with maintenance



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£40 or poundland!

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Trade Card



UK's biggest car parts range at rock bottom trade prices!

Halfords is known for supplying everything you need for your car, but did you know if you're a mechanic in the motor trade, **Halfords Trade Card** can now meet your business needs too?

The Halfords Trade Card brings you exclusive deals on thousands of car parts, [tools](#) and [engine oils](#), and you can be assured of the



15:18

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Arcus repair





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Thank you

Have a safe journey home