

N651CA

SN: 039

ACTT: 1940.8

CYC: 1979

During taxi, N651CA was struck by a tug pulling another aircraft. The tug impacted the tail of the aircraft damaging the elevator, horizontal stabilizer, elevator stop block, stop block attaching structure, and cables. This presentation will attempt to detail this damage.



Next image will look at the OB elevator attach point at this location.

Image of the left side horizontal stabilizer of N651CA.

AIRCRAFT MOD. P2012
MANUFACTURING: C.A. TECNAM
Part No. 212-55-10-2000-800
Descr. Horizontal Stabilizer Assy
Manufacturing No. 038
C.A. TECNAM
5
Aircraft S/n 039 Date: 01/Oct/2021

Next image will look up at the lower surface
of the horizontal stabilizer here.

Image showing damaged
elevator attach point.



Image showing damage to the lower surface of the horizontal stabilizer.

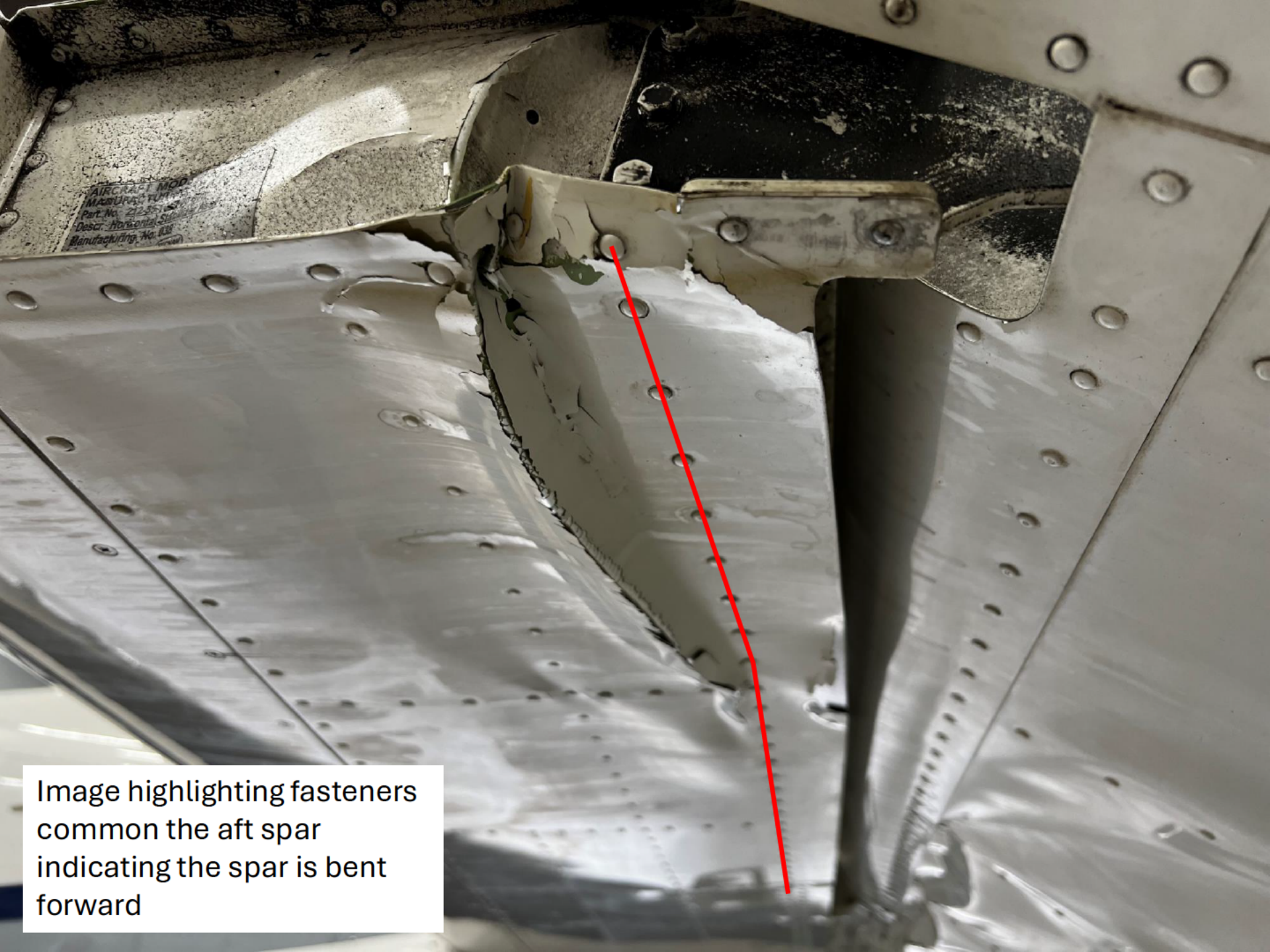


Image highlighting fasteners common the aft spar indicating the spar is bent forward



Image showing extensive impact damage to the elevator and trim tab.

Image of the upper surface of the left-hand side of the horizontal stabilizer showing buckling due to impact.

Impact buckling





Next image will look inside here.

Image of the outboard end of the left-hand side of the horizontal stabilizer. The leading edge has been removed.

Image taken looking through lightening hole referenced in previous slide. The aft spar can be seen here cracked and buckled.

Buckling

crack

End rib buckled and deformed

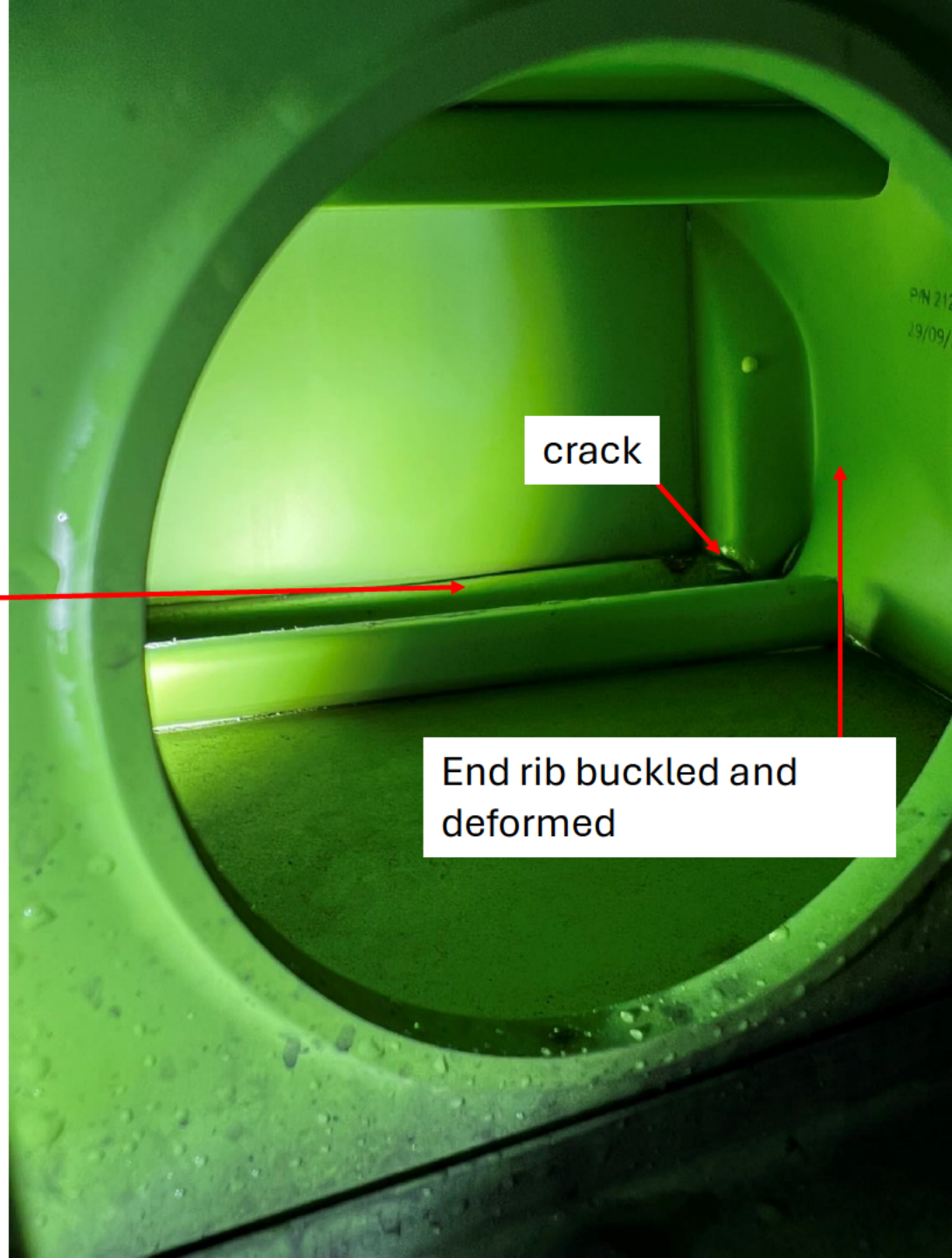
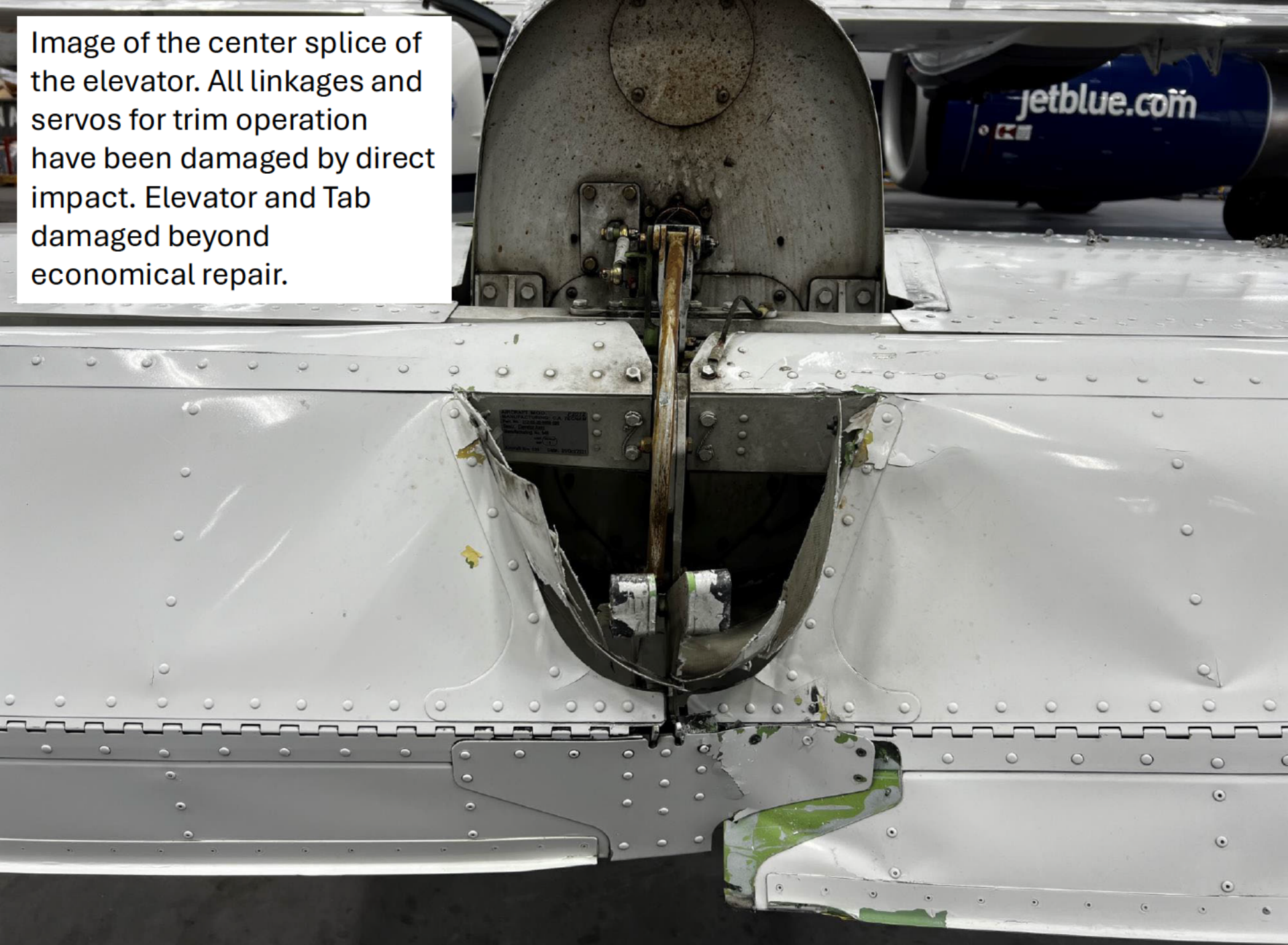


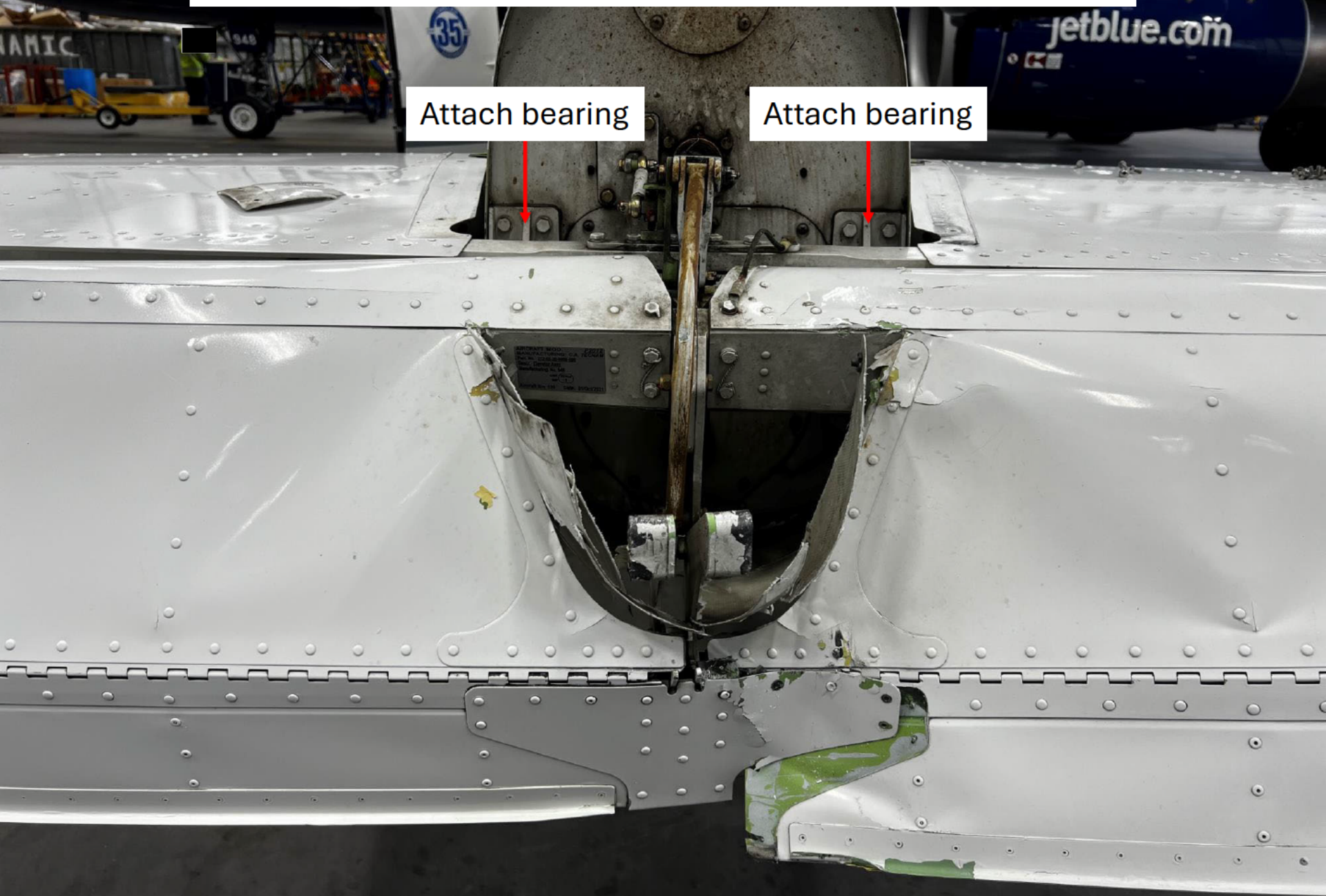
Image showing the leading edge of the left side of the elevator as shown from above.



Image of the center splice of the elevator. All linkages and servos for trim operation have been damaged by direct impact. Elevator and Tab damaged beyond economical repair.



The next two images will look at the aft stabilizer attach bearings.



Attach bearing

Attach bearing

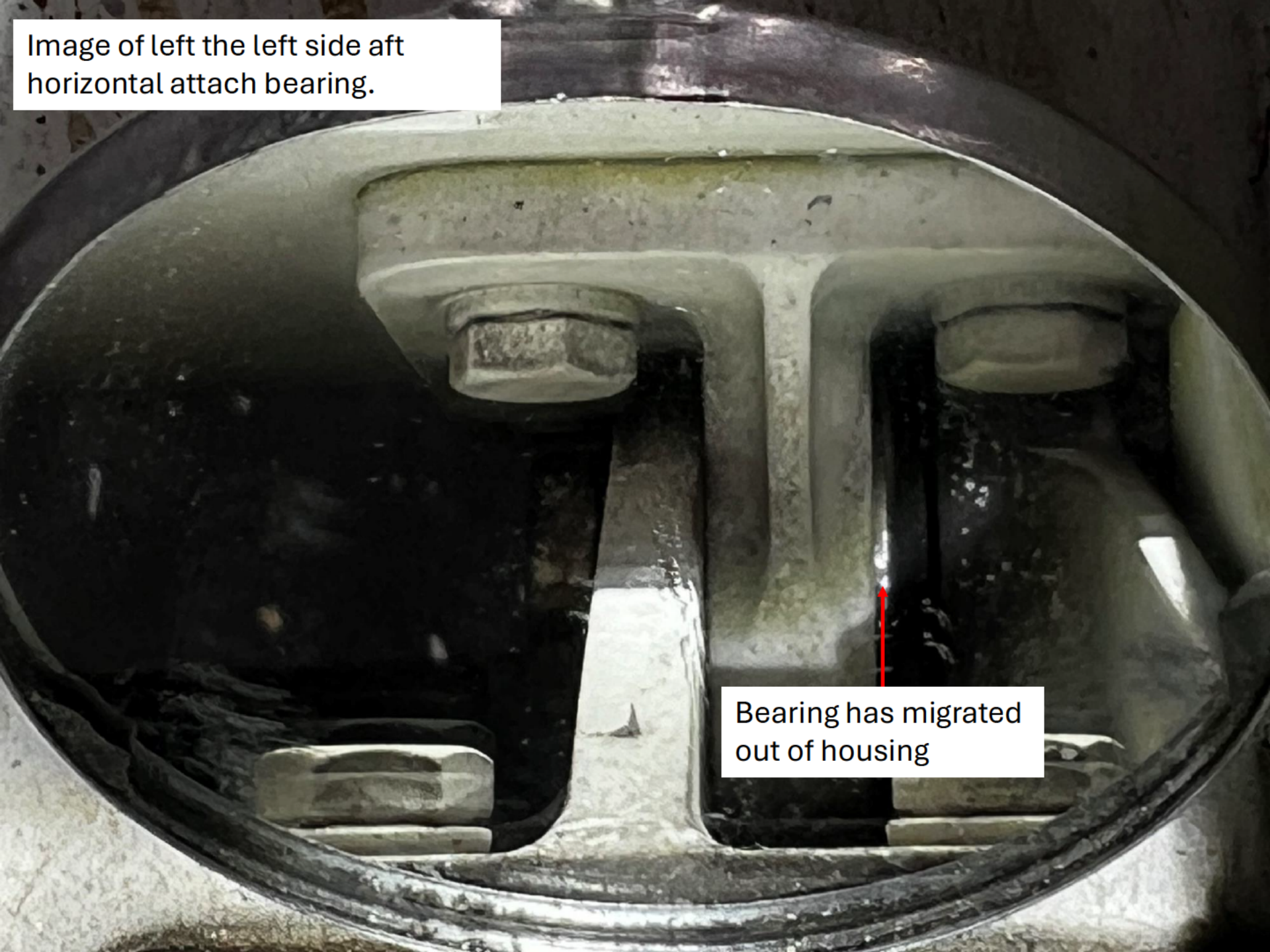
Image of left the left side aft
horizontal attach bearing.

Fitting damage on stabilizer side.

Bearing has migrated
out of housing



Image of left the left side aft
horizontal attach bearing.



Bearing has migrated
out of housing

The following images are taken through this panel looking forward.



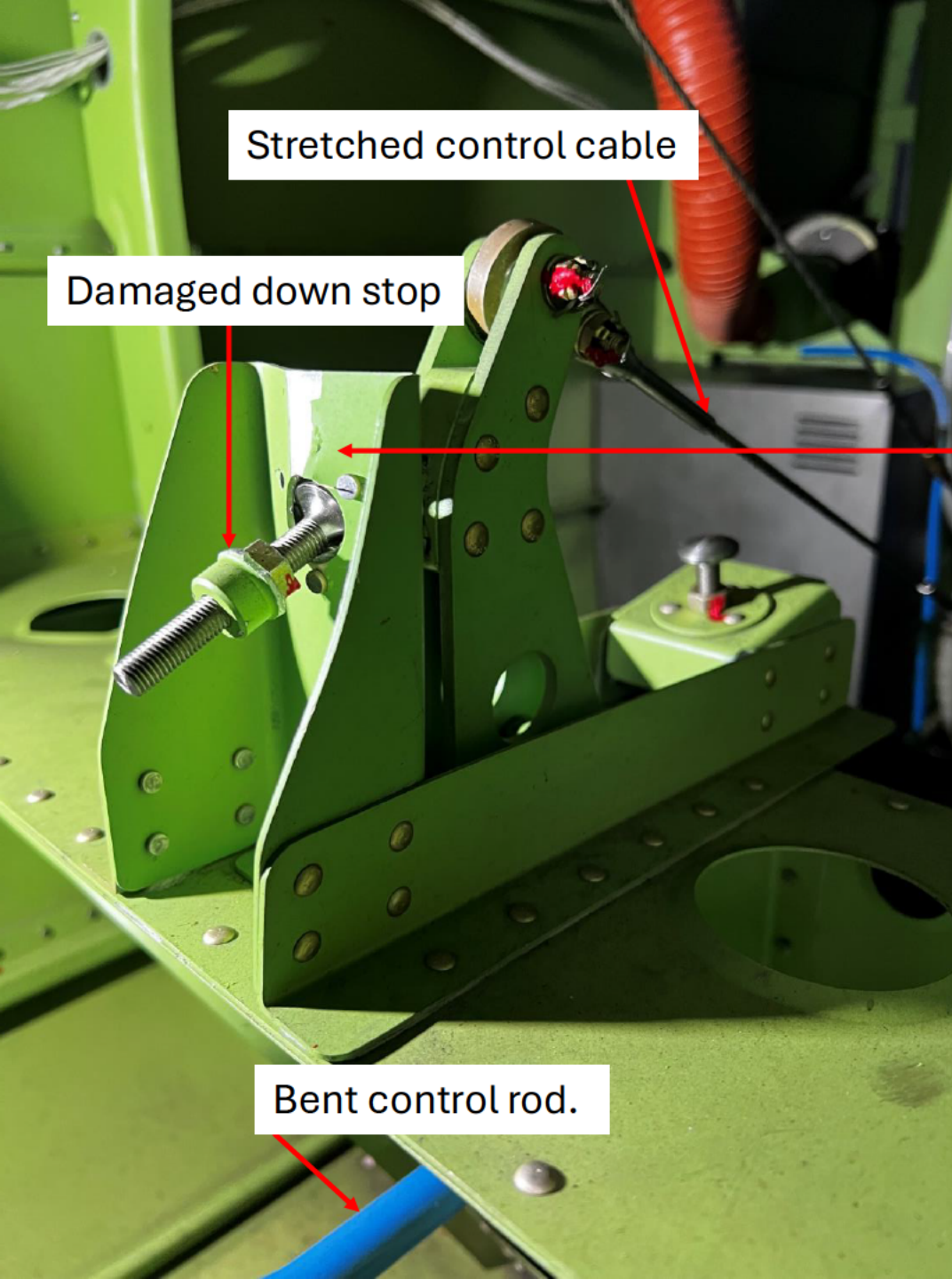
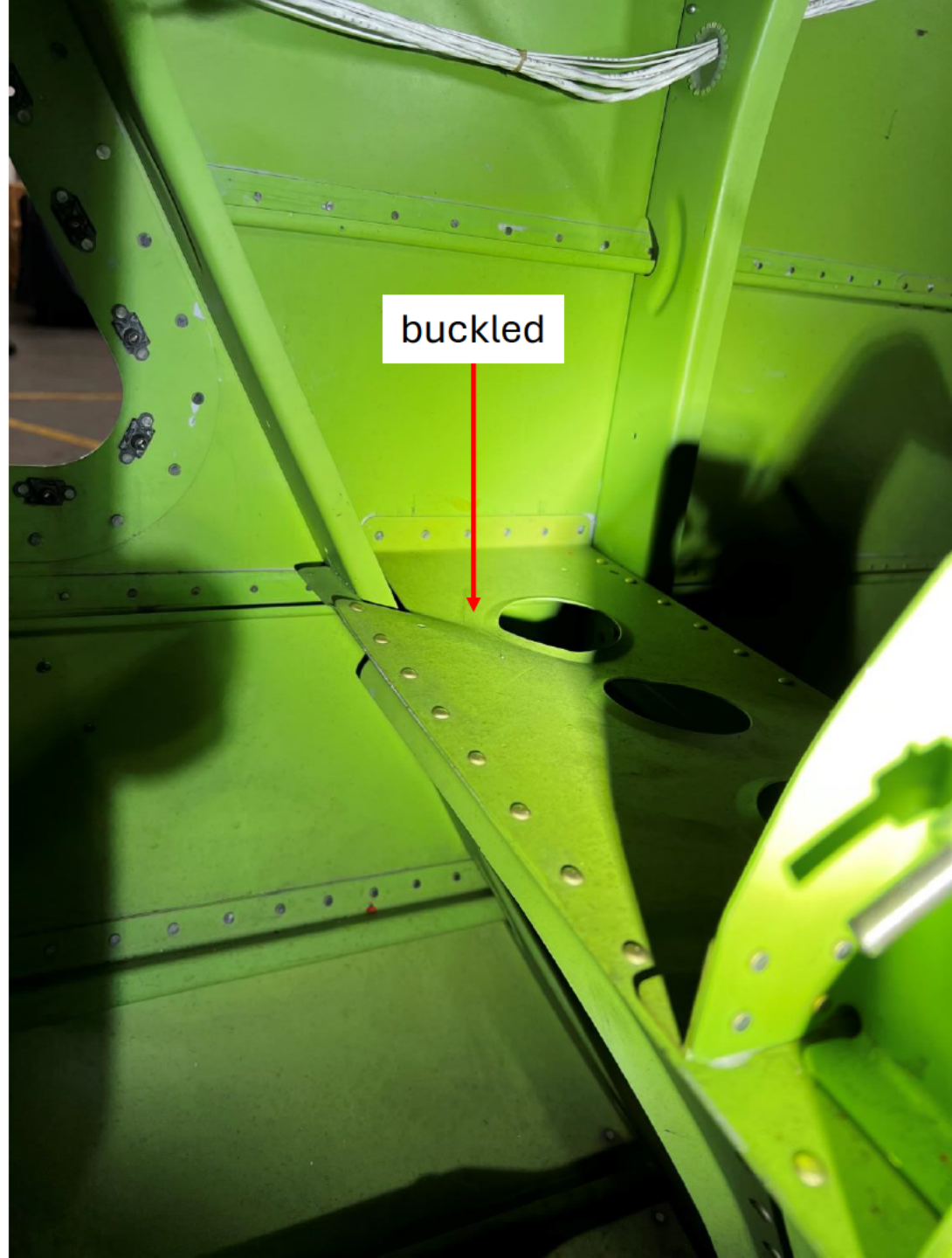


Image showing the elevator's down stop pushed through its bushing. The lower control rod is also bent, and the elevator cables have been stretched due to over extension.

Damaged structure

Bent control rod.

Image of the left side of the frame that the elevator stop is attached to showing the frame is buckled.



Summary:

- Severe impact damage to elevator, tab, and horizontal stabilizer.
- All elevator attach points considered compromised.
- Elevator control cables stretched.
- Interior impact damage to elevator down stop due to over deflection.
- Elevator down stop support structure buckled.
- No defects noted of forward horizontal attach points with high powered flashlight and mirror.
- Horizontal stabilizer aft spar compromised on LH outboard end.
- Horizontal stabilizer aft attach bearings migrating laterally left to right.