

NTSB
Attention: Mr. Dennis Diaz
Supervisory Air Safety Investigator
NTSB - Eastern Region

Dear Sir,

I am responding to your invitation to submit additional information regarding the gear collapse of C-GPEX at Bridgeport, CT Tuesday April 26 2023.

As I understand it the original builder traveled from Halifax, Nova Scotia to Bridgeport CT after the accident, repaired the elevator and replaced the broken threaded rod on the over center lock for the landing gear.

The new owner then departed from Bridgeport (KBDR) to Waukesha (KUES) stopping for fuel at Toledo (KTDZ). The owner reported that it was a clear VFR day and both landings had very little cross wind to contend with.

The owner invited me to see his new acquisition and I discovered that the threaded rod on the LHS of the aircraft had bent. (Photograph 1a & 1b) The owner had a spare threaded rod, and I did a non-destructive of the piece and found it to be 136,000 psi. (Photograph 4) I/A/W Engineering series manual "Aerospace metals, general data and usage factors" T.O. 1-1A-9 dated 11-17-2016. I feel that the tensile strength is lower than the industry standard of 180,000 psi that is used by Boeing, North American, Waco and Fairchild aircraft, to name a few.

I reviewed the drawings by the designer and discovered that the builder had deviated from the plans. The design plans call for an AN6-14 bolt to be welded to the over center lock. The builder had tapped and threaded the over center lock and used a threaded rod. I inspected the righthand strut and discovered that the builder had stacked lock nuts on the thread which was likely preventing it from bending. (Photograph 3)

The owner called the builder to discuss and during the conversation the builder then revealed that the threaded rod on the LHS had previously bent and had been subsequently replaced.

My opinion is that the design is inherently weak and the builder's deviation from the plans contributed to the part failure. Another item that we are reviewing is if the main landing gear has "toe in" on the wheel alignment. It visually appears to have "toe in" and aircraft that I have worked on in the past, the wheel alignment is set to zero with no toe in or toe out. If the main gear is "toe in" this will cause excess pressure on the over center link, contributing to the failure.

The owner is treating the aircraft as unairworthy until an appropriate redesign of the over-center lock is implemented.

Regarding my credentials,

Aircraft mechanic [REDACTED]

Private pilot

Journeyman Machinist

AWS Certified Aerospace welder

Accomplished metal shaper

Industrial designer.

Sincerely ,

William Tromblay



Photograph 1a & 1b





Photograph 3



Photograph 4