



AOPA Baron (N202MD) arrived at GAMI in Oklahoma on Oct. 30, 2023, with 15 hours total TIS. At that time, the LH engine (2) began operation on G100UL and the RH engine (1) continued to be fueled and operate only on 100LL.

Photos (1) & (2) were taken a few weeks later, in mid-November. The fuel stains in the RH (1) tank were a result of leaks in that tank which had only ever been fueled with 100LL. At that same time, the LH (2) tank exhibited signs of leakage, but those appear to be residual leakage from previous use of 100LL (based on color of the stains).

The LH fuel stains (3), observed 9 months later at Oshkosh, were investigated by AOPA and Kurt Hartwig of Eagle Fuel Cells. The maintenance shop now removing all four bladders reports that the source of the leak (3) is from a previous repair (patch). It is common for older Beech 40 gallon fuel bladders to have multiple "patches". When the fuel migrates to the bottom of the wing, the fuel (100LL or G100UL) then dissolves the adhesive bonding the "chafe tape" to the floor of the tank, and then leaks out and leaves a thick sticky residue and stain.

IMPORTANT: AOPA researched the log books. The LH (2) bladder was installed in 1974. It is 50 years old! The RH (1) bladder was installed in 1978 and is 46 years old.

More background: In 2012, GAMI conducted nine months of rubber fuel bladder material compatibility testing. That testing, conducted under a formal FAA approved test plan, included three full sized fuel bladders, one of which was an older Baron fuel bladder from a salvage yard. After ~ 9 months of soak testing in G100UL avgas, the FAA returned to Ada to again (for the third time) inspect the bladders. There were no leaks. That old bladder had multiple "patches" on the inside of the bladder from earlier fuel leaks. No leaks.

If anyone has any questions, feel free to contact John-Paul Townsend or Tim Roehl, at GAMI.

"Take-Away" ?

***** Patched, forty+ year-old fuel bladders sometimes leak! *****