

Aaron McCarter
Aviation Accident Investigator
Eastern

Date: November 21, 2024, through February 4, 2025

Subject: Multiple e-mails discussing any past alt air valve failures or reported irregularities.

Contact: Cirrus: Mark Haroldson @ [REDACTED] and [REDACTED]
[REDACTED]
Lycoming: J. Mike Childers copied.

Summary of e-mail discussion:

November 21, 2024: The NTSB IIC (McCarter) inquired as to the possibility of putting out a service bulletin on the alternate air valve issue; "...how many engine failures (full/partial) have been caused by this and not discovered during post-accident/incident examinations because even when broken, it may result in a cannot duplicate situation."

November 25, 2024: In response, Cirrus stated that after searching the databases they have, "... not had another SR20 with this engine¹ suffer a loss of power associated with the flapper in the intake plenum. Per our sales data, we've never sold a flapper outside the factory during the build process. I do have a few folks contacting authorized service centers to confirm that no ASC has replaced the rivets on these valves. At this point, unless they uncover something that wasn't previously documented, this appears to be a one off."

November 25, 2024: Following up, Cirrus further stated that after hearing back from the Fleet Manager and Service Center Manager, neither have seen a failure of this type. "...this is the first flapper seal that has failed. It is possible that outside of warranty an A&P has repaired/replaced the rivets, but nothing in any of our records

¹ LYCOMING IO-390-C3B6

shows that this part has ever been ordered or written up in any repair order or warranty issue."

September 9, 2024: The NTSB IIC sent a PowerPoint with photographs and a 4 bullet point description of the valve, failure, and induction system to be shared with the NTSB Materials Lab. "So I can articulate this correctly to our engineers. Thoughts?" Cirrus promptly responded clarifying one of the descriptions of the broken valve half.

February 4, 2025: The NTSB IIC received the materials report from the lab; The IIC sent Cirrus and Lycoming the following text from the report; Secondary electron (SE) micrographs of the rivets are shown in Figures 4 - 7. "All four fracture surfaces showed striations consistent with fatigue crack propagation alongside small areas of ductile dimples consistent with final overstress failure. Rivets 1, 2, and 3 also showed ratchet marks, indicating multiple cracks originating from the outer edge of the rivet. The fracture surface features, including the location and shape of the ductile dimpling surfaces were consistent with bending or torsion-bending stresses on the rivets."

February 4, 2025: Following up, Cirrus responded that after reaching out to some of the SR20 customers, "this is the first one of these that we've ever had come apart." They have no records if third party maintenance ever performing maintenance work on this. "This part has never required replacement per our records."

[END]