

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR23LA186

AIRFRAME EXAMINATION NOTES

June 7, 2023

A. ACCIDENT

Location: Lakewood, Washington
Date: May 9, 2023
Time: 1215 Pacific daylight time
Airplane: Amphibious Aviat A-1C-180 Husky

B. AIRFRAME EXAMINATION NOTES

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C. SUMMARY

On May 9, 2023, at 1215 Pacific daylight time, an amphibious Aviat A-1C-180 (Husky), N416AG, was destroyed when it was involved in an accident near Lakewood, Washington. The pilot and passenger sustained serious injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported the accident occurred on what would have been the third water landing of the day. On approach the gear selector lever was in the up position with the corresponding 4 blue lights displayed on the gear advisory system. About 2-3 ft above the water, the gear advisory system gave an aural "check gear" alert indicating a landing gear mismatch with the terrain. The pilot was unable to visually confirm the left landing gear was fully retracted and elected to conduct a go-around. The airplane impacted trees on the climb out and subsequently impacted terrain. A postimpact fire ensued.

D. DETAILS OF THE EXAMINATION

1.0 Examination Site

The following exam took place on June 7, 2023, at Lakewood Towing and Transport in Lakewood, Washington.

2.0 Landing Gear

The Wipaire 2100A floats had a Landing Gear Advisory System (LGAS) that utilized a laser in the left wing to compare the gear position with the detected landing surface. The system activates at 400 ft above ground level (AGL). Starting at about 50 ft AGL, if the gear position is incorrect to the landing surface or an asymmetrical gear position is indicated, an audio alert "check gear" will be repeated until silenced or the mismatch is corrected.

According to the manufacturer, the gear system is hydraulically actuated and driven by one electric reversible pump. Nose gear position can be determined visually. On the top of each float deck a visual indicator is provided for the main gear. The main gear has an over-center lock in both up and down positions. Retraction takes place when pressure is exerted on the actuator piston driving the actuating arm along the slide track. Retraction occurs when pressure is applied to the forward face of the actuator piston and the carriage is drawn along the tracks in the nose box. A reverse process effects extension. Gear position light proximity switches are closed when the cylinder piston (containing the magnetic material) is adjacent to the switch. The nose gear has an over-center down lock. Gear position light proximity switches are closed when the piston containing the magnetic material has reached either end of its travel.

Examination of the airframe revealed that the left float was separated consistent with thermal impact damage and right float was separated consistent with minor impact damage and removal by the aircraft recovery company to facilitate wreckage transport. The hydraulic reservoir and pump were thermally damaged. See figure 1.



Figure 1. Recovered floats

The right float sustained minimal thermal damage. The hydraulic actuator piston and actuator arm assembly was secure and intact in the right float. The cables to the right water rudder were separated consistent with being cut during recovery. The left float sustained extensive thermal damage. The hydraulic actuator piston and actuator arm assembly were thermally damaged and remained attached. The cables to the left water rudder were thermally damaged.

The left and right nose gear assembly remained intact on the left and right tracks. Both nose gears were in the retracted position and the nose wheel tire assemblies could free castor. See figure 2.

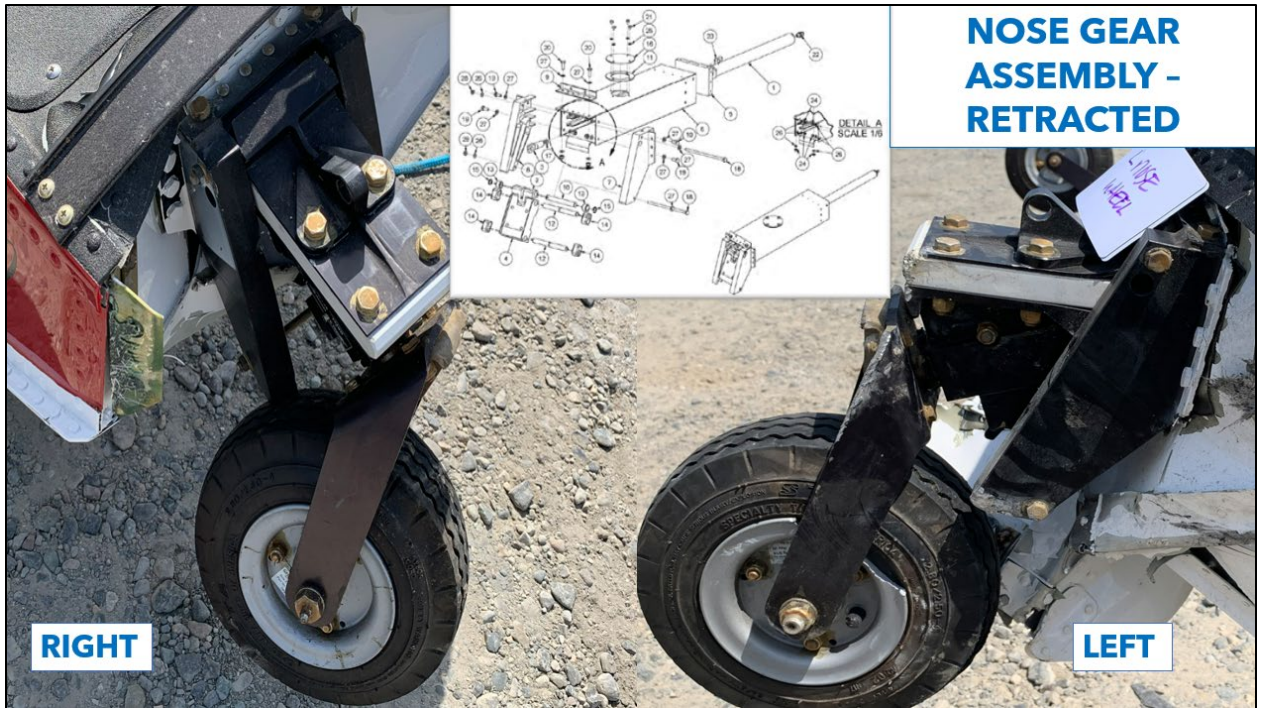


Figure 2. Left and Right Nose Wheel in the Retracted Position

The right main gear visual indicator rod and gear actuator indicated the right main was retracted in the up (water) position. See figure 3. The left main gear visual indicator rod was thermally damaged; however, the left gear actuator indicated that the left main wheel was retracted, in the up (water) position. See figure 4.

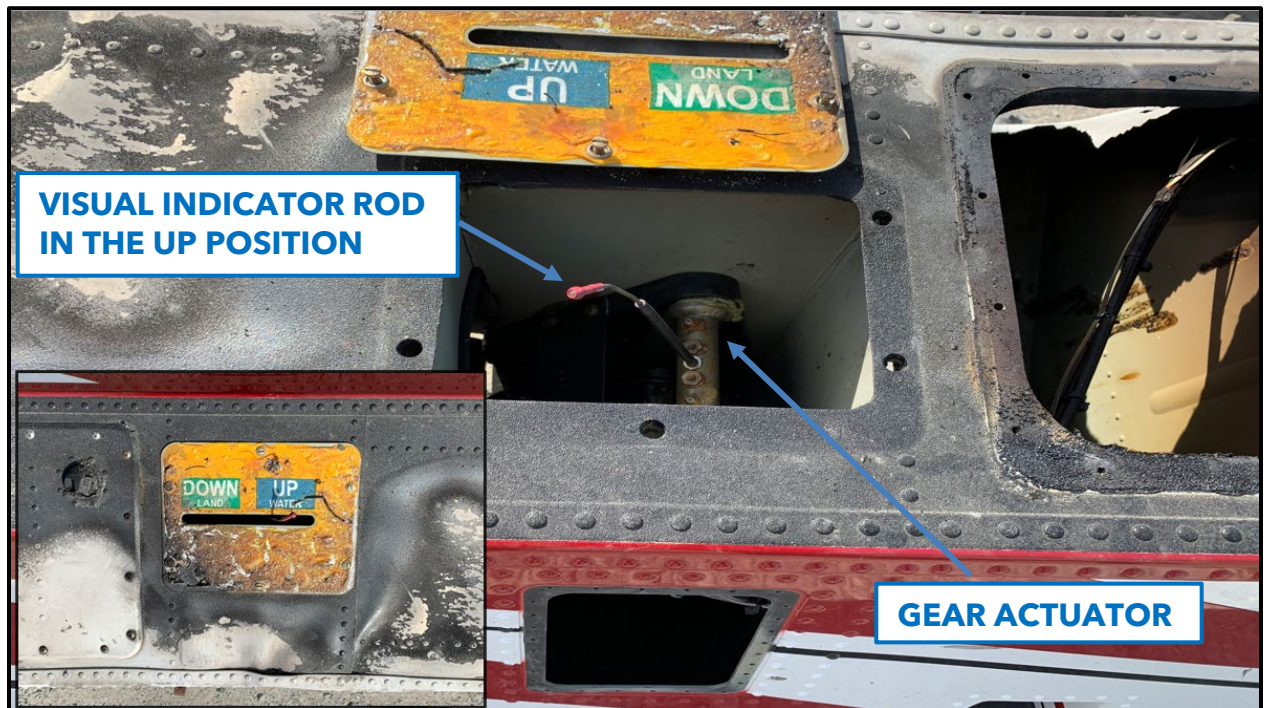


Figure 3. Right Main Wheel in Retracted Position



Figure 4. Left Main Wheel in the Retracted Position

3.0 Airframe Examination



Flight control continuity was established from all flight control surfaces to its respective controls in the cockpit.

4.0 Engine Examination

The Lycoming O-360-A1P, serial number 3329, remained attached to the engine mounts. All engine accessories remained attached to their respective mounts. The alternator, starter and magnetos remained attached and the propellor was able to rotate about 180 degrees. The oil cooler remained attached and sustained impact damage. The induction and exhaust systems were intact and exhibited varying degrees of thermal damage. All 4 cylinders sustained varying degrees of thermal damage and all spark plug leads remained connected.

The throttle cable lever was displaced; the throttle cable was still connected to the fuel servo. The mixture control cable was separated forward of the fire wall consistent with impact damage and continuity was established from its control lever to the fuel servo. The propellor lever remained intact and continuity was established to the governor.

The fuel injector servo remained attached to the engine on its respective mounting pad. Mixture control and idle cutoff lever linkage was displaced consistent with impact from the cable in the cockpit. Continuity was established to the fuel servo.

5.0 Propellor Examination

Prop hub remained attached to the engine. Both blades remained attached with one blade sustaining thermal, impact damage at the blade root. The propellor control cable remained attached to governor and lever.

Submitted by:

Starr Blum
Air Safety Investigator