



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

July 25, 2021

ACCIDENT SITE AND FOLLOW-UP EXAMINATION SUMMARY

WPR21FA283

This document contains 4 embedded photos.

A. ACCIDENT

Location: Lewiston, Idaho
Date: July 25, 2021
Aircraft: N28U, SIAI-Marchetti, SM1019B
NTSB Investigator-in-Charge: Andrew Swick

B. PARTICIPANTS

Chad Anderson-FAA FSDO
Nick Shepler-Rolls Royce
Mike Isaacs-Airport Director



Figure 1-The main wreckage at the accident site location.

C. ACCIDENT SITE AND WRECKAGE EXAMINATION

Examination of the accident site was conducted on July 25, 2021. The wreckage was located in the runway safety area adjacent to the intersection of taxiway F and taxiway C. The first identified point of contact (FIPC) was an area of disturbed ground consistent with a left wing strike about 30 ft from the main wreckage. Red lens fragments were found near the far end of the FIPC. A large shallow impact crater consistent with impact from the engine, was found between the FIPC and the main wreckage. The ground in the area of the wing fuel tanks was saturated with an oil type residue, that had the odor of jet fuel. The wings remained partially attached to the fuselage with extensive thermal damage to the inboard sections. The cabin and forward fuselage had impact and thermal damage. The aft fuselage and empennage were undamaged with the exception of the left elevator and horizontal stabilizer, which had some slight buckling. The reduction gear from the engine and the propeller assembly separated from the engine. The reduction gear was found near the main wreckage and the propeller assembly was found about 70 ft north of the main wreckage near the side of the taxiway.

The outboard side of the left wing had upward crush damage near the tip. The leading edge of the wing had impact damage. The midsection of the wing to the inboard root area was mostly consumed by post impact fire. Two fuel tanks were visible and had excessive thermal damage. The left aileron remained attached to the wing and was buckled throughout. The inboard side of the left aileron had thermal damage. The left flap and its wing attach points appeared to have been consumed by fire, with only small remnants remaining. The flap actuator remained in the general area of the left flap and the exposed shaft to the centerline of the flap attachment bolt, was measured at 130mm, which corresponded to a flap position of about 30° when compared to an exemplar airplane.

The engine was positioned under the right wing which was buckled throughout its entire length. The wing also had thermal damage with exception to the aileron, trim tab, and aft side of the wing tip fairing. The right inboard fuel tank was mostly consumed by post impact fire. The right outboard wing tank was intact, had hydraulic deformation and thermal discoloration. The fuel cap was removed and the fuel inside was clear and consistent with jet fuel. The right flap remained partially attached to the wing and had impact and thermal damage. The measurements of the right flap actuator exposed shaft to the centerline of the flap attachment bolt, was 127mm.

The wreckage was recovered by Interstate Recovery Services and transported to Pullman, Washington for secured storage. A follow-up examination on December 1, 2021, at Interstate Aviation in Pullman, Washington.

The forward cabin floor and left forward side of the fuselage had impact damage and was twisted to the left side. The rudder pedals were visible and remained attached to their linkages and pivot assemblies, which had twisted with the airframe. The flight control lock was intact, exhibited a slight twist to its left side, and remained connected to the rudder pedal pivot assemblies. The flight control lock was found in the up position near the instrument panel; the lock was measured and appeared to be about 14 inches long. The floor area forward of the control stick, which would have been occupied by the control lock, was compressed aft such that it was 4 inches away from the control lock pivot. The control lock floor clip, which would have been used to lock the control lock for flight, appeared undamaged.

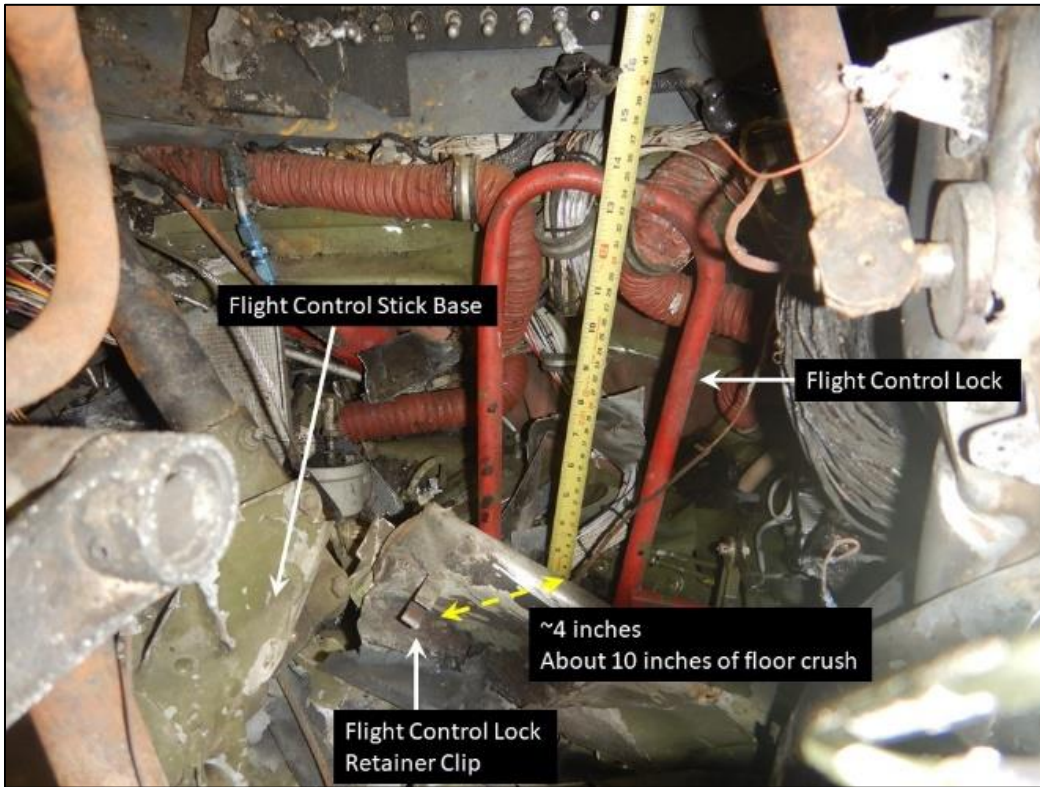


Figure 2-Forward cabin floor and flight control lock position.

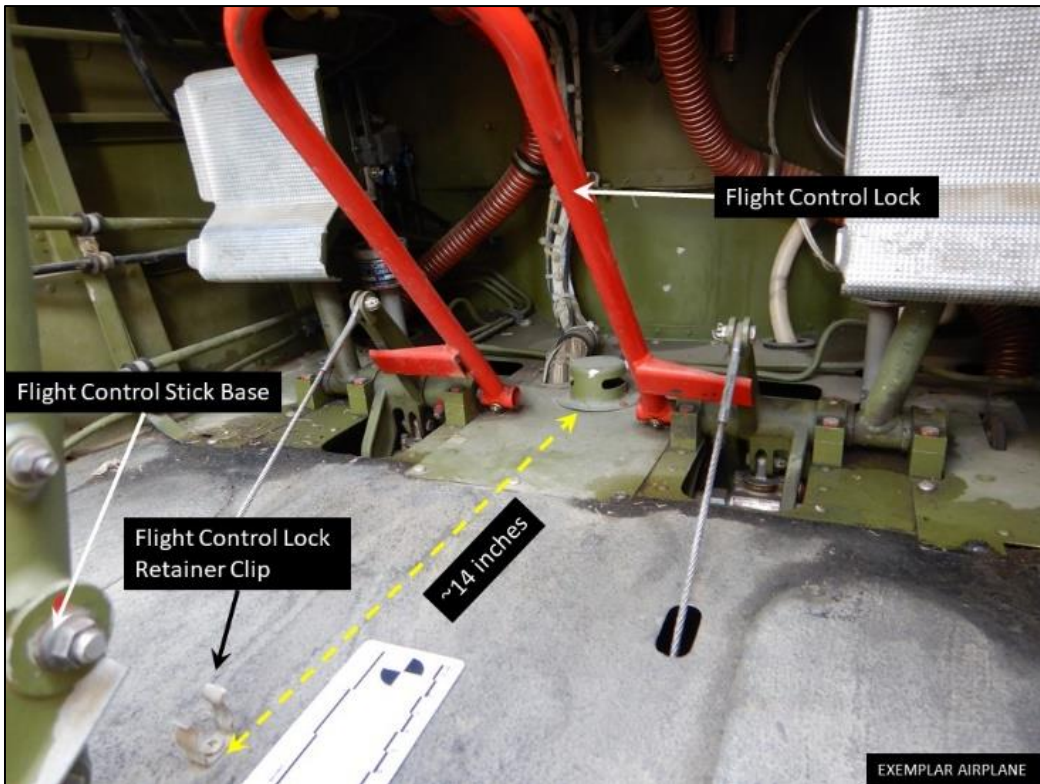


Figure 3-Exemplar airplane, forward cabin floor and flight control lock (engaged on the control stick).

The flight control stick control lock arm and pin remained attached to the control stick, and appeared undamaged, but had rotated 90-degrees to the right of its original position. There was no evidence of contact between the control lock arm and pin and any components or structure in the footwell. The instrument panel had thermal and impact damage. The glass panel of the multifunction device, located in the center of the instrument panel had fractured glass in an area that matched the tip of the control stick.

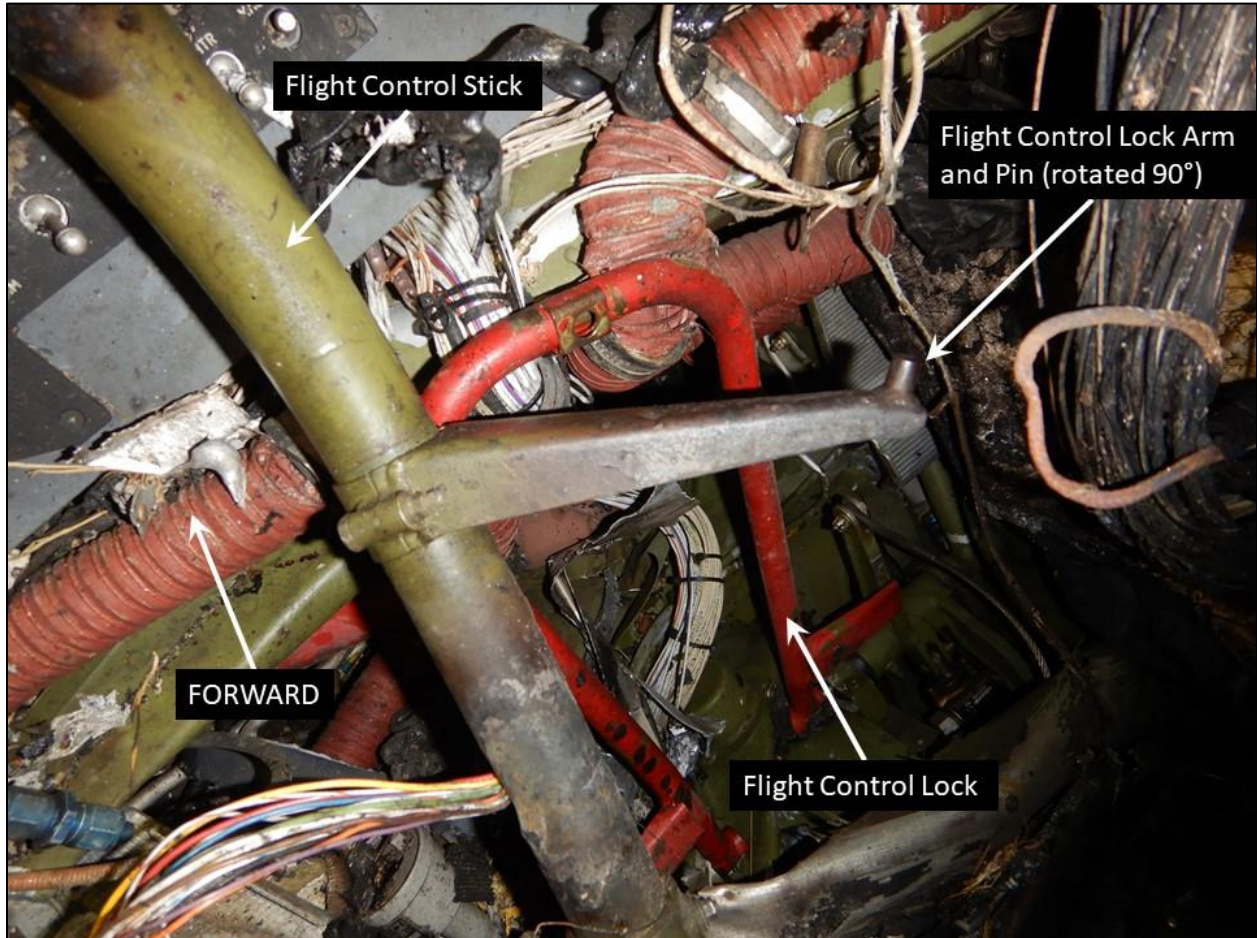


Figure 4-Flight control stick and control lock arm and pin.

The Marchetti Flight Manual reported the following on the flight control lock mechanism:
When the aircraft is on the ground, ailerons, elevator and rudder can be locked in their neutral position by a locking device located at the pilot's station.

The forward seat remained firmly attached and engaged to both of its seat rails. The seat rail range of movement was 3.75 inches, and the seat appeared to have been positioned about 2.5 inches forward of the aft position. The forward and aft seat stops were intact and undamaged.

The rear seat remained firmly attached and engaged to both of its seat rails and was in the center position.

The fuel selector valve handle was found in the “Normal” position and the valve moved freely between positions with detents noted.

The forward seat lap belt hard lines remained attached to the airframe. The shoulder hard line remained attached to the inertia reel, which was still attached to the airframe.

The left and right elevators remained attached to each other and the control cable bellcrank. Elevator control cable continuity was established from the bellcrank assembly through to the aft control stick, and the elevators moved freely when the cables were pulled by hand. The forward control stick remained connected to the aft stick via its interconnect tube.

The elevator pitch control servo remained firmly attached to its mounting pad. The capstan wheel moved freely, and the bridle cables remained firmly attached to both the wheel and the elevator cables.

The rudder remained attached to the vertical stabilizer. The right rudder cable was continuous from the rudder control horn through to the forward right rudder pedal. The left rudder cable remained attached to the rudder horn, was continuous through the structure, and had separated about 18 inches short of the forward left rudder pedal. The separation exhibited “broomstraw” damage, and examination with a jewelers loop, did not reveal any flat spots or evidence of preexisting wear. The remaining section of the cable remained attached to the left rudder pedal.

The left and right ailerons remained connected to their respective wings. The aileron bellcranks remained attached to the aileron push-pull tubes and their respective control cables. The interconnect cable was continuous between each aileron bellcrank. The control cables were continuous from the bellcranks, down through the door pillars, and remained attached at each swage end on the aft control interconnect tube.

All control cable pulleys were intact and moved smoothly with no binding noted. There was no evidence cable-to-fuselage interference. There was no evidence of foreign objects within the floor pan or in the aft fuselage and empennage.

The right aileron and right elevator are fitted with an electrically operated trim tab, actuated by a single switch located on each control stick grip. The right aileron trim tab was flush with the aileron.

In addition, the elevator trim tab can be controlled manually from the pilot’s station only. The left elevator is also fitted with a servo tab, while the rudder is fitted with a servo tab adjustable only on the ground.

The elevator trim tab actuator was measured at 52 mm, from the exposed shaft to the centerline of the tab attachment bolt. Those measurements were used on an exemplar airplane and the elevator trim tab was found to be near the full nose-down position.

Submitted by: Andrew Swick