NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

July 25, 2018

ACCIDENT SITE EXAMINATION SUMMARY

WPR18FA201

This document contains 14 embedded photos.

A. ACCIDENT

Location:	Burnet, Texas
Date:	July 21, 2018
Aircraft:	Douglas DC-3, N47HL
NTSB Investigator-in-Charge:	Joshua Cawthra

B. DETAILS OF THE INVESTIGATION

1.0 Accident Site Examination

Examination of the accident site revealed that the airplane came to rest upright on a heading of about 113° magnetic, about 145 feet east of the left side of runway 19.

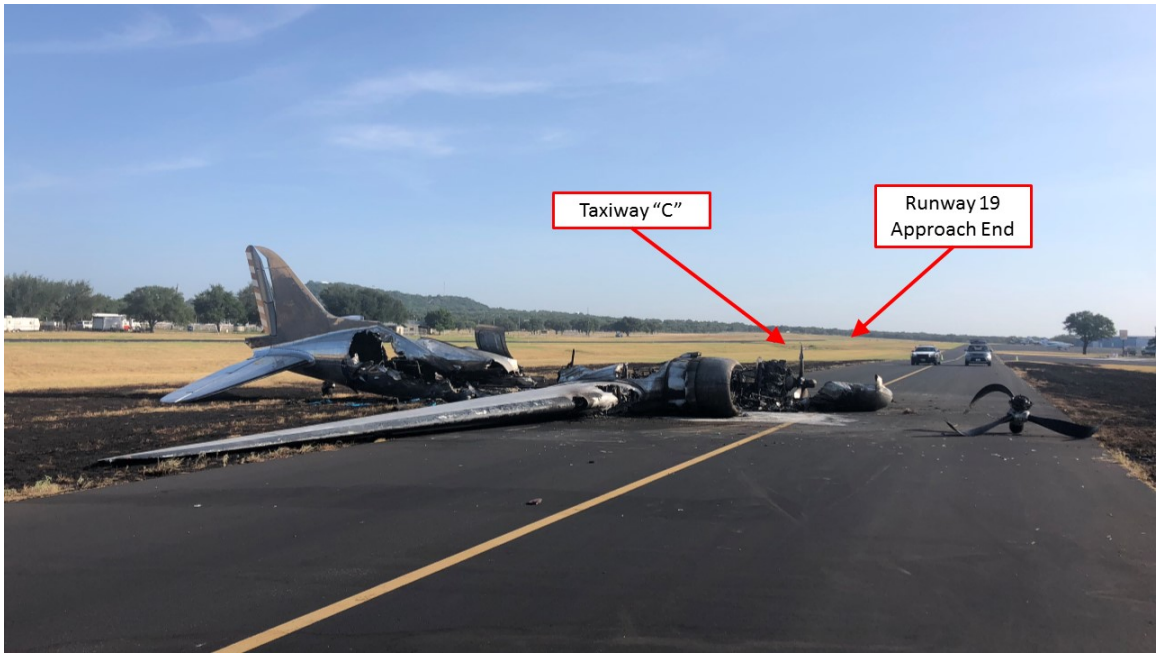

Figure 1: View of the main wreckage in relation to runway 19 and taxiway C.

Examination of runway revealed that about 843 feet from the approach end of runway 19 was a skid mark, consistent with the right main wheel, that extended from slightly right of runway center line toward the 1,000-foot markers, progressively moving toward the right side of the runway as seen in figure 2. About 1,106 feet from the approach end of the runway, the skid mark began to progressively move left, increasing in angle toward the left side of the runway about 1,170 feet from the approach end of the runway.

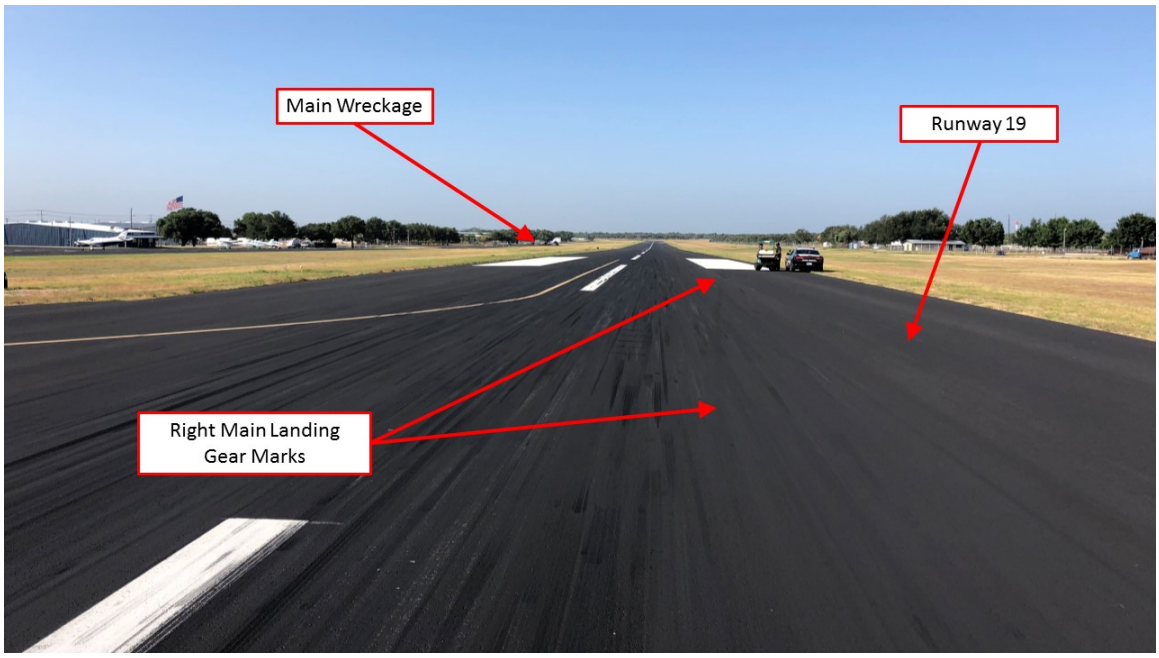

Figure 2: View of tire marks on runway 19.

At 1,566 feet from the approach end of the runway, the right main exited the left side of the runway and continued in an almost parallel manner until it struck a runway light just prior to taxiway Charlie, or about 1,730 feet from the approach end of the runway. Shortly after the runway light, the wheel impression from the right main landing gear stopped, as seen in figure 3. The next identifiable ground impression was located to the left of the runway, about 2,111 feet from the approach end of the runway and was consistent with an impact by the left wing. The ground scar, consisting of freshly displaced dirt extended for about 200 feet, paralleling the runway.

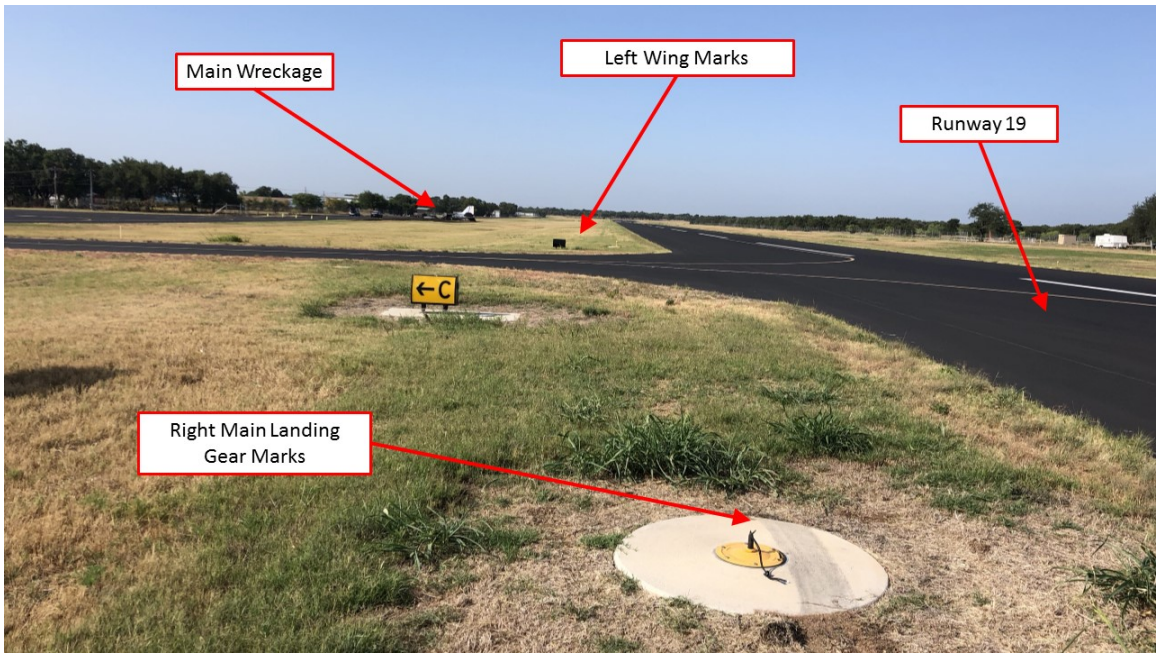

Figure 3: View of tire marks next to runway 19 near taxiway C.

A skid mark, consistent with the left main landing gear was observed about 2,377 feet from the approach end of the runway, on the left edge of the runway. Extending from the skid mark, was an area of displaced dirt, which extended toward the main wreckage, as seen in figure 4.

Figure 4: View of tire marks next to and on runway 19 near taxiway C.

About 2,436 feet from the approach end of the runway was an area of displaced dirt, consistent with the right main landing gear. The impression was observed about 12 feet, 10 inches to the

right of the left wheel impressions. The right main landing gear impression extended parallel to the left main landing gear impression, and the distance between both impressions decreased to about 10 feet, 11 inches immediately near the main wreckage, as seen in figure 5. The main wreckage came to rest about 2,638 feet from the approach end of the runway.

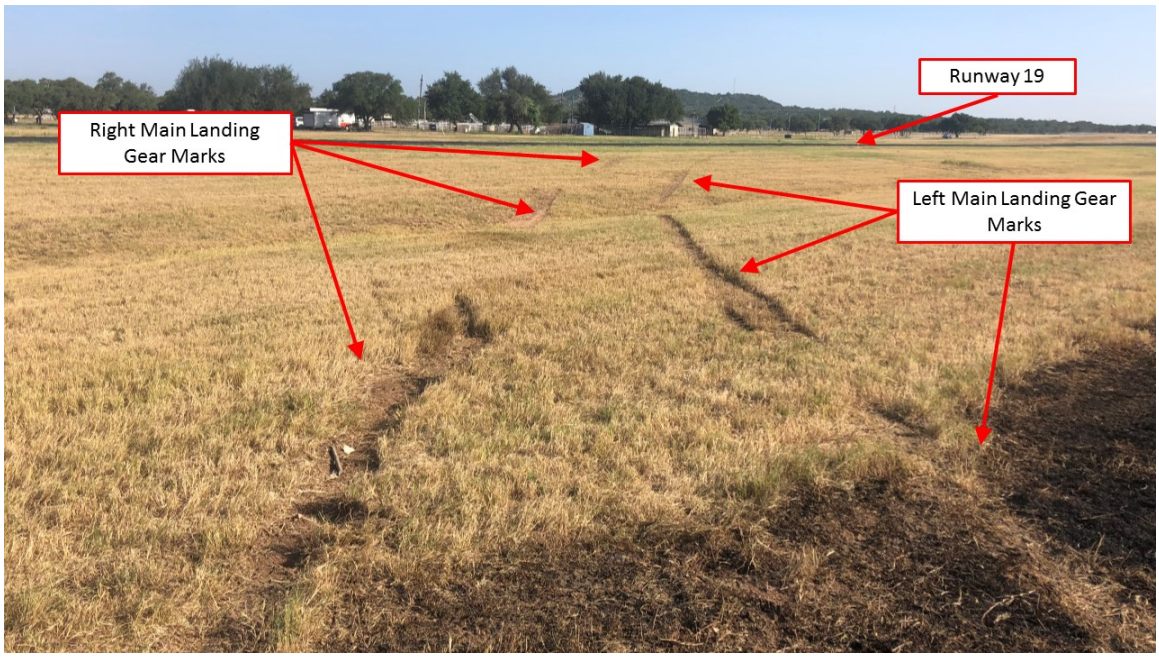

Figure 5: View of tire marks next to runway 19, extending to the main wreckage.

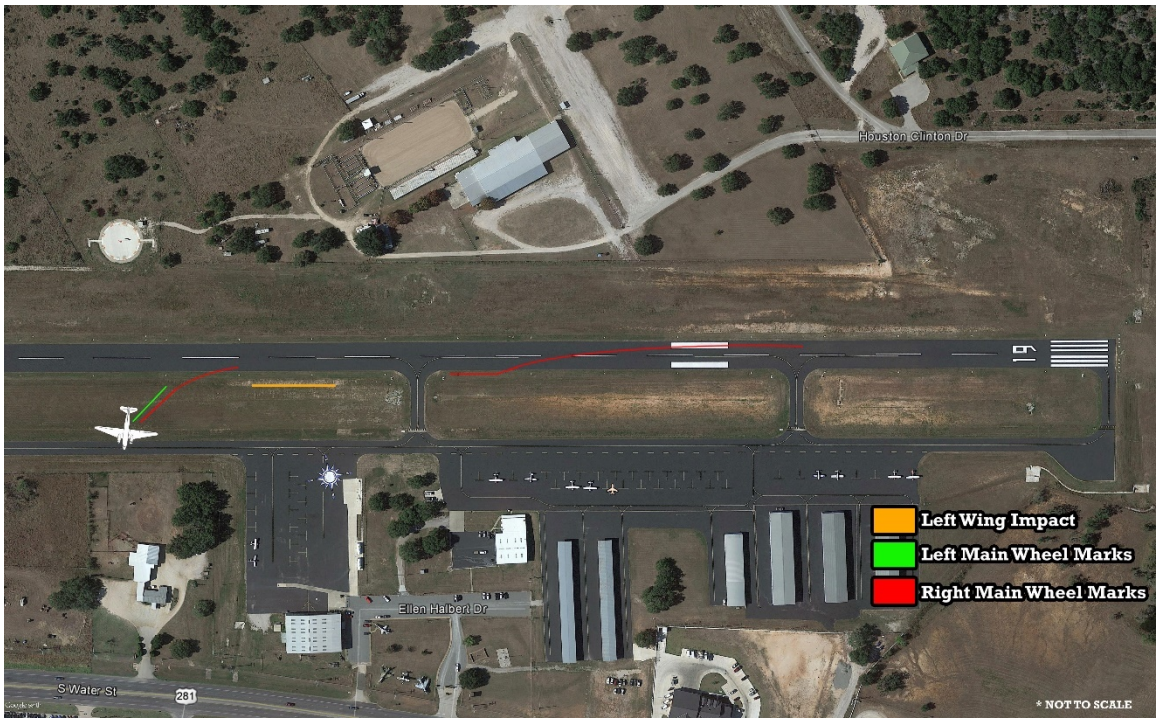

Figure 6: Tire and wing marks overview.

Vegetation (grass) within about 200 feet of the main wreckage was burnt from a post impact fire. The post impact fire consumed the fuselage from the nose cone aft to about 3 feet forward of the left side cargo door. The wing center section of the fuselage was mostly consumed by fire and extended outboard to the right wing attach point and about 2 feet outboard of the left wing attach point. All of the cabin seating, luggage, storage containers, cockpit seats, controls, and instrument panel was mostly consumed by the post impact fire. Multiple instruments were located near the cockpit area, however, were destroyed by fire. The throttle quadrant was observed, and all cables remained attached despite the thermal/fire damage. The tailwheel lock engagement handle was not located. All three fuel tanks exhibited fire damage and were breached.

Figure 7: View of the main wreckage.

Figure 8: View of the cockpit area and forward portion of the fuselage.

The empennage remained mostly undamaged. The structure surrounding the tailwheel exhibited some slight buckling. The tailwheel remained attached to the airframe and was oriented about 45° left of the centered position. The tailwheel locking mechanism appeared to be in the locked position. The tailwheel locking cable remained attached to the mechanism and was continuous to about the area of the fuel tanks. The tailwheel locking shear pin remained within the tailwheel strut assembly, however, the outboard portions of the aluminum shear pin were severed and located in fuselage within the vicinity of the tailwheel assembly. Damage to the pin was consistent with a shear fracture. The rudder, vertical stabilizer, horizontal stabilizers, and elevators remained attached via their respective mounts and were undamaged. The rudder and elevator trim tabs remained attached and appeared to be in the neutral position.

Figure 9: View of the empennage, and portion of the right wing.

The right wing was mostly intact and exhibited some wrinkling of the wing structure near the wing root. The aileron remained attached and exhibited fire damage to the inboard third of the aileron. The flap remained attached and was in the "up" position. The right landing gear was separated from the engine nacelle and was located aft of the left-wing flap/aileron junction. The engine remained attached to its mount and exhibited fire damage.

Figure 10: View of the right wing.

The left wing was separated from the center section, however the control cables remained continuous to the aileron. The outboard 48 inches of the left wing was bend upward about 5 to 10°. The aileron remained attached via its mounts and exhibited fire damage. The flap appeared to remain attached via its mounts and in the "up" position. The engine remained attached to the nacelle structure. The landing gear remained attached to the wing structure.

Figure 11: View of the left wing.

Flight control continuity was established from all primary flight controls to the center section of the fuselage near the aft side of the fuel tanks, and from about 2 feet forward of the fuel tanks to the control columns. No evidence of any flight control lock being installed was observed throughout the entire wreckage.

The left engine displayed fire damage throughout. Multiple rocker box covers exhibited thermal damage with partial melting. All three propeller blades remained attached to the propeller hub. Two of the propeller blades exhibited melting of the blades near the blade tip. One blade was bent aft about 6-8 inches inboard from the blade tip.

Figure 12: View of the left engine and propeller.

The right engine displayed fire damage throughout. The forward section of the nose case was separated and remained attached to the propeller assembly. Multiple rocker box covers exhibited thermal damage with partial melting. The right propeller exhibited "S" bending on all three propeller blades, which remained attached to the propeller hub. All three propeller blades were bent opposite direction of rotation. Two propeller blades exhibited leading edge gouging and one propeller blade exhibited blade polishing on the forward face of the propeller blade from about mid span to the blade tip.

Figure 13: View of the right engine.

Figure 14:View of the right propeller.

Submitted by: Joshua Cawthra