

On June 8, 2018, about 1605 central daylight time, a Beech 58 airplane, N190RS, sustained substantial damage when the right wing caught on fire during initial climb from the Baton Rouge Metropolitan Airport (BTR), Baton Rouge, Louisiana. The pilot was not injured. The airplane was registered to Bonanza Partners LLC and operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Visual meteorological conditions prevailed at the time of the accident, and the flight had an activated instrument flight plan. The flight had departed BTR and was en route to the Jonesboro Municipal Airport (JBR), Jonesboro, Louisiana.

The pilot reported that during initial climb from runway 31, about 200 ft above ground level, she heard a loud bang from the right wing. She then saw the right wing was wrinkled between the engine nacelle and the wingtip and she thought that it might have been the result of a bird strike. She informed the tower controller that she had a bird strike and needed to land. The tower cleared her to enter the left downwind for landing. She started the turn to the left but then she saw flames coming out of the trailing edge of the right wing. She notified the tower that she had a wing fire and was turning back to make an emergency landing on runway 13. During the turn she shut off the right fuel selector, feathered the right propeller, and put the right engine fuel mixture to cutoff. After she landed on runway 13 and stopped the airplane, she “shut everything down” and exited the airplane while the wing was still on fire. The BTR fire department arrived soon after and extinguished the fire.

The location of the fire was outboard of the right engine near the wingtip and auxiliary fuel tank. The aluminum wing skin exhibited black charring, burn holes, popped rivets, and buckling on the top and bottom of the wing. Black soot was visible near the right wingtip navigation light and anti-collision light. Black soot and blue fuel stains were found near the fuel vents located on the bottom side of the wing under the right wingtip anti-collision light. Blue fuel stains were also found under the right wing near the main and auxiliary fuel tanks, and inside the wing cavity near the electrical wiring for the right wing navigation light. The examination of the right wing revealed that the wiring for the right wing anti-collision light was crimped together with “handshake” connectors and then wrapped with electrical tape. The source of the fuel leak could not be determined with any certainty due to the fire damage to the right wing.

A Hawker Beechcraft Safety Communique issued in December 2010 concerning the “Outboard Wing Fire Potential Due to Fuel Leaks and Electrical Wire Chaffing.” The communique advised owners/operators of a potential safety issue concerning loose wiring and fuel fumes in the structural areas on Baron and Bonanza model airplanes. The communique reported cases of fire and/or ignition of combustible flammable fluid or vapors that occurred in the outboard wing of Baron model airplanes. Fire damage and skin buckling, skin rupture, and ballooning were noted on the outboard wings of the affected airplanes. The communique stated that it “strongly reminds all owners/operators of the importance of performing proper safety inspections and maintenance inspections on the fuel and electrical systems in accordance with the applicable maintenance manuals.” It further stated that it “strongly reminds all owners/operators that no visible fuel leaks or staining should be observed around the vents and sump drains during preflight inspections.”

The pilot reported that she did not think that she had flown the accident airplane before. She said that in preparation for the flight, she would have checked the airplane’s maintenance records to

determine that it was in an airworthy condition and that the required annual maintenance inspection had been completed. She stated that she does a thorough preflight, which would have included inspecting the bottom side of the wings. She stated that she did not remember seeing any blue staining under the right wing of the airplane during her preflight. She said that if she had seen any blue stains, then she would have considered how much staining was evident and the location of the stains. A large stain under the wing would have caused her to reject the flight until the maintenance issue was corrected. She stated that the airplane's fuel tanks were topped off and were full of fuel. She said that, during the taxi to the runway, she made a left turn from the taxiway onto the runway.

The airplane's maintenance logbook indicated that the last annual maintenance inspection was completed on October 3, 2017. The airplane had a total time of 5,941.1 hours at the time of the inspection. During the annual inspection, the right wing navigation bulb was replaced. A maintenance logbook entry made on June 6, 2018, two days before the accident, indicated that the airplane had 5,996.0 hours, 54.9 hours since the last annual maintenance inspection. The logbook entry indicated that the right wing landing light bulb had been replaced for a second time. An examination of the airplane's maintenance logbook did not reveal any logbook entries that gave a clear indication of when or what maintenance actions were required for the wiring modification behind the right wing anti-collision light.