

National Transportation Safety Board

Office of Aviation Safety
Central Region



CEN22LA391

EXAMINATION SUMMARY

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A. ACCIDENT

Location: Baton Rouge, Louisiana
Date: August 18, 2022
Time: 0853 central daylight time
Aircraft: Beech F33A, N17747

B. PARTICIPANTS

Investigator	Timothy Sorensen Aviation Accident Investigator National Transportation Safety Board Denver, Colorado
Representative	Phillip Grice Manager, Product Field Performance Continental Aerospace Technologies Mobile, Alabama

C. ACCIDENT SUMMARY

On August 18, 2022, about 0853 central daylight time, a Beech F33A airplane, N17747, was substantially damaged when it was involved in an accident at the Baton Rouge Metropolitan Airport (BTR), Baton Rouge, Louisiana. The pilot and the pilot-rated passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

An examination of the throttle and control unit, fuel pump, fuel distribution valve, and fuel flow transducer, was conducted at Continental Aerospace Technologies, Mobile, Alabama, on April 25, 2024, under direct oversight of the NTSB.

D. EXAMINATION SUMMARY

1.0 Throttle and Control Unit

Continental - Part No. 629904-2 (s/n BU19518AR)

The throttle and control unit was previously removed from the engine and received as a component. It appeared intact and undamaged. Visual examination did not reveal any anomalies. There was no evidence of a fuel leak on the exterior of the assembly. The butterfly valve rotated normally under hand pressure. The fuel strainer screen was missing from the unit. A compatible serviceable fuel screen was installed

for testing. In addition, the throttle and mixture arms, and the return spring were removed from the unit to allow installation on the test bench.

The unit was placed on a test bench and the production test protocol was performed. When fuel pressure was provided, a leak was observed at the mixture control. The component measured fuel flow exceeded the maximum allowable by the specification at 6 of the 7 test points.

The O-ring common to the mixture control was removed and visually examined. The O-ring appeared flattened (not a torus shape), consistent with normal wear at the top surface. Additionally, after the accident, it is possible that the O-ring dried out during the 20 months before the examination. There was no evidence of a fuel leak on the exterior of the assembly. The O-ring common to the mixture control was replaced, and the test protocol was repeated. When fuel pressure was provided, no leakage was observed at the mixture control, but minor seepage was observed at the throttle control. Fuel flow rates were as follows:

Throttle Angle	-- Specification -- Minimum Fuel Flow (lbs/hr)	-- Specification -- Maximum Fuel Flow (lbs/hr)	-- Testing -- Measured Fuel Flow (lbs/hr)
2°	6.6	6.9	9.2
8°	30.6	36.7	37.44
16°	57.3	68.8	59.47
21°	72.8	80.1	74.60
28°	94.0	103.4	92.71
36°	106.2	116.8	105.07
73°	130.0	136.5	125.65

According to the Continental representative, the observed fuel flow discrepancies were consistent with in-service adjustments completed during engine setup.

2.0 Fuel Pump

Continental - Part No. 646212-2 (s/n CA6940BR)

The fuel pump was previously removed from the engine and received as a component. The housing exhibited localized superficial corrosion, but no evidence consistent of a fuel leak. The component appeared intact. Visual examination did not reveal any anomalies. An Aircraft Accessories of Oklahoma part number plate was attached to the unit.

The pump drive rotated normally under hand pressure. The drive coupling was intact. The pump was installed on a production test bench and subjected to the standard test protocol for a production unit.

The pump tested within production specifications when run at 1,600 rpm (test point 5). At a pump input speed of 600 rpm (test point 3), the discharge pressure measured 12.64 psi. The specification required 12.00 psi maximum. At 2,600 rpm (test point 4), the discharge pressure was 34.05 psi. The maximum allowable was 29.30 psi. At 600 rpm (test point 6), the discharge pressure was 12.75 psi. The maximum allowable was 12.00 psi.

According to the Continental representative, the observed fuel pressure discrepancies were consistent with in-service adjustments completed during engine setup. No other anomalies, including any external leakage, were observed during the bench testing.

3.0 Fuel Distribution Valve

Continental 631427-2410 (s/n C159418CR)

The fuel distribution valve was previously removed from the engine and received as a component. The valve assembly appeared undamaged and intact. Serviceable injector lines and nozzles were connected to the valve assembly to facilitate the test.

The valve assembly was installed on a production test bench and the standard test protocol was completed. The valve assembly performed within specifications for a production unit at fuel flow rates of 100 lbs/hr, and 150 lbs/hr. However, at a fuel flow rate of 50 lbs/hr, the fuel pressure was 5.922 psi. The specification allowed 5.100 psi maximum. No other anomalies, including any external leakage, were observed.

4.0 Fuel Flow Transducer

J.P. Instruments - Part No. 700900-1

The fuel flow transducer was previously removed from the engine and received as a component. The assembly appeared undamaged. To facilitate testing of the fuel flow transducer, the fuel pump was installed on the analytical department test bench. Fuel pressure and flow rate through the pump, without the transducer installed, were 34.06 psi and 150.3 lbs/hr, respectively.

The transducer was subsequently connected to the fuel pump outlet. The fuel pressure and flow rate through the transducer were 32.75 psi and 145.2 lbs/hr, respectively. No external leaks were observed. The unit was not disassembled or examined further.

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