



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

March 12, 2021

AIRFRAME EXAMINATION

WPR20LA311

A. ACCIDENT

Location:	Stockton, California
Date:	September 19, 2020
Aircraft:	North American, B25N, N7946C
NTSB Investigator-in-Charge:	Joshua Cawthra

B. Participants

Joshua Cawthra
Senior Aviation Accident Investigator
National Transportation Safety Board
Federal Way, Washington

Eric M. Gutierrez
Air Safety Investigator
National Transportation Safety Board
Federal Way, Washington

Matthew DeSeelhorst
Principal Avionics Inspector
Federal Aviation Administration
Oakland, California

C. Airframe Examination

Examination of the recovered aircraft revealed that it was partially disassembled to facilitate recovery. Both left and right engines were separated and exhibited varying degrees of impact damage. The carburetors for both engines exhibited impact damage, which prevented functional testing of either carburetor and the ability to determine fuel flow settings. The center section of the fuselage, which contained all four fuel tanks was intact and relatively undamaged. Both left and right auxiliary fuel tanks were punctured and had impact damage. Additionally, the auxiliary fuel tanks were not plumbed as an active part of the fuel system.

Using an ohm meter, connection continuity was established from the fuselage circuit breaker panel to both main forward and main rear fuel gauges.

Both main forward and main rear fuel gauges were removed from the instrument panel and connected to their respective center section wiring in addition to external power. After visually confirming all fuel tanks were empty, a digital liquid flow meter was attached to a water hose and each fuel tank was filled with water in various increments. Water levels at the bottom and

top of the fuel outlet port for the forward and aft wing tanks were measured and captured in the below table:

Fuel Tank	Bottom of Pickup Port	Top of Pickup Port
Left Forward	1.1 gallons	14.3 gallons
Left Aft	1.5 gallons	7 gallons
Right Forward	1.5 gallons	14.3 gallons
Right Aft	1.2 gallons	7 gallons

Fuel gauge indications at various levels of water were captured in the tables below.

Left Forward Fuel Tank		
Fuel Gage indicated fuel	Water in fuel tank (gallons)	Stick indications
60	0	
60	25	
60	40	
62	65	
70	71.5	
78	80	Just below 100
81	90	1/2 way between 100 and 120
90	100.9	
100	110	
110	118.7	
112	120.2	About 1 in. over 120
120	131	
140	146.5	
150	157	
160	162	
184	178	
Total water in tank 181 gallons		

Right Forward Fuel Tank		
Fuel Gage indicated fuel	Water in fuel tank (gallons)	Stick indications
53	0	
60	28	
65	40	
66	42	Just below 80
71	53.7	
80	68.1	
88	84	
90	90	1/4 inch below 120

100	100	
110	108	
120	120.7	
125	125	1/4 inch below 140
130	129.7	
140	148.1	
150	157.7	
160	168.1	
170	181	
Total water in tank 181 gallons		

Left Rear Fuel Tank		
Fuel Gage indicated fuel	Water in fuel tank (gallons)	Stick indications
0	13.5	
10	24.8	
20	39.6	
30	53.3	
40	61.7	
50	72.8	
60	81.4	
70	91.7	
80	109.2	
92	120.8	
110	133.7	
52	140	
120	143.8	
52	150	
52	152	
Total water in tank 152 gallons		

Right Rear Fuel Tank		
Fuel Gage indicated fuel	Water in fuel tank (gallons)	Stick indications
20	18	
30	22.2	
40	28.4	
50	42.5	1 inch over 60
60	48	
70	59.6	
80	69.8	
100	84	

110	91.9	
120	102.5	
130	111	
140	120.5	
151	135.9	
Total water in tank 154.4 gallons		

When all four fuel tanks were full of water, no leaks were observed throughout the fuel system.

Submitted by: Joshua Cawthra