Aviation Investigation Final Report

Location:	Huntington Beach, California	**Accident Number:**	WPR22LA268
Date & Time:	July 22, 2022, 13:30 Local	**Registration:**	N3666K
Aircraft:	Piper J3C-65	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Banner tow		

Analysis

The pilot departed the airport on a banner towing operation that would follow the Pacific Ocean shoreline. The airplane carried 36 gallons of fuel in 2 18-gallon fuel tanks and towed a banner. His flight profile was 500 ft agl and about 2,000 ft offshore. The pilot began the flight with the fuel tank selector in the left-tank position. After about 16 minutes of flight, the pilot switched to the right tank and the fuel tank selector remained in the right-tank position for about 2 hours 36 minutes. The pilot reported that shortly after he switched back to the left tank the engine sustained a total loss of power. With little altitude to recover, he elected to land in the water, near the shoreline; the wings and fuselage were substantially damaged in the landing.

On-scene examination of the airplane after recovery from the water revealed that there was no fuel in the right tank. A postaccident examination of the airplane and engine revealed saltwater corrosion on some engine components, but no mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Carburetor ice conditions were calculated to be serious, but only at glide power, which was not the conditions at the time of the total loss of power. Fuel samples taken at the airport's fuel pump and from the airplane tanks revealed no contamination. A review of maintenance records for the airplane revealed no outstanding anomalies.

Given that the pilot had the right tank selected for about 2 hours 36 minutes, the fuel burn rate was less than estimated by the pilot; however, the discovery that there was no fuel remaining in the right tank and no breaches of the right tank, it is likely the right tank ran empty before the pilot switched to the left tank.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

A total loss of engine power due to fuel starvation and the pilot's mismanagement of the available fuel at an altitude too low for recovery. Contributing was the pilot's delayed decision to switch fuel tanks.

Findings

Aircraft	Fuel - Fluid level
Personnel issues	Decision making/judgment - Pilot
Aircraft	Fuel selector/shutoff valve - Incorrect use/operation

Factual Information

History of Flight

Maneuvering-low-alt flying	Fuel starvation (Defining event)
Landing-flare/touchdown	Ditching

On July 22, 2022, about 1330 Pacific daylight time, a Piper J3C-65 airplane, N3666K, was substantially damaged when it was involved in and accident near Huntington Beach, California. The pilot received minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 banner towing flight.

The pilot reported that he departed Compton-Woodley Airport (CPM) Compton, California, and headed west towards the shoreline. He passed the Interstate 91 (I-91) and Interstate 110 (I-110) intersection where he switched to the right fuel tank. He then proceeded to Zuma Beach. Upon reaching Zuma Beach, he reversed his course and proceeded toward Laguna Beach. While somewhere between Long Beach and Los Alamitos, he switched back to the left fuel tank. After he passed the Huntington Beach pier, the engine lost all power. He turned toward the beach but elected to land in the water, which resulted in substantial damage to the wings and fuselage. The pilot egressed the airplane unassisted.

Automatic dependent surveillance-broadcast (ADS-B) data provided by the Federal Aviation Administration (FAA) was consistent with the pilot's description of the flight route. The ADS-B data also revealed the airplane began its takeoff roll about 10:46 and proceeded westbound towards the ocean shoreline at an altitude of about 1,200 ft mean sea level (msl). The airplane crossed the I-91/I-110 intersection about 10:54. The airplane arrived over the shoreline at 11:02, turned right, and proceeded to follow the shoreline north, while about 2,000 ft offshore. The airplane descended to about 500 ft msl and remained at that altitude for the remainder of the flight. About 11:45, while near Zuma Beach, the airplane turned 180° and followed the shoreline south. The airplane made a 3.5-nautical-mile orbit near Malibu Beach then continued southbound. The airplane arrived near the Huntington Beach pier at 13:28. While about 1 mile south of the pier, at 1330:10, the airplane began a descent and turned left toward the shoreline. The last data point captured the airplane about 1.25 miles south of the pier at 1330:33 and 0 ft mean sea level. The time of the flight, from the time that the airplane crossed the I-91/I-110 intersection to the beginning of the descent was about 2 hours 36 minutes.

Multiple witnesses, located on the beach, reported that the airplane began a rapid descent, with no indication that the engine was running or that the airplane had lost control. The airplane struck the water nose first and came to rest upright. The pilot was able to egress the

airplane unassisted. On-scene examination of the airplane revealed no fuel was found in the right fuel tank, and no fuel was leaking after the airplane was brought out of the water.

A video, courtesy of a local news agency, revealed an airplane, towing a banner, as it descended to the water. (See figure 1.) The airplane impacted nose-first and came to rest with the fuselage submerged and the wings floating on the water. According to the operator, the banner was 40 ft by 80 ft and weighed about 55 to 60 pounds.

Figure 1. Image captured from a video showing the accident airplane as it descended to the water. Photo courtesy of KESQ.

Postaccident examination of the airplane, immediately after the accident, revealed samples of fuel from the airplane's gascolator and left fuel tank were clear with no debris. There was no fuel present in the right tank and no evidence of fuel escaping from the engine or internal systems.

A follow-up examination revealed the engine remained secured to the engine mounts. There was the presence of saltwater inside the engine. About one quart of oil remained in the engine case. There was no evidence of metal debris in the oil pan strainer, and no signs of overheated bearings. There were no signs of damage to the intake runners or exhaust stacks.

The crankshaft rotated freely after the cylinders were removed. Sand and saltwater corrosion were present in all cylinders, but there were no signs of damage to any cylinder or valvetrain components. Both magnetos exhibited signs of saltwater corrosion. All ignition leads produced a spark after the points were removed and cleaned. The fuel strainer contained fuel with no signs of sand or saltwater. The carburetor accelerator pump functioned normally and expelled fuel. Air pressure was applied to the carburetor and the fuel venturi was observed to

operate normally. The wings and rudder were substantially damaged after contact with the water and recovery efforts. The fuel tanks remained intact. No mechanical malfunctions or failures of the engine or airframe were found that would have precluded normal operation.

According to the pilot's operating handbook, the airplane was equipped with a Van Wagner fuel system, which included 2 18-gallon fuel tanks with a 2-quart header tank for each fuel tank. A fuel selector/shut-off valve was located near the front seat. The fuel consumption at performance cruise (75% rated power) was listed as 10.0 gallons per hour, and the fuel consumption rate at economy cruise (65% rated power) was listed as 8.8 gallons per hour. According to the operator, he spoke with the pilot after the accident who indicated to him that he had calculated a fuel burn rate of about 7.4 to 7.6 gallons per hour.

According to the FAA, the CPM airport manager collected a fuel sample [from the airport pump]. A visual inspection of the fuel revealed no signs of contamination. The airport manager reported that the accident pilot requested fuel for the operator's fleet including N3666K. The person who refueled the airplane reported that the accident airplane could only bear 0.6 gallons, because the tanks were nearly full.

Weather conditions recorded at the John Wayne/Orange County Airport, located about 8 miles northeast of the accident site, at 1353 reported temperature 79° F and a dew point temperature of 61° F. According to the FAA Special Airworthiness Information Bulletin (SAIB), titled Carburetor Icing Prevention, the temperature and dew point were conducive to the formation of serious icing at glide power.

Pilot Information

Certificate:	Commercial	**Age:**	27,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	August 3, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	August 3, 2022
Flight Time:	870 hours (Total, all aircraft), 97.8 hours (Total, this make and model), 749.1 hours (Pilot In Command, all aircraft), 137.5 hours (Last 90 days, all aircraft), 61.8 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N3666K
Model/Series:	J3C-65	**Aircraft Category:**	Airplane
Year of Manufacture:	1946	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	22356
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	June 11, 2022 100 hour	**Certified Max Gross Wt.:**	1300 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	10965.6 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Not installed	**Engine Model/Series:**	O-320 SERIES
Registered Owner:	VAN WAGNER AERIAL MEDIA LLC	**Rated Power:**	160 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	Certificate of authorization or waiver (COA)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSNA,55 ft msl	**Distance from Accident Site:**	7 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	81°
Lowest Cloud Condition:	Clear / 0 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	190°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.86 inches Hg	**Temperature/Dew Point:**	26°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Compton, CA (CPM)	**Type of Flight Plan Filed:**	None
Destination:	Compton, CA (CPM)	**Type of Clearance:**	None
Departure Time:	12:45 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	33.661747,-118.011(est)

Administrative Information

Investigator In Charge (IIC):	Salazar, Fabian
Additional Participating Persons:	Marcus Giordano; Federal Aviation Administration; Long Beach, CA
Original Publish Date:	May 2, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=105571