



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Ewell, MD	<b>Accident Number:</b>	ERA12FA002
<b>Date &amp; Time:</b>	10/02/2011, 1513 EDT	<b>Registration:</b>	N3825K
<b>Aircraft:</b>	TEMCO GC-1B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel starvation	<b>Injuries:</b>	1 Fatal, 1 Serious
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The pilot made an uneventful 45-minute cross country flight from his home airport to the destination airport. About 10 minutes into the return flight, the airplane was cruising over water at 2,000 feet mean sea level when it experienced a total loss of engine power. The pilot attempted to glide to an island and performed emergency procedures; however, he did not verify the position of the fuel tank selector. The airplane glided about 2 miles before ditching in the water. The airplane was equipped with main and auxiliary fuel tanks that held 26 and 9 gallons of fuel, respectively, and the engine burned about 9 gallons of fuel per hour; the pilot reported that both tanks were full when he departed from his home airport. The pilot further reported that, if he had accidentally left the fuel selector positioned to the auxiliary fuel tank prior to departing his home airport, he would have had just enough fuel to fly the outbound leg, begin the return leg, and lose engine power where he did. When the airplane was recovered, the fuel selector was found positioned to the auxiliary fuel tank. Examination of the wreckage did not reveal any preimpact mechanical malfunctions. In the pilot's operating handbook for the airplane, the procedure for an engine failure during flight stated that, for airplanes equipped with an auxiliary fuel tank, the pilot should ascertain that the fuel selector valve is on a tank containing fuel.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper fuel management in that he did not verify the fuel selector position before beginning the flight or after the power loss, which resulted in a total loss of engine power due to fuel starvation and subsequent ditching.

## Findings

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<b>Aircraft</b>	Fuel selector/shutoff valve - Incorrect use/operation (Cause)
<b>Personnel issues</b>	Fuel planning - Pilot (Cause) Use of equip/system - Pilot (Cause)

## Factual Information

### HISTORY OF FLIGHT

On October 2, 2011, at 1513 eastern daylight time, a Temco GC-1B (Swift), N3825K, operated by a private individual, was substantially damaged during a ditching in the Chesapeake Bay, near Ewell, Maryland. The certificated airline transport pilot received serious injuries and the passenger was fatally injured. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the planned flight to Washington Executive Airport (W32), Clinton, Maryland. The flight originated from Tangier Island Airport (TGI), Tangier, Virginia, about 1500.

During a subsequent telephone interview with a Federal Aviation Administration (FAA) inspector, the pilot stated that prior that day, he flew uneventfully from W32 to TGI. During the return flight, the airplane was cruising at 2,000 feet mean sea level to remain below an overcast cloud layer at 2,200 feet. About 10 minutes after departure, while flying over water, the airplane experienced a total loss of engine power. At that time, the pilot was in radio contact with air traffic control, and advised of his emergency. The controller acknowledged the transmission and provided a vector to the nearest land, which was Smith Island, Maryland, about 6 miles east of the airplane. While gliding toward the island, the pilot performed emergency procedures, which included activating the carburetor heat, checking the magnetos, activating the fuel boost pump, and positioning the mixture to rich. The pilot did not mention switching the fuel tank selector position as part of the procedure. He remarked that if he had accidentally left the fuel selector positioned to "Aux," prior to departing W32, he would have had just enough fuel to fly from W32, to TGI, and lose engine power near Smith Island.

The pilot added that his airplane did not have a good glide ratio, and estimated that he only glided about 2 miles before ditching in the water. Other airplanes and helicopters circled the area about 20 to 30 minutes after ditching; however, the pilot and passenger were wearing dark clothes and were not seen. The pilot and passenger then attempted to swim to Smith Island. The waves were high and the passenger was unable to complete the swim.

The wreckage was located on October 6, 2011, by the Maryland Department of Natural Resources. It was resting in 25 feet of water, about 2 miles west of Smith Island.

### PILOT INFORMATION

The pilot, age 48, held an airline transport pilot certificate, with a rating for airplane multiengine land. He also held a commercial pilot certificate, with a rating for airplane single-engine land. His most recent FAA second-class medical certificate was issued on December 3, 2009. The pilot reported a total flight experience of 6,800 hours; of which, 130 hours were in single-engine airplanes. Of the 130 hours, 120 hours were in the same make and model as the accident airplane. The pilot had flown the make and model accident airplane 8 hours during the 30-day period preceding the accident.

### AIRCRAFT INFORMATION

The two-seat, low-wing, retractable-gear tailwheel airplane, serial number 3514, was manufactured in 1948. It was powered by a Continental O-300, 145-horsepower engine, equipped with a fixed-pitch wooden propeller. The airplane's most recent annual inspection

was performed on March 25, 2011. At that time, the airframe had accumulated 4,470 total hours of operation and the engine had accumulated 85 hours since overhaul. The airplane flew 35 hours from the time of the last annual inspection, until the accident.

The airplane's fuel selector had three positions; "AUX," "MAIN," and "OFF." The auxiliary fuel tank held 9 gallons of fuel and the main fuel tank held 26 gallons of fuel.

#### METEOROLOGICAL INFORMATION

Patuxent River Naval Air Station (NHK), Patuxent River, Maryland, was located about 15 miles northwest of the accident site. The recorded weather at NHK, at 1452, was: wind from 250 degrees at 9 knots; visibility 10 miles in light rain; few clouds at 2,000 feet, broken ceiling at 3,600 feet, overcast ceiling at 4,400 feet; temperature 11 degrees C; dew point 8 degrees C; altimeter 29.88 inches of mercury.

#### WRECKAGE INFORMATION

The wreckage was recovered from Chesapeake Bay on November 26, 2011 and examined at a recovery facility. Underwater video recorded just prior to recovery revealed that the fuel selector was found in the "AUX" position. Additionally, the fuel selector was noted in the "AUX" position at the recovery facility. The engine had separated during recovery. The empennage had also separated and was not recovered. Both wings were intact and remained attached to the fuselage. The fuel tanks were breached and contained saltwater. The right aileron was up and the left aileron was down. The left and right flaps were partially extended. Control continuity was confirmed from the yoke to the ailerons. Rudder control continuity was confirmed from the pedals in the cockpit to the cable cuts at the point the empennage was separated. Elevator control continuity could not be confirmed due to lower fuselage impact damage.

Examination of the engine revealed that the left magneto had separated and the right magneto remained attached. One wooden propeller blade had separated about 1-foot outboard of the propeller hub and the other wooden propeller blade remained attached. The valve covers and sparkplugs were removed for examination. The sparkplug electrodes were intact with no preimpact debris noted. When the propeller was rotated by hand, camshaft, crankshaft, and valvetrain continuity were confirmed. Additionally, thumb compression was attained on all cylinders.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the passenger on October 4, 2011, by the Virginia Department of Health, Office of The Chief Medical Examiner, Norfolk, Virginia. The cause of death was noted as, "drowning; contributing, multiple blunt trauma."

#### ADDITIONAL INFORMATION

Review of the make and model engine operator's manual revealed that the average fuel burn for the engine was 9.27 gallons-per-hour during cruise flight.

Review of a pilot operating handbook for the make and model airplane revealed:

"Engine Failure During Flight

If airplane is equipped with auxiliary fuel tank, ascertain that fuel selector valve is on tank containing most fuel..."

## History of Flight

Enroute-cruise	Fuel starvation (Defining event)
Emergency descent	Ditching

## Pilot Information

<b>Certificate:</b>	Airline Transport; Commercial	<b>Age:</b>	48, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without Waivers/Limitations	<b>Last Medical Exam:</b>	12/03/2009
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	06/17/2010
<b>Flight Time:</b>	6800 hours (Total, all aircraft), 120 hours (Total, this make and model), 2400 hours (Pilot In Command, all aircraft), 60 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	TEMCO	<b>Registration:</b>	N3825K
<b>Model/Series:</b>	GC-1B	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Utility	<b>Serial Number:</b>	3514
<b>Landing Gear Type:</b>	Retractable - Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	03/25/2011, Annual	<b>Certified Max Gross Wt.:</b>	1825 lbs
<b>Time Since Last Inspection:</b>	35 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5005 Hours	<b>Engine Manufacturer:</b>	CONT MOTOR
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-300
<b>Registered Owner:</b>	ROSS LANSON C	<b>Rated Power:</b>	145 hp
<b>Operator:</b>	ROSS LANSON C	<b>Air Carrier Operating Certificate:</b>	None

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	NHK, 39 ft msl	Observation Time:	1452 EDT
Distance from Accident Site:	15 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	300°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Few / 2000 ft agl	Temperature/Dew Point:	11° C / 6° C
Lowest Ceiling:	Broken / 3600 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	9 knots, 250°	Visibility (RVR):	
Altimeter Setting:	29.88 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Light - Rain; No Obscuration		
Departure Point:	Tangier, VA (TGI)	Type of Flight Plan Filed:	None
Destination:	Clinton, MD (W32)	Type of Clearance:	VFR Flight Following
Departure Time:	1500 EDT	Type of Airspace:	

## Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 1 Serious		

## Administrative Information

Investigator In Charge (IIC):	Robert J Gretz	Adopted Date:	09/13/2012
Additional Participating Persons:	Antonio Santos; FAA/FSDO; Baltimore, MD Jason Lukasik; Continental Motors; Mobile, AL		
Publish Date:	09/13/2012		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=81959">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=81959</a>		

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