



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Refugio, TX	<b>Accident Number:</b>	CEN10LA005
<b>Date &amp; Time:</b>	10/02/2009, 1310 CDT	<b>Registration:</b>	N991PP
<b>Aircraft:</b>	BEECH A36	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel starvation	<b>Injuries:</b>	1 Minor, 2 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

During a cross-country flight the pilot tracked his fuel usage by watching the engine analyzer; however, about 180 miles from his destination airport the engine lost power and the pilot performed a forced landing, resulting in substantial damage to the airplane. During the descent the pilot unsuccessfully tried to restart the engine by switching the fuel selector between the right and left fuel tanks. An on-site examination of the airplane revealed that the airplane's left wing fuel tank contained about 2 cups of fuel and when the right wing fuel cap was removed, fuel would spill from the tank. An additional examination of the fuel selector, airframe, and an engine test run failed to reveal a preimpact anomaly that would have precluded a restart of the engine. The pilot later added that while trying to restart the engine he did not turn on the electric-driven fuel pump. Additionally, he noted that the checklist that he carried in the aircraft failed to mention the electric-driven fuel pump; however, he noted that the pilot's operating handbook (POH) did mention the electric pump.

## 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 as a result of the pilot's improper fuel management. Contributing to the accident was the pilot's failure to follow the correct engine restart checklist.

## Findings

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<b>Aircraft</b>	Fuel - Fluid management (Cause)
<b>Personnel issues</b>	Use of equip/system - Pilot (Cause) Use of checklist - Pilot (Factor)

## Factual Information

On October 2, 2009, approximately 1310 central daylight time, a single-engine, Beechcraft A-36 airplane, N991PP, was substantially damaged during a forced landing following a loss of engine power, near Refugio, Texas. The private pilot received minor injuries and the two passengers were not injured. The airplane was registered and operated by a private individual. The approximately 676 nautical-mile cross-country flight originated from the New Century AirCenter Airport (KIXD), Olathe, Kansas under visual meteorological conditions en route to the Corpus Christi International Airport (KCRP) Corpus Christi, Texas. About 180 miles from the destination airport, the pilot activated an instrument flight plan for the 14 Code of Federal Regulations Part 91 flight.

According to the pilot, he departed KIXD with the fuel tanks "topped off", and that he managed the fuel en route by using the aircraft's engine analyzer. During the flight he switched between the left and right fuel tanks and recorded how much fuel was consumed. About four hours into the flight, the engine began to "sputter and lose power". The pilot asked for, and received a heading to the nearest airport from air traffic control. During the descent, the pilot switched from the right wing fuel tank to the left wing fuel tank, and then back to the right tank. However, he was unable to get the engine to restart. Unable to make the airport, the pilot elected to conduct an emergency landing in a field near the airport. The airplane collided with a bush before impacting terrain; the airplane then slid to a stop. The pilot and passengers were able to exit the airplane unassisted. The pilot added later, that while trying to restart the engine, he did not turn on the electric driven fuel pump. Additionally, he noted the checklist that he carried in the aircraft failed to mention the electric driven fuel pump; however, he noted that the pilot's operating handbook (POH) did mention the electric pump.

The Federal Aviation Administration (FAA) Inspector, who responded to the accident site, reported that the airplane's right gear had been forced through the wing, and that the airplane sustained substantial damaged during the forced landing. He added that the airplane's left wing fuel tank contained, "2 cups of fuel" and when the fuel cap from the right wing was removed, fuel would spill from the tank.

The wreckage was transported to a secure facility near Lancaster, Texas, for further examination.

An examination was conducted by the NTSB IIC with a technical representative from Teledyne Continental Motors, on 23 October, 2009.

The engine, with 81 hours since major overhaul, remained attached to the airframe. The engine/fuselage was placed on a trailer without the wings, which had been removed for transport. A fuel can was connected to the airplane's fuel system on the right side wing root. The airplane's propeller, which had been damaged in the accident, was replaced with a test propeller. Prior to starting the engine, a visual engine inspection was conducted and no abnormalities were discovered. Additionally, to check for proper operation, the fuel selector valve was turned to the left and right positions. The engine was then started and ran for several minutes at various (idle to full) power settings. During the tests, the engine appeared to produce full power.

## History of Flight

Enroute-cruise	Fuel starvation (Defining event)
Enroute	Loss of engine power (total)
Emergency descent	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

## Pilot Information

Certificate:	Private	Age:	56, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With Waivers/Limitations	Last Medical Exam:	07/01/2009
Occupational Pilot:	No	Last Flight Review or Equivalent:	01/20/2008
Flight Time:	1142 hours (Total, all aircraft), 448 hours (Total, this make and model), 860 hours (Pilot In Command, all aircraft), 26 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	BEECH	Registration:	N991PP
Model/Series:	A36	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	E-914
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:		Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	CONT MOTOR
ELT:	Not installed	Engine Model/Series:	IO 520 SERIES
Registered Owner:	AERO MARK JM LLC	Rated Power:	285 hp
Operator:	AERO MARK JM LLC	Air Carrier Operating Certificate:	None

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	KRKP	Observation Time:	1253 CDT
Distance from Accident Site:	17 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	140°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Thin Overcast	Temperature/Dew Point:	28° C / 22° C
Lowest Ceiling:	Overcast / 12000 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	11 knots, 30°	Visibility (RVR):	
Altimeter Setting:	29.86 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration		
Departure Point:	New Century Air, KS (KIXD)	Type of Flight Plan Filed:	VFR/IFR
Destination:	Corpus Christi, TX (KCRP)	Type of Clearance:	VFR
Departure Time:		Type of Airspace:	

## Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 2 None		

## Administrative Information

Investigator In Charge (IIC):	Craig Hatch	Adopted Date:	03/03/2010
Additional Participating Persons:	Tom Fowles; FAA FSDO; San Antonio, TX Jason Lukasik; Teledyne Continental Motors; Mobile, AL		
Publish Date:	03/03/2010		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=74855">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=74855</a>		

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