Aviation Investigation Final Report

Location:	Laredo, Texas	**Accident Number:**	CEN09LA227
Date & Time:	March 21, 2009, 16:30 Local	**Registration:**	N8120R
Aircraft:	Beech A36	**Aircraft Damage:**	Substantial
Defining Event:	Fuel starvation	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

While in the traffic pattern, the fuel in the airplane's left wing tank was depleted resulting in a complete loss of engine power. The certified flight instructor (CFI) directed the non-rated passenger sitting in the left seat to position the fuel selector valve to the right tank. The CFI did not accomplish the restart checklist in accordance with the pilot's operating handbook. Engine power was not restored, and the CFI elected to perform a forced landing to an apartment parking lot. The airplane was substantially damaged during the gear-up landing. An examination of the airframe, engine, and fuel selector valve failed to reveal any pre-impact anomaly which would have precluded a restart of the engine.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The certificated flight instructor's improper fuel management resulting in an engine failure due to fuel starvation. Contributing to the accident was the flight instructor's failure to properly complete the restart checklist.

Findings

Aircraft	Fuel - Fluid management
Personnel issues	Incomplete action - Instructor/check pilot
Personnel issues	Use of checklist - Instructor/check pilot

Factual Information

History of Flight

Approach-VFR pattern downwind	Fuel starvation (Defining event)
Approach-VFR pattern downwind	Loss of engine power (total)
Emergency descent	Off-field or emergency landing
Landing	Ground collision

On March 21, 2009, approximately 1630 central daylight time, a Beech A36, N8120R, was substantially damaged during a collision with terrain and vehicles following a loss of engine power and subsequent forced landing at Laredo, Texas. The local flight departed Laredo International Airport (LRD), Laredo, Texas, approximately 1530 and remained in the traffic pattern. The airplane was owned and operated by Yvoden Inc. The certified flight instructor (CFI) sustained minor injuries and the non-rated passenger/owner received serious injuries. Visual meteorological conditions prevailed and no flight plan was filed for the Title 14 Code of Federal Regulations Part 91 personal flight.

According to the CFI, while in the traffic pattern, about 800 feet above ground level, the engine "hesitated" and the CFI directed the non-rated passenger, who was sitting in the left seat, to change the fuel selector valve to the right tank which contained an estimated 25 gallons of fuel. The engine stopped producing power and when the pilots could not restart the engine, the CFI performed a forced landing to an apartment parking lot. During the forced landing, the airplane struck two vehicles before coming to rest in the upright position. Both wings sustained multiple impacts and the engine was torn away at the firewall. Both wing fuel tanks were breeched.

An on-scene examination of the airplane by a Federal Aviation Administration (FAA) inspector failed to reveal any airframe or engine anomaly. Damage to the fuel tanks prevented a determination of fuel remaining. The airplane's fuel selector was removed and shipped to Wichita, Kansas, for an examination at Hawker Beechcraft's facilities. Testing of the fuel selector was accomplished by inspectors from the FAA and technical representatives from Hawker Beechcraft. When the acceptance test procedure was conducted, the fuel selector seeped fuel up the selector shaft when pressure was applied and the selector was in the off-position. The valve did not leak when a tank position was selected. Valve selector detents did not have a "crisp" feel, however, all detents were readily identifiable, and the selector had no obstruction to movement. When disassembled and inspected, the shaft seal was found to be intact, but the shaft was found to be worn. Despite the anomaly of seeping fuel in the "off" position when pressure was applied, the fuel selector operated normally and would have directed fuel from the selected tank to the engine.

In an interview with FAA inspectors, the pilot reported that he did not use the boost pump during the restart attempt. A review of the pilot's operating handbook (POH) revealed that the second step of the Engine Failure: After Liftoff and In Flight, is "Auxiliary Fuel Pump - ON." In addition, the non-rated passenger reported that the CFI switched the tanks several times to ensure that the fuel selector was seated in the right fuel tank detent.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	47,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	April 22, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 6, 2007
Flight Time:	3340 hours (Total, all aircraft), 19 hours (Total, this make and model), 3055 hours (Pilot In Command, all aircraft), 47 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N8120R
Model/Series:	A36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	E-583
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	August 5, 2008 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	CONT MOTOR
ELT:	C91A installed, activated, aided in locating accident	**Engine Model/Series:**	IO-550B
Registered Owner:	YVODEN INC	**Rated Power:**	300 Horsepower
Operator:	YVODEN INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LRD	**Distance from Accident Site:**	
Observation Time:	16:56 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 7000 ft AGL	**Visibility**	9 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	17 knots / 23 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	31°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Laredo, TX (LRD)	**Type of Flight Plan Filed:**	None
Destination:	Laredo, TX (LRD)	**Type of Clearance:**	None
Departure Time:	15:30 Local	**Type of Airspace:**	

Airport Information

Airport:	Laredo International LRD	**Runway Surface Type:**	Asphalt
Airport Elevation:	508 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	17L	**IFR Approach:**	None
Runway Length/Width:	7830 ft / 150 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	27.559165,-99.470832(est)

Administrative Information

Investigator In Charge (IIC):	Aguilera, Jason
Additional Participating Persons:	Robert Arispe; FAA FSDO; San Antonio, TX Paul Yoos; Hawker Beechcraft Company; Wichita, KS
Original Publish Date:	October 19, 2009
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=73535