National Transportation Safety Board
Aviation Accident Data Summary

Location:	Monroe, VA	**Accident Number:**	ERA12LA380
Date & Time:	06/02/2012, 1310 EDT	**Registration:**	N443EP
Aircraft:	PITTMAN EDDIE G CGS HAWK ARROW II	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot, who was unfamiliar with the make and model airplane, was flying the airplane to its new owner in another state. Although the pilot said he was under no time pressure, he declined the previous owner's offer of instruction in how to use the airplane's onboard engine information system (EIS). (The previous owner reported that the pilot seemed to be in a hurry to depart.) If used properly, the EIS displays fuel-related information, including endurance, fuel quantity, and fuel flow rate. Had the pilot accepted the offer, he would have learned how to navigate among the EIS screens to obtain pertinent information during the accident flight.

During preflight planning, the pilot used a fuel burn rate that was for cruise flight at 4,400 rpm but did not take into account increased fuel consumption during takeoff, climb, and cruise flight at higher power settings. The gross weight values provided by the builder (1,150 pounds) and the designer (990 pounds) differed; however, the pilot did not perform any preflight weight and balance calculations. Postaccident calculations indicated that the airplane was about 69 pounds over its design gross weight and 0.63 inch forward of the forward center of gravity limit when he started the engine. Thus, the pilot's preflight planning was inadequate.

The pilot departed with full fuel tanks, and during the climb to his planned cruise altitude of 9,500 feet mean sea level, the engine rpm was reportedly set at 4,600 rpm. He stated that to maintain level flight during cruise he had to use full aft elevator trim, maintain slight aft pressure on the control yoke, and use an engine power setting about 200 rpm more than the optimal endurance cruise power setting of 4,400 rpm, likely due to the high gross weight and forward center of gravity. About 2 hours 55 minutes into the flight, the engine lost total power. Unable to reach a nearby airport, the pilot performed a forced landing in a field. The airplane impacted upsloping terrain just below the crest of a hill. The pilot stated that with the flaps lowered to 30 degrees and full aft elevator trim and aft elevator input he could not bring the airplane's nose up to more than horizontal. Postaccident testing of the elevator control cable tension revealed no discrepancies that would have precluded normal operation; therefore, the airplane's low airspeed and forward center of gravity resulted in reduced elevator effectiveness.

Postaccident examination of the airplane revealed that the fuel tanks were not compromised during the accident and that there was no usable fuel in the tanks. No discrepancy with the engine or engine systems was reported or observed. When power was subsequently applied to the airplane's onboard EIS, it showed a fuel endurance of 0.00 hours.

Flight Events

Enroute-cruise - Fuel exhaustion
Enroute-cruise - Loss of engine power (total)
Emergency descent - Off-field or emergency landing
Landing-flare/touchdown - Hard landing

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The pilot's improper preflight planning and inflight fuel management, which resulted in the total loss of engine power due to fuel exhaustion. Contributing to the accident was the pilot's unfamiliarity with the airplane's systems.

Findings

Aircraft-Fluids/misc hardware-Fluids-Fuel-Fluid management - C
Personnel issues-Task performance-Planning/preparation-(general)-Pilot - C
Personnel issues-Experience/knowledge-Knowledge-Knowledge of equipment-Pilot - F
Environmental issues-Physical environment-Terrain-Mountainous/hilly terrain-Not specified

Pilot Information

Certificate:	Commercial	**Age:**	52
Airplane Rating(s):	Single-engine Land	**Instrument Rating(s):**	Airplane
Other Aircraft Rating(s):	None	**Instructor Rating(s):**	None
Flight Time:	258 hours (Total, all aircraft), 3 hours (Total, this make and model), 151 hours (Pilot In Command, all aircraft), 27 hours (Last 90 days, all aircraft), 22 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PITTMAN EDDIE G	**Registration:**	N443EP
Model/Series:	CGS HAWK ARROW II	**Engines:**	1 Reciprocating
Operator:	John Rasmus	**Engine Manufacturer:**	HIRTH
Air Carrier Operating Certificate:	None	**Engine Model/Series:**	F30
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	LYH, 938 ft msl	**Weather Information Source:**	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	**Lowest Ceiling:**	None
Condition of Light:	Day	**Wind Speed/Gusts, Direction:**	5 knots, Variable
Temperature:	19°C / 6°C	**Visibility**	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lancaster, SC (LKR)	**Destination:**	New Market, VA (8W2)

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Timothy W Monville	**Adopted Date:**	06/12/2013
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=83852		

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