Aviation Investigation Final Report

Location:	FOLEY, Minnesota	**Accident Number:**	CHI94LA144
Date & Time:	May 1, 1994, 20:20 Local	**Registration:**	N4104D
Aircraft:	Helio H-800	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE PILOT-IN-COMMAND HAD FLOWN APPROXIMATELY 2.3 HOURS AFTER HIS INITIAL DEPARTURE WITH 45 GALLONS OF FUEL IN THE AMPHIBIOUS FLOAT EQUIPPED AIRPLANE. HIS ESTIMATION OF FUEL CONSUMPTION WAS 39 GALLONS PER HOUR (GPH) AT TAKEOFF POWER AND 23 GPH AT CRUISE. SEVERAL TOUCH AND GO LANDINGS WERE PERFORMED DURING THE FLIGHT. WHILE IN CRUISE FLIGHT A TOTAL LOSS OF ENGINE POWER OCCURRED AND A FORCED LANDING WAS MADE ON A GRAVEL ROAD. DURING LANDING, THE FLOAT NOSE WHEELS DUG INTO SOFT GRAVEL AND THE AIRPLANE FLIPPED OVER. POST CRASH INVESTIGATION REVEALED NO ENGINE ANOMOLIES, NO EVIDENCE OF FUEL IN THE TANKS, NOR ANY INDICATION OF FUEL SPILLAGE ON THE GROUND. THE PILOT STATED HE BELIEVED HE EXHAUSTED HIS FUEL SUPPLY.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT-IN-COMMAND'S FAILURE TO PERFORM ACCURATE FUEL CONSUMPTION CALCULATIONS. A FACTOR WAS THE SOFT GRAVEL ROAD LANDING AREA.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: CRUISE

Findings

1. FLUID,FUEL - EXHAUSTION
2. (C) FUEL CONSUMPTION CALCULATIONS - INACCURATE - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: NOSE OVER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
3. (F) AIRPORT FACILITIES,RUNWAY/LANDING AREA CONDITION - LOOSE GRAVEL/SANDY

Factual Information

On May 1, 1994, at 2020 hours central daylight time, an amphibian Helio H-800, N4104D, operated by T. J. Farms of St. Cloud, Minnesota, was substantially damaged 10 miles northeast of St. Cloud Municipal Airport, St. Cloud, Minnesota. The pilot experienced a total loss of engine power and made a forced landing on a gravel road. The amphibious float equipped airplane went over an embankment, dragged a float tip in soft gravel, and came to a stop upside down. The private pilot was uninjured. Visual meteorological conditions existed at the time of the accident and winds were calm. The flight originated at Princeton Municipal Airport, Princeton, Minnesota, at 2015 hours central standard time to reposition the airplane to a private strip at Long Lake, southeast of St. Cloud, Minnesota. No flight plan was filed.

Installation of amphibious floats had just been completed on the airplane. The pilot stated he had departed Cambridge Municipal Airport, Cambridge, Minnesota, 2.3 tachometer hours earlier with an estimated 45 gallons of fuel, performed touch and go landings, and was on his final leg of this flight. The pilot also stated he believes he exhausted his fuel supply. The fuel consumption of the Lycoming IO-720A engine installed on the H-800 is 33 gallons per hour (gph) at takeoff rated power and 23 gph at 75% cruise power as per Lycoming data. This was confirmed by the pilot and FAA inspector on scene. Post crash investigation revealed no fuel in the tanks, nor any indication of fuel spillage on the ground below the wreckage.

Pilot Information

Certificate:	Private	**Age:**	39,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 6, 1993
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	446 hours (Total, all aircraft), 74 hours (Total, this make and model), 25 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Helio	**Registration:**	N4104D
Model/Series:	H-800 H-800	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	H-17
Landing Gear Type:	Amphibian	**Seats:**	4
Date/Type of Last Inspection:	October 29, 1993 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:	30 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	886 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-720 A/B
Registered Owner:	T. J. FARMS, LTD.	**Rated Power:**	400 Horsepower
Operator:	THOMAS J. HAMMER	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	STC ,1024 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	20:51 Local	**Direction from Accident Site:**	250°
Lowest Cloud Condition:	Scattered / 8000 ft AGL	**Visibility**	15 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	5°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	PRINCETON , MN (PNM)	**Type of Flight Plan Filed:**	None
Destination:	LONG LAKE , MN	**Type of Clearance:**	None
Departure Time:	20:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	45.660701,-93.899124(est)

Administrative Information

Investigator In Charge (IIC):	Thomas, Matthew
Additional Participating Persons:	O. T FRAMPTON; MINNEAPOLIS , MN
Original Publish Date:	December 7, 1994
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=9515