National Transportation Safety Board
Aviation Accident Final Report

Location:	Fruitport, MI	**Accident Number:**	CHI07LA126
Date & Time:	05/01/2007, 1715 EDT	**Registration:**	N1120B
Aircraft:	Luscombe 8A	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

During the climb out the engine lost power. The CFI lowered the nose to establish a glide speed of about 65-70 mph and executed a

forced landing to a field. He applied carburetor heat, switched magnetos, and pumped the throttle but with no effect. The CFI saw power

line wires and tried to avoid them by going under the wires, but the airplane's right wing hit a power line pole. The airplane rotated

to the right and landed in the ditch next to a road. The engine was put on an engine test stand and the engine run revealed that it met

operational specifications. The temperature was 16 degrees Celsius and the dew point was 12 degrees Celsius. The mechanic who conducted the airplane's annual inspection five months earlier and who received dual instruction in the airplane before the accident flight stated that he encountered carburetor icing while taxiing and while in cruise flight. A review of two Luscombe owners' handbooks from the late 1940s and early 1950s found guidance recommending full carburetor heat for takeoffs and landings. A placard located next to the carburetor heat lever on the instrument panel stated the following: "Full Carburetor Air Heat Required for Takeoff and Landing." Although originally intended to correct fuel flow problems in early model 8As (during takeoffs with high pitch attitudes), the placard comports with Luscombe 8A owners and pilot operating manual guidance on carburetor icing avoidance. The certificated flight instructor reported that he had not applied carburetor heat until the engine lost power after takeoff.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor failed to use carburetor heat during takeoff in icing conditions. A factor was the power line pole.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) CARBURETOR HEAT - NOT USED - PILOT IN COMMAND(CFI)
2. WEATHER CONDITION - CARBURETOR ICING CONDITIONS

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

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. (F) OBJECT - UTILITY POLE

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - DITCH

Factual Information

On May 1, 2007, about 1715 eastern daylight time, a Luscombe 8A, N1120B, was substantially damaged during a forced landing to a field following a loss of engine power during take off from the Flying-A-Ranch Airport (39Z), Fruitport, Michigan. The certificated flight instructor (CFI) and dual student received serious injuries. The 14 Code of Federal Regulations Part 91 instructional flight departed 39Z about 1715 for a local flight. Visual meteorological conditions prevailed at the time of the accident. No flight plan was filed.

The CFI reported he had flown the airplane for about 45 minutes with another pilot and had shut the airplane down in order to switch pilots. Prior to takeoff on the accident flight, the CFI got in the left seat and the dual student pilot got in the right seat. According to the CFI, the main body fuel tank had just less than 3/4 of a tank of fuel [10.5 gallons] and the wing tank had 6-7 gallons of fuel. The CFI taxied the airplane for takeoff, and after the engine run-up was completed, departed from runway 9. During the climb out the engine lost power. The CFI lowered the nose to establish a glide speed about 65 - 70 mph, and executed a forced landing to a blueberry field. He applied carburetor heat, switched magnetos, and pumped the throttle but with no effect. The CFI saw power line wires and tried to avoid them by going under the wires, but the airplane's right wing hit a power line pole. The airplane rotated to the right and landed in the ditch next to a road. The CFI was able to crawl out of the wreckage, but rescue personnel extracted the dual student from the airplane.

The engine was shipped to Teledyne Continental Motors (TCM) in Mobile, Alabama, for inspection. The engine was put on an engine test stand and an engine run was conducted. The engine run revealed that the engine met TCM operational specifications.

The maximum gross weight of the airplane was 1,260 pounds. The empty weight of the airplane was about 736 pounds. The weight of the pilot was about 255 pounds, and the weight of the dual student was about 220 pounds.

The 1655 surface weather observation at the Muskegon County Airport (MKG), Muskegon, Michigan, located 6 miles northwest of 39Z, indicated that the temperature was 16 degrees Celsius and the dew point was 12 degrees Celsius.

The Transport Canada carburetor-icing chart indicated "Serious icing - any power" with a temperature of 16 degrees Celsius and a dew point of 12 degrees Celsius.

The mechanic who conducted the airplane's annual inspection five months earlier and who received dual instruction in the airplane before the accident flight stated that he encountered carburetor icing while taxiing and while in cruise flight. A placard located next to the carburetor heat lever on the instrument panel stated the following: "Full Carburetor Air Heat Required for Takeoff and Landing." The placard was originally intended to correct fuel flow problems in early model 8As with single fuselage fuel tanks (during takeoffs with high pitch attitudes). A review of two Luscombe owners handbooks from the late 1940s and early 1950s found guidance recommending full carburetor heat for takeoffs and landings for all Luscombe models to prevent engine power loss caused by carburetor ice.

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	**Age:**	30, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without Waivers/Limitations	**Last Medical Exam:**	04/01/2007
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	06/01/2005
Flight Time:	2560 hours (Total, all aircraft), 8 hours (Total, this make and model), 2380 hours (Pilot In Command, all aircraft), 51 hours (Last 90 days, all aircraft), 35 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Student Pilot Information

Certificate:	Private	**Age:**	50, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 None	**Last Medical Exam:**	03/01/2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	06/01/2005
Flight Time:	400 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Luscombe	**Registration:**	N1120B
Model/Series:	8A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	5747
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	12/01/2006, Annual	**Certified Max Gross Wt.:**	1260 lbs
Time Since Last Inspection:	0.8 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	1671 Hours	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	A & C 65
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	MKG, 628 ft msl	**Observation Time:**	1755 EDT
Distance from Accident Site:	6 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	315°	**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Few / 4000 ft agl	**Temperature/Dew Point:**	17°C / 12°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 30°	**Visibility (RVR):**	
Altimeter Setting:	29.81 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fruitport, MI (39Z)	**Type of Flight Plan Filed:**	Unknown
Destination:		**Type of Clearance:**	None
Departure Time:	1715 EDT	**Type of Airspace:**	

Airport Information

Airport:	Flying-a-Ranch (39Z)	**Runway Surface Type:**	Grass/turf
Airport Elevation:	630 ft	**Runway Surface Condition:**	Soft
Runway Used:	9	**IFR Approach:**	None
Runway Length/Width:	1925 ft / 70 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	James Silliman	**Adopted Date:**	02/28/2008
Additional Participating Persons:	John M Parrish; Grand Rapids FSDO; Grand Rapids, MI		
Publish Date:	10/28/2011		
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		