Aviation Investigation Final Report

Location:	NEOSHO, Missouri	**Accident Number:**	CHI00LA224
Date & Time:	July 26, 2000, 17:50 Local	**Registration:**	N811WS
Aircraft:	Bohner PITTS MODEL 12	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation		

Analysis

The experimental airplane impacted terrain and objects during a forced landing following an in flight loss of engine power. The pilot and passenger sustained minor injuries. The pilot stated, "I add a small amount of power when the engine quit, a large bang, not mechanical but carbaroter [carburetor] or fuel related, like a backfire, and no power - the engine poped several times. I changed the throttle settings several times, turned on the fuel boost pump [and] the fuel injector. No help. Turned to the right to a hay field, tried to miss the 2,000 lb hay rolls, no place to land-jumped the fence at the end-came down on the tailwheel first then on the main gear-got the prop first on the ground, then hit the hay roll. Hit the right side of engine and right wings. The aircraft nosed over and slid on the engine for approx 20ft. then over on its back." The spark plugs exhibited a dark black color. The temperature and dew point plot on a Transport Canada Carburetor Icing chart intersected in the serious icing-descent power range. The pilot stated, "I found out after the fact that the engine has a tendency to flood out. ... There is a carburetor mod for the engine which we put on the next a/c we built and it, the engine, Vedeneyev M14PF, has ran without any problems now for 40 hrs. Conclusions: The engines and carburetors need to be checked and tuned for our fuels here in the US. Check for the carburetor mods that are out there and talk to someone who has one and is flying one now to learn its secrets."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The unsuitable terrain the pilot selected during his emergency landing. Factors were the hay rolls and the loss of engine power for undetermined reasons.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: MANEUVERING

Findings
1. WEATHER CONDITION - CARBURETOR ICING CONDITIONS
2. (F) REASON FOR OCCURRENCE UNDETERMINED
3. FUEL SYSTEM,CARBURETOR - NOT MODIFIED

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

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
4. (C) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - SELECTED - PILOT IN COMMAND

Occurrence #4: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
5. (F) OBJECT - OTHER

Occurrence #5: NOSE OVER
Phase of Operation: EMERGENCY LANDING

Factual Information

On July 26, 2000, at 1750 central daylight time, a Bohner Pitts Model 12, N811WS, piloted by an airline transport pilot, sustained substantial damage on impact with terrain and objects during a forced landing to a field following an in flight loss of engine power near Neosho, Missouri. The purpose of the flight was that airplane's flight test. The flight was operating under 14 CFR Part 91. Visual meteorological conditions prevailed during the flight. No flight plan was on file. The pilot and passenger sustained minor injuries. The local flight originated from Neosho-Hugh Robinson Airport, near Neosho, Missouri, at 1700 and was maneuvering in the traffic pattern at the time of the accident.

The pilot stated, "Second flight on N811WS checking systems, flight controls, [and] controls in front cockpit all OK. (first flight day before - all went well-) After TO/climbed to 7000 ft. for flight check-steep turns, stall power off-54mph, stall power on approx 50mph, both stalls very light, straight ahead very little rudder, slow flight approx 80mph, after 45min we returned to the airport (EOS) power on decent to the traffic pattern approx 800 ft agl, 180mph straight [and] level no trim problems starting the left cross wind turn[.] I add a small amount of power when the engine quit, a large bang, not mechanical but carbaroter [carburetor] or fuel related, like a backfire, and no power - the engine poped several times. I changed the throttle settings several times, turned on the fuel boost pump [and] the fuel injector. No help. Turned to the right to a hay field, tried to miss the 2,000 lb hay rolls, no place to land-jumped the fence at the end-came down on the tailwheel first then on the main gear-got the prop first on the ground, then hit the hay roll. Hit the right side of engine and right wings. The aircraft nosed over and slid on the engine for approx 20ft. then over on its back. The field was flat with 2 fences across it. No place to land inbetween hay rolls."

A Federal Aviation Administration (FAA) inspector examined the airplane wreckage. He stated, "Several spark plugs were pulled, marked and examined visually. There was no sign of over heating on the spark plugs that were removed. Some spark plugs were gapped different than others as noted in the pictures. ... The engine compression check was found to be satisfactory. ... Ignition was not checked."

The photographic film taken during the examination was developed and reviewed. The photographed spark plugs exhibited a dark black color. See appended photographs.

At 1753, the Joplin Regional Airport, near Joplin, Missouri, weather was: Wind 160 degrees at 8 knots; visibility 10 statute miles; sky condition clear; temperature 31 degrees C; dew point 21 degrees C; altimeter 29.99 inches of mercury.

A copy of a Transport Canada Carburetor Icing chart was reviewed. The temperature and dew point were plotted on the icing chart and their intersection is located in the serious icing-

descent power range.

On an additional statement, the pilot stated, "I found out after the fact that the engine has a tendency to flood out. Run too rich on fuel. The accelerator pump, pumps too much fuel. The FAA looked at the engine and said that there was fuel in the carburetor and black residue in the cylinders. Too much fuel. There is a carburetor mod for the engine which we put on the next a/c we built and it, the engine, Vedeneyev M14PF, has ran without any problems now for 40 hrs. Conclusions: The engines and carburetors need to be checked and tuned for our fuels here in the US. Check for the carburetor mods that are out there and talk to someone who has one and is flying one now to learn its secrets."

The airplane's operation limitations, as issued by the FAA, stated, "During the flight testing phase, no person may be carried in this aircraft during flight unless that person is essential to the purpose of the flight test."

Pilot Information

Certificate:	Airline transport	**Age:**	50,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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	October 12, 2000
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	21284 hours (Total, all aircraft), 150 hours (Total, this make and model), 20186 hours (Pilot In Command, all aircraft), 130 hours (Last 90 days, all aircraft), 86 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bohner	**Registration:**	N811WS
Model/Series:	PITTS MODEL 12 PITTS MODE	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	123
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	2250 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Vendeneyev
ELT:	Not installed	**Engine Model/Series:**	M-14P
Registered Owner:	PHILLIP W. BOHNER	**Rated Power:**	360 Horsepower
Operator:		**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:	JLN ,981 ft msl	**Distance from Accident Site:**	19 Nautical Miles
Observation Time:	17:53 Local	**Direction from Accident Site:**	345°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	88°C / 70°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	, MO (EOS)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	17:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	NEOSHO-HUGH ROBINSON ARPT EOS	**Runway Surface Type:**	Asphalt
Airport Elevation:	1255 ft msl	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	36.840141,-94.370979(est)

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	RICHARD W CARLSON; KANSAS CITY , MO
Original Publish Date:	January 2, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49832