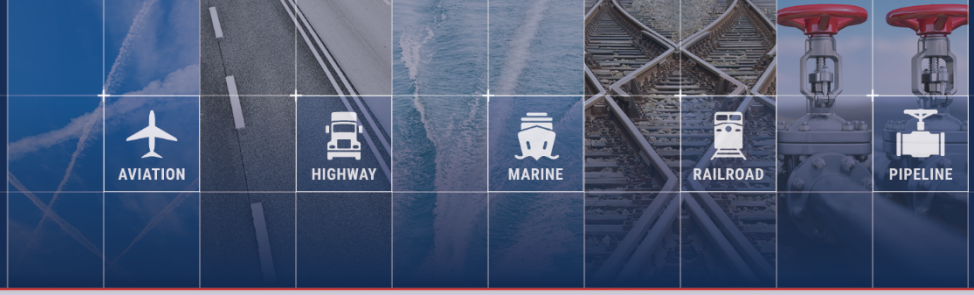

Aviation Investigation Final Report

Location:	RICHMOND, Virginia	**Accident Number:**	IAD00LA014
Date & Time:	December 26, 1999, 15:14 Local	**Registration:**	N242JP
Aircraft:	Prudhomme VELOCITY RG 173	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor, 2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that 2 to 3 minutes after takeoff, the cockpit filled with thick smoke that smelled of burning oil, and the engine oil temperature registered above the upper limit. The pilot turned the airplane back for the departure airport and configured the airplane for landing. No corresponding increase in thrust was realized from increased engine power and propeller rpm adjustments, so the landing gear was raised in an attempt to extend glide performance. The airport could not be reached, and the pilot performed an off-airport landing. Inspection of the airplane's engine revealed an open threaded hole on the right side of the prop governor drive adapter. Further investigation revealed a 90 degree fitting attached to a hose laying on the bottom of the cowling. Visual and tactile inspections of the governor drive adapter housing revealed that threads were still present, but were damaged. The 90 degree fitting was made of steel, and the governor drive adapter of soft aluminum. An FAA airworthiness inspector stated that with the propeller governor oil line disconnected, the oil supply would pump overboard and the pilot would lose all control of propeller rpm.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the improper installation of the oil supply line to the propeller governor which resulted in a loss of lubrication, overtemperature, and a loss of engine power.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: CLIMB - TO CRUISE

Findings
1. (C) LUBRICATING SYSTEM,OIL LINE - DISCONNECTED
2. (C) MAINTENANCE,LUBRICATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) ENGINE ASSEMBLY - OVERTEMPERATURE

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - EMERGENCY

Factual Information

On December 26, 1999, at 1514 Eastern Standard Time, a homebuilt Velocity RG 173, N242JP, was substantially damaged during a forced landing to a highway off-ramp after departure from the Chesterfield County Airport (FCI), Richmond, Virginia. The certificated commercial pilot and one passenger were not injured. A second passenger received minor injuries. Visual meteorological conditions prevailed for the personal flight that originated at FCI, about 1510. No flight plan was filed for the flight conducted under 14 CFR Part 91.

In a written statement, the pilot said he and two colleagues were on a pleasure flight that originated at Newport News/Williamsburg International Airport, Newport News, Virginia. He said they flew to FCI, landed, and taxied back for an immediate takeoff. He said that aircraft systems, takeoff, and climbout were "normal". According to the pilot:

"Approximately 2-3 minutes after takeoff, I noticed thick smoke in the cockpit. I recognized the smell as burning oil and checked the oil temperature. The oil temperature was out of limits at 250 degrees and higher. I immediately started a turn back to the airport and informed Richmond Approach on 128.6 that I was returning to Chesterfield Airport. The altitude was approximately 2,000 [feet]. I did not declare an emergency at the time. While in the turn for Chesterfield, I immediately reduced the throttle and the RPM control for the prop, which were set for cruise climb.

"I started the descent from 2,000 [feet] and approximately 3-4 [nautical miles] from Chesterfield. The engine appeared to still be generating power. I lowered the gear when I was lined up with runway 33 and below 110 KIAS (knots indicated air speed). The gear took an abnormal amount of time to extend. I then put the prop control to full forward and started to add power to maintain 100 KIAS. As I added power, I noticed I needed to keep pushing the stick forward to maintain 100 KIAS. With full throttle and RPM, I realized that we would not make the runway and elected to raise the gear to reduce drag to extend our glide."

The airplane subsequently struck the ground, skid across the ramp pavement, and collided with a guardrail.

In a written statement, the pilot-rated passenger in the back seat provided a similar account of events. In addition, he stated that during the descent, whenever engine power was increased, "...there was no apparent increase in thrust."

In a telephone interview, the pilot reported that he had purchased the airplane 2 weeks prior to the accident and had approximately 3 hours flight experience in this make and model. He added, " I have 400 hours of flight experience in the Very EZ, so I'm very comfortable with the canard."

When questioned about the gliding characteristics of the Velocity, the pilot said:

"It may be as high as 20 to 1. If you feather the prop and raise the gear, you can glide a long way. With the gear down, you drop like a brick. With the prop full forward and the gear down, it's like a huge speed brake."

The wreckage was moved to a hanger at FCI for examination by inspectors of the Federal Aviation Administration (FAA).

Two FAA inspectors examined the wreckage on December 29, 1999. The airplane was equipped with a Lycoming IO-360 series engine. In a written statement, the airworthiness inspector described what he found using the Avco/Lycoming parts manual as a reference. He said:

"Upon removing the engine cowling, I found the right rear area of the engine covered with oil. The dipstick showed approximately 2 qts. remaining in the sump (full level is 8 qts.). There was no apparent structural damage to the engine, from internal failure, and a more detailed inspection soon revealed an open threaded hole on the right side of the prop governor drive adapter (item 11). Further investigation revealed a 90 degree fitting (item 30) attached to a hose (item 19), laying on the bottom of the cowling.

"A close examination of the fitting showed that its threads were in good condition, and that it was firmly attached to the flared end B-nut of the prop governor oil line (item 19). ...Visual and tactile inspections [of the governor drive adapter housing] revealed that threads were still present, but appeared to be damaged... Please note that the 90 degree fitting is made of steel, and the governor drive adapter of soft aluminum."

In a telephone interview, the airworthiness inspector stated that with the propeller governor oil line disconnected, the oil supply would pump overboard and the pilot would lose all control of propeller rpm.

An examination of maintenance records revealed 109 hours of engine use since a factory overhaul, and that the airplane accrued 8 hours of flight time since an annual inspection on December 12, 1999.

The pilot reported he had 2,300 hours of total flight experience.

Pilot Information

Certificate:	Commercial	**Age:**	31,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	August 31, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	2300 hours (Total, all aircraft), 3 hours (Total, this make and model), 2260 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Prudhomme	**Registration:**	N242JP
Model/Series:	VELOCITY RG 173 VELOCITY R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	DMO230
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	December 8, 1999 Annual	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:	7 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	854 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360
Registered Owner:	DAMIEN L. OLIVIERI	**Rated Power:**	200 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:	RIC ,168 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	14:54 Local	**Direction from Accident Site:**	80°
Lowest Cloud Condition:	Scattered / 15000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots / 18 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	11°C / -5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(FCI)	**Type of Flight Plan Filed:**	None
Destination:	NEWPORT NEWS , VA (PHF)	**Type of Clearance:**	None
Departure Time:	15:10 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	CHESTERFIELD COUNTY ARPT FCI	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	Dry
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor, 1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor, 2 None	**Latitude, Longitude:**	37.400028,-77.449493(est)

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	GENE ROBERTS; RICHMOND , VA THOMAS LYMAN (MSGT); LANGLEY AFB , VA
Original Publish Date:	May 17, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=48408