Aviation Investigation Final Report

Location:	GUISTINE, California	**Accident Number:**	LAX01LA045
Date & Time:	November 19, 2000, 12:00 Local	**Registration:**	N540AK
Aircraft:	COLLETTE GLASSAIR III	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane nosed over during a forced landing after the pilot encountered smoke in the cockpit. Oil was spewing onto the windshield, the engine was losing oil pressure, and smoke was filling the cockpit. The pilot made an emergency landing on an abandoned dirt strip that was about 1,400 feet long. However, the airplane overran the runway into a ravine and overturned. Maintenance that had been completed the day before the accident included an oil change and replacement of the crankshaft nose seal; a run-up had revealed no oil leaks. The engine sustained no visible damage resulting from the forced landing, and visual examination revealed no evidence of catastrophic mechanical malfunction or fire. A significant amount of engine oil emanated from the nose cowling where the engine and propeller flange protruded. The oil film proceeded aft onto the windscreen as well as the horizontal and vertical stabilizers. The spark plugs, cylinder walls, valves, and pistons exhibited no mechanical damage. Oil lines within the engine compartment were secure on their fittings. The propeller governor was secure and not leaking. The oil filter and oil filter converter plate were properly installed and secure. There were no visible contaminates in the oil filter or suction screen. The propeller was removed, but there was no evidence of oil leakage at the propeller seal. The crankshaft oil seal was out of its bore and resting on the crankshaft. One oil ring was cracked, but no compression rings were broken. There was evidence of overheating from running lean. The breather hose had been mounted over the motor mount rather than under it. In this location the hose was pinched when the cowling was installed. This plugged the breather hose and pressurized the case, forcing oil out through the front seal.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Maintenance personnel misrouted the crankcase breather hose so that it was pinched when

the cowling was installed. This pressurized the crankcase displacing the oil seal and forcing oil out of the engine. A factor was the unsuitable terrain encountered during the forced landing.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE

Findings
1. (C) ENGINE ASSEMBLY,OTHER - MISROUTED
2. (C) MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) ENGINE ASSEMBLY,OTHER - FLOW RESTRICTED
4. ENGINE ASSEMBLY,CRANKCASE - PRESSURE EXCESSIVE
5. LUBRICATING SYSTEM,OIL SEAL - DISENGAGED

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

Findings
6. EMERGENCY PROCEDURE - INITIATED - PILOT IN COMMAND

Occurrence #3: OVERRUN
Phase of Operation: LANDING - ROLL

Findings
7. TERRAIN CONDITION - GRASS
8. (F) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - ENCOUNTERED - PILOT IN COMMAND

Occurrence #4: NOSE OVER
Phase of Operation: LANDING - ROLL

Findings
9. TERRAIN CONDITION - RAVINE

Factual Information

On November 19, 2000, about 1200 Pacific standard time, a Collette Glassair III, N540AK, nosed over about 13 miles west of Guistine, California, during a forced landing after the pilot encountered smoke in the cockpit. The private pilot/owner was operating the airplane under the provisions of 14 CFR Part 91. The pilot, the sole occupant, sustained serious injuries; the airplane sustained substantial damage. The personal flight departed Guistine about 1135 en route to the Reid-Hillview Airport in San Jose, California. Visual meteorological conditions prevailed and no flight plan had been filed. The accident site was an abandoned grass strip at 31 degrees 13.73 minutes north latitude and 121 degrees 22.45 minutes west longitude.

The pilot and a friend in another airplane departed Reid-Hillview earlier in the morning and flew to Guistine. The pilot stated they refueled at Guistine and the friend was the first to depart. The accident pilot said that oil was spewing onto his windshield, he was losing oil pressure, and smoke was filling the cockpit. He made an emergency landing on an abandoned dirt strip that was about 1,400 feet long. However, the airplane overran the runway into a ravine and overturned.

The witness reversed course and saw smoke in the distance, but could not keep sight of the airplane all the way to the ground because of haze.

The pilot said a mechanic completed maintenance the day before the accident, which included an oil change and replacement of the crankshaft nose seal. A post maintenance run-up revealed no oil leaks.

A representative from Textron Lycoming examined the engine under the supervision of the Federal Aviation Administration and submitted a written report. The engine sustained no visible damage resulting from the forced landing. Visual examination revealed no evidence of catastrophic mechanical malfunction or fire. He observed a significant amount of engine oil emanating from the nose cowling where the engine and propeller flange protruded. The oil film proceeded aft onto the windscreen as well as the horizontal and vertical stabilizers.

The Lycoming representative examined the spark plugs. He did not observe any mechanical damage, and their color indicated normal operation according to the Champion Spark Plugs Check-A-Plug chart AV-27. He examined the cylinders' combustion chambers with a lighted borescope. The cylinder walls, valves, and pistons exhibited no mechanical damage. Oil lines within the engine compartment were secure on their fittings. The propeller governor was secure and not leaking. The oil filter and oil filter converter plate were properly installed and secure. There were no visible contaminates in the oil filter or suction screen.

The crankshaft oil seal was out of its bore and resting on the crankshaft. The Lycoming

investigator removed the propeller, but did not observe evidence of oil leakage at the propeller seal. Further investigation was terminated until the owner disassembled the engine to comply with a sudden stoppage inspection.

The owner had the engine overhauled. He reported that one oil ring was cracked, but no compression rings were broken. There was evidence of overheating from running lean. He discovered that the breather hose had been mounted over the motor mount rather than under it. In this location the hose was pinched when the cowling was installed. The owner said this plugged the breather hose and pressurized the case. He thought this pressure would force the oil out through the front seal.

Pilot Information

Certificate:	Private	**Age:**	49,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	January 21, 1999
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 18, 2000
Flight Time:	2300 hours (Total, all aircraft), 700 hours (Total, this make and model), 2300 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	COLLETTE	**Registration:**	N540AK
Model/Series:	GLASSAIR III GLASSAIR I	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	3077
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	November 18, 2000 100 hour	**Certified Max Gross Wt.:**	2500 lbs
Time Since Last Inspection:	2 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	700 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	IO540-K1G5D
Registered Owner:	MICHAEL K. SNOW	**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	RHV,133 ft msl	**Distance from Accident Site:**	22 Nautical Miles
Observation Time:	11:50 Local	**Direction from Accident Site:**	93°
Lowest Cloud Condition:	Scattered / 25000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	13°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	GUISTINE, CA (3O1)	**Type of Flight Plan Filed:**	None
Destination:	SAN JOSE, CA (RHV)	**Type of Clearance:**	None
Departure Time:	11:35 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	Grass/turf
Airport Elevation:		**Runway Surface Condition:**	Dry
Runway Used:		**IFR Approach:**	None
Runway Length/Width:	1400 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	37.140106,-121.039428(est)

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	RICHARD DILBECK; FAA-WP-FSDO; FRESNO, CA MARK PLATT; TEXTRON LYCOMING
Original Publish Date:	October 24, 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=50654