Aviation Investigation Final Report

Location:	PRESCOTT, Arizona	**Accident Number:**	LAX99LA110
Date & Time:	February 26, 1999, 11:57 Local	**Registration:**	N666X
Aircraft:	Helio JERGINS H 800	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

The airplane sustained a hard landing after the propeller went into an uncommanded reverse pitch range on final approach. This was the first flight with this engine installed. After several successful normal approaches and landings flown at 70 knots, the pilot decided to make a more aggressive STOL (short takeoff and landing) approach. This would require him to fly about 60 knots and required more precise power control. Shortly after turning from the base leg to final, the propeller went uncommanded into the beta (reverse pitch) range. At an altitude of 150 feet he didn't think he could lower the nose and attain the 70-knot airspeed he needed to flare normally. He elected to maintain his three-point attitude and tried to slightly increase power to get the propeller to come out of beta. Normally, beta is obtained by depressing a thumb lever that lifts a pin, allowing the control lever to be moved into the beta range. He detected no response so he continued to slowly advance the power. The airplane touched down at approximately 1,000-feet-per-minute rate of descent. The Federal Aviation Administration accident coordinator examined the airplane, engine, and documentation. The proper technical manuals were available and the installation appeared to comply with the manuals. He did not observe any mechanical damage to the controls or linkages that controlled the propeller. All linkages and jam nuts were secured and the linkages appeared to be properly adjusted.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The malfunction of the propeller for undetermined reasons at an altitude too low for the pilot to take effective remedial action.

Findings

Occurrence #1: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
1. (C) PROPELLER SYSTEM/ACCESSORIES,REVERSING SYSTEM - DEPLOYED INADVERTENTLY
2. ALTITUDE - LOW
3. REMEDIAL ACTION - NOT POSSIBLE - PILOT IN COMMAND

Factual Information

On February 26, 1999, at 1157 hours mountain standard time, an experimental Helio Jergins H 800, N666X, sustained substantial damage during a hard landing at Prescott, Arizona. The airplane departed Prescott about 1110 on a local flight to test a newly installed engine. Helio Enterprises of Prescott operated the flight under the provisions of 14 CFR Part 91. The airline transport pilot/owner, the sole occupant, was not injured. Visual meteorological conditions prevailed and no flight plan had been filed.

The pilot stated the airplane had been an uncompleted airframe when the original manufacturer went out of business. It had been purchased and completed by another individual. He installed a Walters M-601 free turbine engine on the airframe and was seeking Federal Aviation Administration (FAA) certification of this combination. A previously installed engine had fuel control problems and exhibited metal contamination in the oil. The airplane had flown approximately 5 hours with that engine. It was removed and replaced with this engine, a newer version with lower time. This was the first flight of the airplane since this engine had been installed.

The pilot said he intended to stay within 50 miles of Prescott to do some basic control checks; this part of the flight was successful. He returned to Prescott and performed several landings. He stated he maintained over 70 knots in the pattern for these landings. Feeling more comfortable, he decided to make a more aggressive STOL (short takeoff and landing) approach. This would require him to fly about 60 knots and required more precise power control. He was trying to determine if this engine would not lag in response time and offer the power control required. Shortly after turning from the base leg to final, the propeller slipped into the beta (reverse pitch) range. At an altitude of 150 feet he didn't think he could lower the nose and attain the 70-knot airspeed he would need to flare normally. He elected to maintain his three-point attitude and tried to slightly increase power to get the propeller to come out of beta. Normally, beta is obtained by depressing a thumb lever that lifts a pin, allowing the control lever to be moved into the beta range. No response was noticed so he continued to slowly advance the power.

The airplane touched down at approximately 1,000-feet-per-minute rate of descent. This sheared the bolt for the right main landing gear and the bolt holding the tail yoke onto its spindle. The right main gear collapsed and the right wing struck the ground. The ground strike wrinkled the right outboard wing panel, bent the outboard portion of the flap and aileron, and buckled numerous ribs. The tail yoke smashed the bottom of the rudder. The starter and fuel control units separated from the engine.

The FAA accident coordinator examined of the airplane, engine, and documentation. The proper technical manuals were available and the installation appeared to comply with the

manuals. He did not observe any mechanical damage to the controls or linkages that controlled the propeller. All linkages and jam nuts were secured and the linkages appeared to be properly adjusted.

Pilot Information

Certificate:	Airline transport	**Age:**	33,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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	November 25, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	3519 hours (Total, all aircraft), 7 hours (Total, this make and model), 3353 hours (Pilot In Command, all aircraft), 137 hours (Last 90 days, all aircraft), 56 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Helio	**Registration:**	N666X
Model/Series:	JERGINS H 800 JERGINS H	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	H 22
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	October 27, 1998 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:	7 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	14 Hrs	**Engine Manufacturer:**	WALTER
ELT:	Installed, not activated	**Engine Model/Series:**	M 601 D-8
Registered Owner:	HELIO ENTERPRISES	**Rated Power:**	400 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:	PRC ,5045 ft msl	**Distance from Accident Site:**	
Observation Time:	18:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	14°C / -9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(PRC)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	VFR
Departure Time:	11:10 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	PRESCOTT PRC	**Runway Surface Type:**	Asphalt
Airport Elevation:	5045 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	21R	**IFR Approach:**	None
Runway Length/Width:	4846 ft / 60 ft	**VFR Approach/Landing:**	Full stop

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:**	34.619796,-112.419258(est)

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	JACK MAJOR; SCOTTSDALE , AZ
Original Publish Date:	May 17, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45847