Aviation Investigation Final Report

Location:	Payson, Arizona	**Accident Number:**	LAX06LA185
Date & Time:	May 28, 2006, 17:00 Local	**Registration:**	N637TT
Aircraft:	Diamond Aircraft Industries HK 36 TTC	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The powered glider was in the traffic pattern for landing. On the downwind, the pilot applied power from an idle setting to full power but the engine did not respond. The pilot did not believe that a safe landing could be made straight ahead due to a residential area. He turned the glider back toward the runway, and in the turn, the glider lost just enough altitude for the left wing tip to contact the ground. The glider pivoted around the wing tip and came to rest upright. An FAA airworthiness inspector examined the engine and found no mechanical anomalies that would have precluded normal operation. Impact related damage to the engine precluded a test run. The FAA inspector also indicated that there was 10 gallons of fuel on board the glider.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: partial loss of engine power for undetermined reasons.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: APPROACH - VFR PATTERN - DOWNWIND

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: DRAGGED WING,ROTOR,POD,FLOAT OR TAIL/SKID
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Findings
2. TERRAIN CONDITION - GROUND

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

Findings
3. TERRAIN CONDITION - GROUND

Factual Information

On May 28, 2006, about 1700 mountain standard time, a Diamond Aircraft Industries HK 36 TTC single engine motorized glider, N637TT, experienced a partial loss of engine power during takeoff from runway 24 at Payson Airport (PAN), Payson, Arizona. The airplane drug a wing tip while the pilot maneuvered toward a landing spot. The pilot/owner operated the glider under the provisions of 14 CFR Part 91 as a personal local area flight. The glider sustained substantial damage. The private glider pilot, the sole occupant, was not injured. Visual meteorological conditions prevailed for the flight, and no flight plan had been filed. The flight departed PAN about 1640.

In the pilot's written statement, he reported that he had decided to do an orientation flight before traveling back home. He completed a walk around utilizing the Federal Aviation Administration (FAA) approved checklist with no discrepancies noted. He received weather from AWOS, took off, and headed north for about 10 nm climbing to an altitude of 8,300 feet msl. He let the engine cool down for about a minute prior to shutting it off, and then started to glide back to the airport. As he got closer to the airport he decided to do a straight in approach. As he approached runway 24 for landing, he started the engine following the checklist. The engine started without any problems. The pilot reported that he was "very high" over the pattern and decided to do a go around, and then follow the pattern for an engine ON landing.

The pilot stated that he continued in the pattern with the power at idle. About midfield, and on upwind, he advanced the throttle to apply power and climb back to pattern altitude; however, there was no corresponding power increase even though the engine continued to run. The pilot moved the throttle back and forth without any results. He switched the auxiliary fuel pump OFF and reported that there was no change. He looked at the gauges but could not recall if they were all in the "green." He stated that at that point the glider was at the end of the runway and there was no place to land. The glider was traveling towards a residential area, so he decided to attempt a 180-degree turn back to the runway. The pilot stated that he made a steep bank turn and about 3/4 of the way through the turn, the glider lost altitude and the left wing tip contacted the ground. The glider spun around and the tail impacted the ground before the glider came to a complete stop upright. The pilot turned off the fuel valve and shut down the engine.

In the RECOMMENDATION section NTSB Form 6120.1/2 (Pilot/Operator Report), the pilot stated that if had done the power check at altitude before he needed the power, he would have been able to perform a safe emergency landing.

An FAA airworthiness inspector conducted an engine examination. She reported that after the left wing tip contacted the ground, the glider cartwheeled until it came to rest upright. Due to

the damage to the engine, a ground run was not conducted. She reported that there were 10 gallons of fuel on board the glider. The crankshaft moved freely when rotated and compression was obtained at all cylinders. The spark plugs were visually examined with uniform normal operating signatures noted. She verified continuity of the engine and propeller controls. The fuel pump was operated normally. The FAA inspector further noted that the electronic ignition harness exhibited no obvious breaks. There were no mechanical discrepancies noted.

The National Transportation Safety Board investigator-in-charge (IIC) interviewed the pilot. At the time of the accident he noted the conditions as visual flight rules, with winds down the runway at 5 knots, and a temperature of 81 degrees Fahrenheit. He also reported that the glider had 7 gallons of fuel on board.

Pilot Information

Certificate:	Private	**Age:**	36,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3	**Last FAA Medical Exam:**	September 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 1, 2004
Flight Time:	267 hours (Total, all aircraft), 267 hours (Total, this make and model), 267 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Diamond Aircraft Industries	**Registration:**	N637TT
Model/Series:	HK 36 TTC	**Aircraft Category:**	Glider
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	36.637
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	May 1, 2006 100 hour	**Certified Max Gross Wt.:**	1698 lbs
Time Since Last Inspection:	4 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	654 Hrs as of last inspection	**Engine Manufacturer:**	Rotax
ELT:	Installed, activated	**Engine Model/Series:**	914F3
Registered Owner:	On file	**Rated Power:**	115 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAN,5157 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	16:30 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.87 inches Hg	**Temperature/Dew Point:**	29°C / -13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Payson, AZ (PAN)	**Type of Flight Plan Filed:**	None
Destination:	(PAN)	**Type of Clearance:**	None
Departure Time:	16:40 Local	**Type of Airspace:**	

Airport Information

Airport:	Payson Airport PAN	**Runway Surface Type:**	Asphalt
Airport Elevation:	5157 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	24	**IFR Approach:**	None
Runway Length/Width:	5500 ft / 75 ft	**VFR Approach/Landing:**	Forced landing;Go around;Straight-in

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:**	34.256668,-111.339164

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	Daren DuFriend; Federal Aviation Administration; Scottsdale, AZ
Original Publish Date:	November 29, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=63789