Aviation Investigation Final Report

Location:	SELMA, Alabama	**Accident Number:**	MIA99LA217
Date & Time:	August 8, 1999, 16:00 Local	**Registration:**	N6712D
Aircraft:	Bell 47G-B3	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

After a test flight following maintenance, the pilot/owner was positioning the helicopter onto a trailer, (tail forward) when the right landing skid slipped off and became hooked on the edge of the landing platform. Despite full forward, left cyclic, the rotorcraft continued backward until the main rotor blades collided with the aft part of the truck. The main rotor pitch control rods were removed and shipped to the NTSB Materials Laboratory for failure analysis, and although the rods were found to possess under specification tensile strength, all damage appeared to be consistent with impact damage.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain the proper touchdown point during landing causing the landing skid to become entangled with the edge of the helipad platform and the resultant rollover and main rotor blade strike of the tow vehicle.

Findings

Occurrence #1: ROLL OVER
Phase of Operation: LANDING

Findings
1. (C) PROPER TOUCHDOWN POINT - NOT MAINTAINED - PILOT IN COMMAND

2. ROTOR SYSTEM,MAIN ROTOR - BLADE STRIKE
3. OBJECT - VEHICLE

Factual Information

On August 8, 1999, about 1600 central daylight time, a Bell 47G-3B, N6712D, registered to Precision Air Services, Inc., operating as a Title 14 CFR Part 91 maintenance test flight, crashed while attempting a landing onto a trailer near Selma, Alabama. Visual meteorological conditions prevailed and no flight plan was filed. The helicopter received substantial damage, the trailer-truck helipad was damaged, and the commercially-rated pilot and a passenger were not injured. The flight originated from the same location about 20 minutes before the accident.

According to the pilot, during his landing attempt, the right skid became hooked on the trailer, and the helicopter sustained a dynamic rollover, damaging the main and tail rotor blades, the main rotor mast, and the tail boom. In his statement the pilot stated, "I screwed up."

According to FAA personnel, postcrash pilot interview and examination of the damaged main rotor system and rotor collision damage to the trailer and truck revealed that during the landing phase onto the helipad, the right landing skid slid off the landing platform and the pilot's control correction, (full forward and left cyclic) led to a main rotor thrust vector similar to what would be experienced in a dynamic rollover.

The main rotor pitch change control rods were sent to the NTSB Materials Laboratory for failure analysis. It was determined the components were part of a main rotor mast modification approved as Supplemental Type Certificate (STC) SH2772SW. The difference between the original and the replacement mast head controls is illustrated in Figure 2 of the enclosed report titled, "NTSB Materials Laboratory Factual Report". All separation and bending overstress damage to the components appeared consistent with impact damage. The center hexagons of three of the control rods were hardness tested using a Rockwell "A" scale indenter. The equivalent tensile strength specifications on the samples were found to be under that required by drawings of the control rods; however, it is not considered a factor in this accident. For additional information, see "NTSB Materials Laboratory Factual Report."

Pilot Information

Certificate:	Commercial	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	July 29, 1998
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	11000 hours (Total, all aircraft), 500 hours (Total, this make and model), 11000 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N6712D
Model/Series:	47G-B3 47G-B3	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Restricted (Special)	**Serial Number:**	2203
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	March 25, 1999 Annual	**Certified Max Gross Wt.:**	2950 lbs
Time Since Last Inspection:	72 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	13957 Hrs	**Engine Manufacturer:**	Allison
ELT:	Not installed	**Engine Model/Series:**	T63-700
Registered Owner:	PRECISION AIR SVCS., INC.	**Rated Power:**	318 Horsepower
Operator:		**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	ZIOG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MGM ,221 ft msl	**Distance from Accident Site:**	50 Nautical Miles
Observation Time:	15:53 Local	**Direction from Accident Site:**	85°
Lowest Cloud Condition:	Clear	**Visibility**	6 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	39°C / 24°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	15:40 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	CRAIG FIELD SEM	**Runway Surface Type:**	
Airport Elevation:	142 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**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:**	32.41098,-87.030624(est)

Administrative Information

Investigator In Charge (IIC):	Stone, Alan
Additional Participating Persons:	HARVEY SCHWAB; BIRMINGHAM , AL
Original Publish Date:	November 30, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47033