Aviation Investigation Final Report

Location:	MARCO ISLAND, Florida	**Accident Number:**	MIA98LA221
Date & Time:	August 12, 1998, 11:45 Local	**Registration:**	N19BZ
Aircraft:	Enstrom F-28F	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

The pilot was in cruise flight when the helicopter experienced a total loss of engine power. The pilot entered autorotation and selected a forced landing area. The pilot initiated a flare and applied collective pitch late. The helicopter collided with the terrain hard, right skid first, and the main rotor blades collided with the tailboom assembly. Examination of the left and right fuel tanks revealed little or no fuel.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate fuel management which led to fuel exhaustion. A related factor was the pilot's improper use of the flight controls during autorotation.

Findings

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

Findings
1. FLUID,FUEL - EXHAUSTION
2. (F) FUEL MANAGEMENT - INADEQUATE - PILOT IN COMMAND

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

Occurrence #3: HARD LANDING
Phase of Operation: DESCENT - EMERGENCY

Findings
3. (C) AUTOROTATION - PERFORMED - PILOT IN COMMAND
4. (C) FLIGHT CONTROLS - IMPROPER USE OF - PILOT IN COMMAND
5. TERRAIN CONDITION - GROUND

Factual Information

On August 12, 1998, at about 1145 eastern daylight time, a Enstrom F-28F, N19BZ, registered to a private owner, operating as a 14 CFR Part 91 sightseeing flight, crashed in the vicinity of Marco Island, Florida. Visual meteorological conditions prevailed and no flight plan was filed. The helicopter sustained substantial damage. The commercial pilot and two passengers reported no injuries. The flight originated from Marco Island, Florida, about 30 minutes before the accident.

The pilot stated he was in cruise flight when he experienced a total loss of engine power. He lowered the collective pitch, entered autorotation, and made a right, 100 degree turn towards a dirt road. At 100 feet he started a flare and applied collective cushioning pitch late. The helicopter touched down right skid low. The main rotor blade flexed down, and collided with the tailboom assembly.

Examination of the crash site revealed the helicopter was partially resting on its belly due to the collapse of the right hand skid cross tube, and the tailboom had been severed. Visual examination of the fuel tanks revealed little or no fuel. Fuel was added to both fuel tanks after the helicopter was transported to an authorized repair facility. The engine was started and was run for about 5 minutes. The pilot informed the FAA that he made a hard landing during the autorotation resulting in damage to the helicopter.

Pilot Information

Certificate:	Commercial	**Age:**	39,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	January 13, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	302 hours (Total, all aircraft), 280 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	**Registration:**	N19BZ
Model/Series:	F-28F F-28F	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	727
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	March 12, 1998 Annual	**Certified Max Gross Wt.:**	2600 lbs
Time Since Last Inspection:	66 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	780 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	HIO-360-F1AD
Registered Owner:	CHRISTIAN G. BODDI	**Rated Power:**	225 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	APF ,24 ft msl	**Distance from Accident Site:**	
Observation Time:	12:47 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 2000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 2000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	31°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(MKY)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	11:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
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:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	26.119798,-81.739562(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Carrol
Additional Participating Persons:	AL KIMBALL; MIAMI , FL
Original Publish Date:	February 15, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=43693