



Aviation Investigation Final Report

Location:	PUT IN BAY, Ohio	Accident Number:	ATL87LA247
Date & Time:	August 29, 1987, 17:30 Local	Registration:	N9784M
Aircraft:	MOONEY M20F	Aircraft Damage:	Substantial
Defining Event:		Injuries:	4 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE PLT HEARD A LOUD 'SNAP' WHILE TAXIING TO THE RWY, AND THE LDG GEAR COLLAPSED IMMEDIATELY THEREAFTER. THE PLT OBSERVED THAT THE GEAR HANDLE WAS STILL IN THE DOWN-AND-LOCKED POSITION AND THAT THE GREEN 'GEAR DOWN' LIGHT REMAINED ILLUMINATED. FAA EXAM OF THE MANUALLY OPERATED LDG GEAR SYSTEM REVEALED THAT THE GEAR HANDLE/LEVER ASSY HAD CRACKED AND SEPARATED WHERE IT WAS WELDED TO A CROSS MEMBER. METALLURGICAL EXAM OF THE FRACTURE SURFACES REVEALED EVIDENCE OF BENDING OVERSTRESS SEPARATION. EXAM OF THE ACFT MAINTENANCE RECORDS REVEALED THAT THE LDG GEAR HAD BEEN RE-RIGGED ABOUT 11 FLT HRS BEFORE THE ACCIDENT OCCURRED. THE ACFT MAINTENANCE MANUAL NOTES THAT THE OVERCENTER CONFIGURATION OF THE RETRACTION LINKAGE HOLDS THE GEAR DOWN AND LOCKED, AND WARNS THAT IMPROPER GEAR RIGGING CAN RESULT IN A GEAR COLLAPSE DURING TAXIING OR LDG.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: TAXI - TO TAKEOFF

Findings

1. (F) LANDING GEAR,GEAR LEVER - CRACKED
2. (F) LANDING GEAR,GEAR LEVER - SEPARATION
3. (C) LANDING GEAR,GEAR LEVER - OVERLOAD
4. (C) MAINTENANCE,ADJUSTMENT - IMPROPER - OTHER MAINTENANCE PERSONNEL

Occurrence #2: COMPLETE GEAR COLLAPSED
Phase of Operation: TAXI - TO TAKEOFF

Factual Information

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	56, 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):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	April 30, 1987
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	4172 hours (Total, all aircraft), 54 hours (Total, this make and model), 6065 hours (Pilot In Command, all aircraft), 13 hours (Last 90 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	MOONEY	Registration:	N9784M
Model/Series:	M20F M20F	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	680201
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	December 31, 1986 Annual	Certified Max Gross Wt.:	2740 lbs
Time Since Last Inspection:	11 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	1920 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	IO-360-A1A
Registered Owner:	R.J. SMITH	Rated Power:	200 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:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	20 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:	0°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		Type of Flight Plan Filed:	None
Destination:	PONTIAC , MI (PTK)	Type of Clearance:	None
Departure Time:	00:00 Local	Type of Airspace:	Class G

Airport Information

Airport:	PUT-IN-BAY OH30	Runway Surface Type:	Concrete
Airport Elevation:	590 ft msl	Runway Surface Condition:	Dry
Runway Used:	22	IFR Approach:	None
Runway Length/Width:	2870 ft / 30 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	3 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 None	Latitude, Longitude:	41.640605,-82.819252(est)

Administrative Information

Investigator In Charge (IIC):	Strickland, Scott
Additional Participating Persons:	ROBERT E KERNER; CLEVELAND , OH
Original Publish Date:	January 11, 1989
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=7510

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).