



Aviation Investigation Final Report

Location:	DENVER, Colorado	Incident Number:	DEN921A074
Date & Time:	July 21, 1992, 17:45 Local	Registration:	N221YV
Aircraft:	EMBRAER EMB-120 RT	Aircraft Damage:	None
Defining Event:		Injuries:	26 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Scheduled		

Analysis

THE CAPTAIN WAS FLYING THE AIRPLANE WITH HIS RIGHT HAND RESTING ON THE POWER CONTROLS. AS THE AIRPLANE TURNED ONTO FINAL APPROACH, IT ENCOUNTERED TURBULENCE OF SUFFICIENT INTENSITY THAT THE CAPTAIN'S FEET CAME OFF THE RUDDER PEDALS. HE FELT A 'CLICK' IN HIS HAND AND 'THERE WAS AN INSTANTANEOUS PROPELLER OVERSPEED.' THE ENGINE WAS EVENTUALLY SECURED BY CLOSING THE FUEL SHUTOFF VALVE AND AN UNEVENTFUL NO FLAP LANDING WAS MADE. POST INCIDENT EXAMINATION DISCLOSED BOTH AIR GROUND CIRCUIT BREAKERS WERE OPEN. THE LEFT ENGINE WAS FOUND TO BE FUNCTIONALLY DESTROYED. A READOUT OF THE DIGITAL FLIGHT DATA RECORDER DISCLOSED THE MAXIMUM LEFT AND RIGHT PROPELLER RPM VALUES ATTAINED WERE 150.49% AND 120.4%, RESPECTIVELY. VERTICAL ACCELERATION VALUES RANGED FROM .647 TO 1.26 G'S, AND LONGITUDINAL ACCELERATION VALUES RANGED FROM .037 TO .096 G'S. THE RIGHT ENGINE TORQUE PEAKED AT 37%, WHILE THE LEFT ENGINE TORQUE REMAINED AT 0%. RIGHT ENGINE FUEL FLOW WAS 16% TO 19% LOWER THAN LEFT ENGINE FUEL FLOW, AND PROPELLER IMBALANCE VALUES FOR THE LEFT ENGINE WAS APPROXIMATELY 50% HIGHER THAN THOSE RECORDED FOR THE RIGHT ENGINE.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: OPEN AIR GROUND CIRCUIT BREAKERS THAT ALLOWED THE PROPELLERS TO OVERSPEED. A FACTOR WAS: CLEAR AIR TURBULENCE.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Findings

1. (F) WEATHER CONDITION - TURBULENCE,CLEAR AIR
2. (C) ELECTRICAL SYSTEM,CIRCUIT BREAKER - OPEN
3. THROTTLE/POWER CONTROL - INADVERTENT - PILOT IN COMMAND
4. PROPELLER SYSTEM/ACCESSORIES,BLADE - OVERSPEED

Factual Information

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	Age:	34, 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:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	May 6, 1992
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	6950 hours (Total, all aircraft), 179 hours (Total, this make and model), 5920 hours (Pilot In Command, all aircraft), 190 hours (Last 90 days, all aircraft), 100 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	EMBRAER	Registration:	N221YV
Model/Series:	EMB-120 RT EMB-120 RT	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	120.221
Landing Gear Type:	Retractable - Tricycle	Seats:	33
Date/Type of Last Inspection:	July 20, 1992 Continuous airworthiness	Certified Max Gross Wt.:	25353 lbs
Time Since Last Inspection:	7 Hrs	Engines:	2 Turbo prop
Airframe Total Time:	3928 Hrs	Engine Manufacturer:	P&W
ELT:	Installed, not activated	Engine Model/Series:	PW-118A
Registered Owner:	CHEMICAL TRUST COMPANY OF CA	Rated Power:	1273 Horsepower
Operator:	MESA AIRLINES, INC.	Operating Certificate(s) Held:	Commuter air carrier (135)
Operator Does Business As:	UNITED EXPRESS	Operator Designator Code:	MASA

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:	Scattered / 8000 ft AGL	Visibility	40 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	20°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	29°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DURANGO , CO (DRO)	Type of Flight Plan Filed:	IFR
Destination:	(DEN)	Type of Clearance:	IFR
Departure Time:	16:45 Local	Type of Airspace:	Class B;Class D;Class E

Airport Information

Airport:	STAPLETON INTERNATIONAL DEN	Runway Surface Type:	Concrete
Airport Elevation:	5333 ft msl	Runway Surface Condition:	Dry
Runway Used:	26	IFR Approach:	
Runway Length/Width:	8599 ft / 150 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	None
Passenger Injuries:	23 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	26 None	Latitude, Longitude:	39.760925,-104.920112(est)

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	D. JOE WILLIAMS; DENVER , CO ROBERT J LAURION; DENVER , CO TERRY W MARTIN; ALBUQUERQUE , NM GIL CARTER; ATLANTA , GA
Original Publish Date:	May 26, 1993
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=18173

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