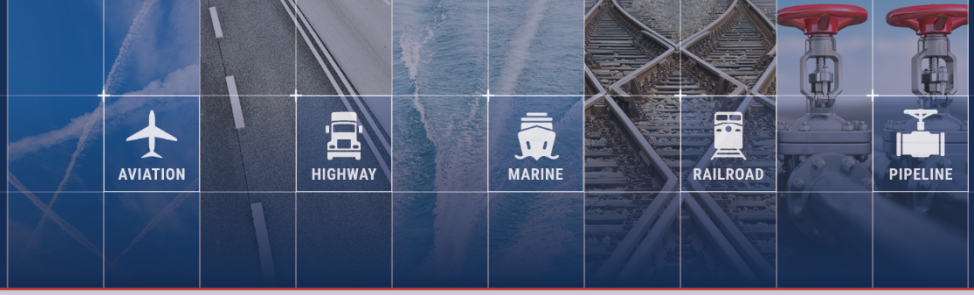

Aviation Investigation Final Report

Location:	San Diego, California	**Accident Number:**	SEA07LA046
Date & Time:	January 11, 2007, 12:11 Local	**Registration:**	N5443S
Aircraft:	Cessna TR182	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane impacted the runway in a nose-down attitude during the takeoff initial climb out. The 79-year old pilot was departing on a short flight to his home airport when the accident occurred. According to a witness, the airplane climbed to 100 feet and suddenly pitched nose-down. The airplane continued in this attitude until ground impact. Post accident examination of the airplane control systems did not reveal any operational anomalies. Investigators noted that the trim tab was set 10 degrees nose down and the flaps were extended to 40 degrees. Both of these control positions are inconsistent with normal takeoff settings as specified by the airplane manufacturer.

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 control of the airplane during takeoff. A contributing factor to the accident was the improper takeoff configuration of the airplane.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF

Findings
1. (F) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. TERRAIN CONDITION - RUNWAY

Factual Information

HISTORY OF FLIGHT

On January 11, 2007, at 1211 Pacific standard time, a Cessna TR182, N5443S, collided with runway 23 shortly after takeoff from Montgomery Field Airport, San Diego, California. The pilot was operating the airplane under the provisions of 14 CFR Part 91 as a personal flight. The commercial pilot, the sole occupant, sustained serious injuries. The airplane was substantially damaged. Visual meteorological conditions prevailed and an instrument flight rules flight plan was in effect. The pilot was destined for McClellan- Palomar Airport, Carlsbad, California.

According to a witness, the airplane was departing runway 23. The takeoff roll and initial climb appeared normal. When the airplane reached about 100 feet above ground level, the nose pitched down and remained in this attitude until it impacted the ground. The main wreckage came to rest approximately 700 feet from the end of runway 23 and just off its right side.

According to line personnel based at Montgomery Field, the pilot requested that his battery be recharged. They used a ground vehicle and successfully recharged the airplane's battery using the 12-volt receptacle on the airplane. The pilot then taxied the airplane to the active runway and departed.

A representative from Cessna Aircraft Company responded to Montgomery Field and examined the airplane in a hangar with the Federal Aviation Administration accident coordinator present. The right flap appeared extended 40 degrees. The left flap appeared extended 10 degrees. The trim tab was measured at 10 degrees tab up. Photographs obtained from initial responders showed these approximate settings at the accident site.

PERSONNEL INFORMATION

The 79-year old pilot held a commercial pilot certificate and was certified to fly single and multi engine airplanes, as well as fly in instrument conditions. His last medical, a third class, was issued on January 5, 2006. It had no limitations or waivers. A review of the pilot's flight logbook showed that he had a total flight time of 2,807 hours. He had flown 13 hours in the past 90 days, 2 hours in the last 30 days, and 1 hour in the 24 hours preceding the accident.

The pilot's son was interviewed by the National Transportation Safety Board investigator. His father was unable to be interviewed regarding the accident, and could not recall the events leading up to the accident. The pilot's son further stated that medical personnel did not find any evidence of an incapacitating medical event that may have initiated the accident sequence.

AIRCRAFT INFORMATION

The last annual inspection was completed on the airplane on April 11, 2006, at a tachometer time of 1,224.7 hours and a total airframe time of 3,275.6 hours.

According to the airplane Pilot's Operating Handbook, the wing flaps should be set from 0 to 20 degrees, and the trim should be set at the takeoff position prior to departure. According to a representative from Cessna Aircraft Company, takeoff position is near 0 degrees elevator trim tab deflection.

TESTS AND RESEARCH

The airplane was examined on February 1, 2007, at Aircraft Recovery Service, Littlerock, California. The National Transportation Safety Board (NTSB) investigator and a Cessna representative were present.

The control cables were traced throughout the wreckage and were continuous. The trim and autopilot switches were in the "OFF" position. The airplane was supplied power from its battery. When tested, the battery held 24.6 volts of electricity. The master and avionics switches were turned to the "ON" positions. The autopilot and trim switches (manufactured by S-Tec Corporation) were initially in the "OFF" position and did not power up when the system was supplied with power. Once the switches were placed in the "ON" positions, both systems activated. Preflight tests were conducted using the S-Tec operator's manual and produced corresponding activation to the autopilot and trim units.

The Aero Trim system installation was examined in the left wing. The unit contained a servo, positioned in the aileron that connected to a power connector located in the wing. The plug that ran from the servo to the wing connect point was loose within the structure. The plug was visible, and in a position between the aileron control surface and wing structure. With the plug in this position, the ailerons could not be moved and were locked into place. When investigators examined the connect point in the wing, they noted that the plug end was capped off with a rubber fitting, and the wire was clamped so that it could not extend outside of the wing structure. The electrical lead on the servo side of the system within the aileron was found loose and there was no evidence of the wire having been secured.

The flap system was powered using the airplane battery. At the flap selector, the handle indicated 10 degrees of flaps. Investigators noted that the instrument panel and flap actuation unit were bent aft and upward into the cabin area, approximately 20 degrees from the instrument panel's original design. Measurement of the flap actuator screw showed 6 inches of threads, which according to the Cessna representative, was consistent with a flap extension of 40 degrees. With power applied, there was no movement of the flap actuator. When investigators moved the flap selector from 0 degrees to 10 degrees, the cam moved from the UP microswitch to the DOWN microswitch. Due to the lack of tension on the flap follow up cable as a result of the accident sequence, investigators manually actuated both

microswitches and they responded appropriately. The cables were continuous from the flap selector outboard to the flaps. Follow up cable tension prior to the accident could not be ascertained.

According to the Cessna representative, the elevator trim tab measurement of approximately 10 degrees tab up equated to a nose down attitude.

ADDITIONAL INFORMATION

The wreckage was released to the owner's representative on April 17, 2007. No parts or pieces were retained by the NTSB.

Pilot Information

Certificate:	Private	**Age:**	79,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	January 1, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 1, 2005
Flight Time:	2807 hours (Total, all aircraft), 2563 hours (Pilot In Command, all aircraft), 13 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5443S
Model/Series:	TR182	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	R18201572
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	April 1, 2006 Annual	**Certified Max Gross Wt.:**	3100 lbs
Time Since Last Inspection:	18 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1243 Hrs at time of accident	**Engine Manufacturer:**	Textron Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-540-L3C5D
Registered Owner:	KVZ Corp	**Rated Power:**	235 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:	MYF,427 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Scattered / 2000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 3400 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	14°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Diego, CA (MYF)	**Type of Flight Plan Filed:**	IFR
Destination:	Carlsbad, CA (CRQ)	**Type of Clearance:**	IFR
Departure Time:	12:05 Local	**Type of Airspace:**	

Airport Information

Airport:	Montgomery Field MYF	**Runway Surface Type:**	Asphalt
Airport Elevation:	427 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	23	**IFR Approach:**	None
Runway Length/Width:	3400 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	32.815555,-117.139442

Administrative Information

Investigator In Charge (IIC):	Dunks, Kristi
Additional Participating Persons:	Steve Nelson; Federal Aviation Administration; San Diego, CA Seth Buttner; Cessna Aircraft Company; Wichita, KS
Original Publish Date:	August 30, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65140