Aviation Investigation Final Report

Location:	El Monte, California	**Accident Number:**	WPR21LA064
Date & Time:	November 3, 2020, 12:35 Local	**Registration:**	N6855M
Aircraft:	Stinson 108-3	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

During an instructional flight in the tailwheel-equipped airplane, the airplane veered left. Despite the instructor's application of corrective control inputs, the airplane did not respond as expected, ultimately resulting in a ground loop and substantial damage to the left wing.

Postaccident examination revealed that both of the airplane's tailwheel steering springs and tension chains were missing. The springs were found on the runway following the accident, separated from each other by about 1,700 ft. Neither of the chains were located.

The manufacturer's instructions called for the spring to connect directly to the tailwheel yoke, and the chain to connect to the steering arm with a connector clip. Evidence suggests that the spring was instead incorrectly connected directly to the steering arm. This reverse installation, while not in compliance with the maintenance instructions, did not appear to functionally affect the operation of the steering system, and therefore without examination of the missing chains or further examination of the tailwheel assembly, the significance of this finding could not be determined.

Probable Cause and Findings

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

A loss of directional control during the landing roll due to an undetermined failure of the tailwheel assembly.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	Directional control - Attain/maintain not possible

Factual Information

History of Flight

Landing	Loss of control on ground (Defining event)

On November 03, 2020, about 1235 Pacific daylight time, a Stinson 108-3, N6855M, sustained substantial damage when it was involved in an accident in El Monte, California. The flight instructor and the pilot receiving instruction were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

According to the flight instructor, the purpose of the flight was to provide tailwheel instruction to the private pilot. The pilot receiving instruction performed three full-stop takeoffs and landings from runway 19.

During the landing roll following the fourth landing, the airplane began to veer to the left. The instructor assumed the flight controls and applied rudder, but the airplane did not respond. The instructor then applied right brake and the airplane began to turn to the right, but his subsequent application of left rudder produced no response. The airplane continued to turn to the right, and the left wing impacted the ground. The airplane came to rest facing the opposite direction and sustained substantial damage to the left wing and aileron.
The airplane was equipped with a Scott 3000 series tailwheel assembly. The design incorporated a swiveling steering arm, that was connected to and controlled by the tailwheel steering yoke through a spring and a tension chain on both the left and right sides. The manufacturer's instructions called for the spring to be connected directly to the tailwheel yoke, and the chain to be connected to the steering arm with a connector clip.

Postaccident examination of the airplane revealed that both of the steering springs and chains had separated from both the tailwheel steering yoke and steering arm assembly and that the tension chain connector clips were connected to the tailwheel steering yoke rather than the steering arm.

Both steering springs were located on the runway after the accident. One spring was recovered near the runway 19 centerline about 230 ft beyond the runway threshold, and the second was recovered from the safety area on the left side of the runway about 1,900 ft beyond the threshold. The left and right tension chains were not located.

According to the airplane's maintenance logbooks, the most recent annual inspection was completed 7 flight hours prior to the accident.

Flight instructor Information

Certificate:	Flight instructor	**Age:**	57,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	January 7, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	January 10, 2020
Flight Time:	(Estimated) 5556.1 hours (Total, all aircraft), 23.3 hours (Total, this make and model), 5511.8 hours (Pilot In Command, all aircraft), 98.4 hours (Last 90 days, all aircraft), 40.5 hours (Last 30 days, all aircraft), 1.6 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	71,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	May 22, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 13, 2020
Flight Time:	(Estimated) 238.4 hours (Total, all aircraft), 6.8 hours (Total, this make and model), 156.8 hours (Pilot In Command, all aircraft), 8.2 hours (Last 90 days, all aircraft), 4.9 hours (Last 30 days, all aircraft), 0.6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Stinson	**Registration:**	N6855M
Model/Series:	108-3	**Aircraft Category:**	Airplane
Year of Manufacture:	1949	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	32666
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	March 4, 2020 Annual	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3427 Hrs at time of accident	**Engine Manufacturer:**	Franklin
ELT:	C91A installed, not activated	**Engine Model/Series:**	6A4-165-B3
Registered Owner:	Mondo Beyondo Thrill Squadron	**Rated Power:**	165 Horsepower
Operator:	Mondo Beyondo Thrill Squadron	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KEMT,296 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	18:48 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:		**Visibility**	3 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	3005 inches Hg	**Temperature/Dew Point:**	-5.6°C / -10°C
Precipitation and Obscuration:	In the vicinity - None - Haze		
Departure Point:	El Monte, CA	**Type of Flight Plan Filed:**	None
Destination:	El Monte, CA	**Type of Clearance:**	VFR
Departure Time:		**Type of Airspace:**	Class D

Airport Information

Airport:	San Gabriel Valley Airport EMT	**Runway Surface Type:**	Asphalt
Airport Elevation:	296 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	19	**IFR Approach:**	None
Runway Length/Width:	3995 ft / 75 ft	**VFR Approach/Landing:**	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	34.086009,-118.03484(est)

Administrative Information

Investigator In Charge (IIC):	Hicks, Michael
Additional Participating Persons:	Richard Lewandowski ; FAA; Riverside, CA
Original Publish Date:	August 16, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=102360