



NTSB #	N-No	Date	Make	Model
NYC99FA097	N56RA	4/25/1999	Ives	SONERAI II-L

Fatalities Airframe Hours

Narrative

After having breakfast with a friend, the pilot departed. No one else reported seeing him or the airplane until a witness, approximately 50 yards from the accident site, saw the airplane a little over tree top level. While staying in the vicinity of the accident site, the airplane conducted several aerobatic maneuvers. Then, while in a steep turn to the left, the right wing separated, and then the left. The engine continued to run until ground impact. Examination of fractures surfaces on the spar-box revealed cold welds, and corrosion.

Probable Cause

Inadequate welding of the airplane's spar-box by the owner/builder, which resulted in a total spar-box failure in-flight. A factor in the accident was the pilot's decision to perform aerobatics.

NTSB #	N-No	Date	Make	Model
LAX98LA258	N151MT	8/5/1998	M. C. Thomas	STEWART S-51

Fatalities Airframe Hours

Narrative

While en route to the destination airport, the airplane experienced a loss of engine power. The pilot made a forced landing on a highway and collided with a snow pole. The airplane veered off of the road and came to rest after it collided with a tree. The owner/builder stated that he had modified the drive shaft from the original 'V' belt drive to a dual 'serpentine' belt/pulley system. He further stated that in order to install the new belt/pulley system, he had to weld a retaining pin in the center of the original drive shaft. The propeller governor pulley was found at the bottom of the engine compartment and the shaft was found to have separated at the center point. The drive shaft exhibited a bluing and discoloration at the center where the owner had welded it on the pin. It was noted that the original manufacturer of the propeller governor drive shaft had placed a heat treat stamp on the shaft.

Probable Cause

Failure of the propeller governor pulley drive shaft due to a modification made to the system by the owner that included welding a retaining pin to the center of the heat treated drive shaft, which compromised the shaft's design strength margin.

NTSB #	N-No	Date	Make	Model
MIA01LA213	N567SM	8/9/2001	Avid Aircraft	Mk-4

Fatalities Airframe Hours

Narrative

According to the pilot, after performing suitable taxi testing and a low level air taxi over the runway, he determined the newly finished home built was ready for flight. On climb out while performing a left turn to remain in the landing pattern, the pilot lost all aileron response, and elected to attempt an off airport landing using pitch, rudder, and power control. The landing to a vacant field caused substantial damage to the aircraft and fractured the pilot's ankle. FAA examination of the wreckage revealed failure of the push-pull rod for the aileron control at the aft bell crank connection due to a faulty weld. The threaded rod-end appeared to have separated where it was welded into the hollow tube coming from the control yoke assembly.

Probable Cause

,An aileron control system failure during climb due to an improper welded installation by the aircraft homebuilder, resulting in an inflight loss of lateral control, and an inflight collision with the terrain during an uncontrolled descent and landing.

NTSB #	N-No	Date	Make	Model
SEA02LA010	N26WF	11/2/2001	Fetherolf	Hatz CB-1

Fatalities Airframe Hours

Narrative

The experimental-category amateur-built airplane suffered a broken weld in the right main landing gear during landing, resulting in a separation of the right main gear tire. The pilot reported that he landed to the north (runway 32) on a 4,529- by 100-foot hard-surface runway. He reported that he touched down with a light bounce. He stated that while rolling, there was suddenly a violent pull to the right after hearing a "crunch." The pilot reported that he applied left brake but that the plane left the runway to the right, went into the dirt and up onto its nose and upper left wingtip. He reported that the aircraft, including the failed part, had 17.4 hours total time. The pilot, who had built the aircraft, listed "better construction [technique] by builder" as an owner/operator safety recommendation on his NTSB accident report.

Probable Cause

An improper weld in the landing gear, resulting in separation of the right main landing gear wheel during a normal landing.

NTSB #	N-No	Date	Make	Model
ATL02LA164	N9097F	8/30/2002	Barker	Experimental

Fatalities Airframe Hours

Narrative

The pilot flew a normal approach to a rough, bumpy turf runway. The airplane touched down on the main landing gear at 60 knots, and when the nose wheel touched down, the airplane bounced three to four feet into the air. The airplane touched down on the main landing again, and when the nose settled on the runway, the airplane immediately flipped inverted. Examination of the airplane revealed the nose wheel was separated and the vertical stabilizer and rudder sustained crush damage. The pilot stated the nose wheel was found about 60 feet from the fuselage. The pilot stated the u-shaped aluminum bracket bolted to the nose wheel strut was found broken at the weld. Further examination by two welding experts revealed that the weld was "insufficient" on the shear points of the u-shaped aluminum bracket, and the weld had not completely penetrated the metal.

Probable Cause

The builders inadequate weld on the nose gear u-shaped bracket, that resulted in the nose wheel strut failure, and subsequent nose over during an attempted landing.

NTSB #	N-No	Date	Make	Model
DEN03FA113	N80T	6/28/2003	Mattison	Starduster Too

Fatalities Airframe Hours

Narrative

The purpose of the flight was to ferry the airplane from one airport to another. The airplane's owner told the pilot not to do anything fancy. Witnesses said the airplane took off, circled the pattern, and made a low pass over the runway at approximately 200 feet agl. About midway down the runway, the airplane make a slow roll to the right. Approximately two-thirds of the way through the roll, the airplane flew into the ground at a steep angle, destroying the airplane on impact. An examination of the airplane's elevator horn and interconnect torque tube showed that the elevator horn attachment was composed of two "c" section channels that were welded to the tube. Very little of the forward portions of the "c" sections were directly welded to the tube. The fractures observed in those areas were through the weld bead slightly away from the "c" sections. The aft portion of the right "c" section was broken. The weld in this area was intact. On the aft portion of the left "c" section, the weld was fractured along areas of incomplete fusion. The fractures observed were consistent with the application of air load forces pushing aft on the lower end of the elevator horn. No other preimpact anomalies were found. The airplane's owner said he recently purchased the airplane. He said when he purchased it, the previous owner had just performed a conditional inspection of the airplane. The current owner said he did not pull the inspection panels at the elevator prior to purchasing the airplane. He said he didn't think there would be any problems with the airplane.

Probable Cause

the pilot's improper in-flight planning/decision to perform aerobatics at low altitude and the failed welds at the elevator horn and torque tube. Factors contributing to the accident were the pilot performing aerobatics at low altitude, his inability to maintain aircraft control after the elevator attachment failed, the poor welds at the elevator horn and torque tube, the builder's poor installation of the elevator, and inadequate conditional inspections that failed to reveal the problem with the welds.

NTSB #	N-No	Date	Make	Model
CHI06CA270	N44DX	9/21/2006	Devereux	Mustang II

Fatalities

Airframe Hours

Narrative

The airplane was substantially damaged during a ground loop while landing on runway 09. The pilot reported he had been practicing touch and go landings and that the accident occurred on the 11th landing of the flight. He reported the airplane touched down and was rolling out on the centerline when it suddenly veered to the right. He reported he was unable to straighten out the heading and the airplane traveled off the side of the runway into the grass. The local winds were from 090 degrees at 4 knots. Inspection of the airplane revealed the weld which attached the left main landing gear strut to the airframe had failed.

Probable Cause

The failure of the left main landing gear attachment weld which resulted in the pilot's inability to maintain directional control of the airplane during the landing roll.

NTSB #	N-No	Date	Make	Model
CHI06LA273	N565CH	9/28/2006	Daub	Pawnee Chief

Fatalities

Airframe Hours

Narrative

The amateur built helicopter impacted the ground during a test flight following the failure of a welded joint at a cyclic control cable bracket resulting in a loss of control authority. A post impact fire ensued destroying the helicopter. The pilot reported he was in a low hover when the tail came up and the helicopter tilted. One of the skids subsequently caught the ground causing the helicopter to roll over. Examination of the helicopter revealed that a welded joint failed at a cyclic control cable bracket on the main rotor mast. Failure of the welded bracket caused the loss of input control authority from the cyclic control to the main rotor.

Probable Cause

The failure of a welded joint at a cyclic control cable bracket located on the main rotor mast which made control of the helicopter impossible for the pilot.

NTSB #	N-No	Date	Make	Model
LAX07LA280	N1415B	9/17/2007	Root	Sherpa

Fatalities Airframe Hours

Narrative

The pilot was a potential buyer of the airplane and was flying it on short final approach. He said that he attempted to correct for a sink rate, which included pulling back full aft on the control stick to arrest the descent. The airplane's nose then abruptly pitched down about 45 degrees and the airplane struck the runway. A visual examination of the airplane's flight control system by Federal Aviation Administration (FAA) inspectors revealed that the flight control stick gimbal mechanism had fractured and the control stick was separated from the mechanism. The flight control stick gimbal mechanism and a portion of the fuselage structure were shipped to the Safety Board's Materials Laboratory for a metallurgical examination. According to the metallurgical examination, the fatigue cracking of the fuselage tube structure in the area of the control stick gimbal mechanism emanated from the root of a weld in an area between tube joints. The Safety Board's senior metallurgist reported that the fatigue had propagated through approximately 30 percent of the wall thickness. The fatigue crack was located near an area of the fuselage tube that contained a 0.7-inch-long region of incomplete weld penetration at the root of the weld.

Probable Cause

A loss of aircraft pitch control due to the fatigue failure of the fuselage tube structure at the flight control stick gimbal mechanism due to an incomplete weld penetration at the root of the weld.

NTSB #	N-No	Date	Make	Model
WPR09CA094	N90086	1/16/2009	JONES RODNEY V	WITTMAN TA

Fatalities

Airframe Hours

Narrative

The pilot reported that during the landing roll on the asphalt runway, the left rudder pedal separated and he was unable to maintain directional control. Subsequently, the airplane ground-looped and exited the right side of the runway. The fuselage and left wing were structurally damaged. The left rudder pedal was separated at its weld point. No further anomalies were noted with the flight control systems.

Probable Cause

A loss of directional control due to a weld joint failure of the left rudder pedal.

NTSB #	N-No	Date	Make	Model
WPR09CA134	N118CK	2/28/2009	Kreps	Thorp T-18-C

Fatalities Airframe Hours

Narrative

The pilot of the tailwheel-equipped experimental airplane had just touched down for a full-stop landing when the airplane started veering to the left. Although the pilot applied rudder and brake inputs to correct the airplane's alignment, the airplane did not respond. The pilot then added power to help correct the veering, but the airplane departed the left side of the runway and impacted a runway/taxiway sign. A postaccident inspection of the tubular steel left gear leg revealed that it had partially failed along a corroded weld line, and had bent backwards from its normal position. Corrosion/rust was present on about one inch of the fracture face, and along a wider area of the interior wall of the gear leg adjacent to the fracture. The fracture itself continued around about 70 percent of the circumference of the tubular leg.

Probable Cause

A loss of directional control due to the fatigue failure of a tubular steel gear leg along a corroded weld line.

NTSB #	N-No	Date	Make	Model
WPR09LA153	N6383W	3/18/2009	HOWES	RV-6

Fatalities Airframe Hours

Narrative

A witness observed the accident airplane performing turns to the left and right and trailing white smoke. The witness stated that the airplane was about "tree-top level" when it pitched down and impacted the ground. Examination by a Federal Aviation Administration inspector revealed oil along the bottom side of the fuselage and on the tailwheel. A friend of the pilot, who was also an aircraft mechanic, reported that prior to the accident flight he and the pilot found an oil leak originating from a stainless steel high-pressure oil line from the propeller governor to the forward area of the engine crankcase. The mechanic stated that he had removed the oil line and the pilot had it repaired by a local weld shop. After reinstallation of the oil line, the mechanic conducted an engine run and did not observe any oil leaks originating from the oil line. The pilot then decided to fly the airplane around the area on a test flight. According to the mechanic, as the airplane departed the runway, he observed a trail of white smoke originating from the airplane. Despite two requests by the mechanic to return to the airport, the pilot stated that "everything was fine" and he was going to continue to a nearby airport. No further radio communication was received from the pilot. Examination of the engine revealed that the stainless steel high pressure oil line from the propeller governor was in place. The oil line exhibited a repair weld on the forward area of the line, and corresponding wear marks were observed on the engine crankcase. The oil line was removed and the forward end of the oil line was capped off using a bolt. The area of the weld was placed under water and compressed air pressure was applied to the opposite end of the oil line. A leak was observed originating from the area of the weld. Partial disassembly of the engine revealed that the number two connecting rod was separated from the crankshaft and exhibited signatures consistent with oil starvation.

Probable Cause

A total loss of engine power due to oil starvation as a result of a leak from the inadequate weld repair of a high-pressure oil line. Also causal was the pilot's failure to maintain adequate airspeed while maneuvering that resulted in a stall during an attempted off-field landing and the pilot's decision to continue flight with a known discrepancy.

NTSB #	N-No	Date	Make	Model
CEN09LA486	N413G	8/2/2009	GALLAGHER	JUNIOR ACE

Fatalities

Airframe Hours

Narrative

During a crosswind takeoff, a weld on a right rudder pedal failed in overload. The airplane subsequently ground looped.

Probable Cause

The failure of a weld joint on the right rudder pedal leading to the loss of directional control during landing.

NTSB #	N-No	Date	Make	Model
CEN11CA143	N876KF	1/2/2011	RARDIN WILLIAM I	KITFOX III

Fatalities

Airframe Hours

Narrative

The pilot was landing his single-engine experimental airplane in calm wind conditions, when the left main gear collapsed upon touchdown. The airplane veered to the right and the pilot attempted to keep the airplane on the runway by applying engine power and right aileron; however, the airplane exited the runway and spun, which resulted in structural damage to the fuselage. A postaccident examination of the left main landing gear strut revealed that the strut failed due to a pre-existing crack in the weld joint. The crack would not have been readily visible to the pilot during a pre-flight inspection due to the construction of the strut. The bracing around the strut exhibited signs of distress with twisted and shiny fracture surfaces. No other anomalies were found with the airplane.

Probable Cause

Failure of the left main landing gear strut due to a pre-existing crack in the weld joint.

NTSB #	N-No	Date	Make	Model
CEN11FA528	N453WB	7/30/2011	WRIGHT B FLYER INC	WRIGHT B FLYER

Fatalities Airframe Hours

Narrative

The experimental amateur-built replica airplane was on a test flight with two pilot-rated occupants. Another pilot heard a radio transmission from the accident airplane indicating that they were going to land in a field about 5 miles north of the departure airport. Witnesses reported that the airplane's engine rpm varied while it was flying at a low altitude. The airplane was then observed in a spiraling descent to the ground. Postaccident examination of the airplane's left propeller shaft revealed a broken weld, which would have prevented the left propeller from being driven by the engine. Further examination of the joint identified incomplete weld penetration during welding, thus about 25 to 35 percent of the through thickness of the propeller shaft tube was not welded to the propeller shaft end. This incomplete weld penetration occurred in the inner areas of the joint. Visible defects, such as pores and voids, were observed in the welded areas. The part's engineering drawing specifies complete weld penetration. The on-scene accident examination of the wreckage did not reveal any other preimpact anomalies. Despite the resultant partial loss of thrust, the flight crew should have been able to maintain control of the airplane during the forced landing attempt.

Probable Cause

The flight crew's failure to maintain airplane control following a partial loss of engine thrust during cruise flight. Contributing to the accident was the failed weld as a result of incomplete welding on the left propeller shaft, which led to the partial loss of engine thrust.

NTSB #	N-No	Date	Make	Model
CEN13LA071	N1879	11/24/2012	SCOTT	Ironsides

Fatalities Airframe Hours

Narrative

During the landing roll, the right landing gear steel fitting welds broke, and the axle, brake, wheel, and wheel fairing separated from the airplane. The right landing gear strut dug into the sod and the airplane cartwheeled, coming to rest inverted in the center of the runway. The left wing separated from the airplane, and the vertical and horizontal stabilizers were crushed. No other anomalies were found that would have precluded normal operation of the airplane.

Probable Cause

Failure of the steel weld fittings on the right main landing gear.

NTSB #	N-No	Date	Make	Model
CEN13LA225	N5897	4/12/2013	ATKINS	ACRO-SPORT I

Fatalities Airframe Hours

Narrative

The pilot reported that, while practicing aerobatics, he pulled the control stick aft and that something in the elevator control system then “broke,” and the airplane’s nose subsequently started to drop. The pilot established that he still had aileron and rudder control; however, he was not able to control the airplane’s pitch. The pilot chose to parachute from the airplane and subsequently landed in a field. The airplane crashed into a field south of the pilot's location and was substantially damaged during the impact.

An examination of the flight control system revealed several points of separation along the elevator control tube and elevator torque tube assembly. The weld area between the left side elevator torque tube and the left elevator horn was fractured, and the fracture surfaces showed large areas of preexisting weld anomalies, including lack of fusion and incomplete penetration. Similar weld anomalies were present between the right elevator components. The examinations determined that incorrect weld filler metal was used. The loads that caused the separation of the left elevator torque tube were likely high but within the design specifications, and the separation likely resulted from the loads being applied to the poor quality welds, which appeared to have occurred during original manufacture.

Probable Cause

The failure of the left elevator torque tube due to poor quality welds by the manufacturer, which resulted in the loss of pitch control.

NTSB #	N-No	Date	Make	Model
CEN15LA411	N43904	9/9/2015	BROWN MARK	SPACE WALKER

Fatalities Airframe Hours

Narrative

The private pilot and flight instructor were conducting a familiarization flight in the tailwheel-equipped, amateur-built airplane. After completing area maneuvers, the pilot executed two touch-and-go landings. The flight instructor reported that, during the third landing attempt, he noticed that the airplane had developed a high sink rate, so he subsequently took control of the airplane and initiated a go-around as the airplane touched down hard, which damaged the left main landing gear (MLG) and tailwheel attachment spring. The flight instructor was unable to maintain directional control, and the airplane departed the left side of the runway, which further damaged the left MLG. Examination of the left MLG revealed that it failed at the point of a previous weld repair, which was on the lower tube of a multitube group weld and was only partially welded. The improperly welded tube resulted in less-than-intended design strength and contributed to the failure of the left MLG.

Probable Cause

The pilot's failure to maintain a proper descent rate during the attempted landing and the flight instructor's delayed attempt to execute a go-around, which resulted in a hard landing, failure of the left main landing gear, and subsequent loss of directional control. Contributing to the accident was an improperly welded landing gear tube.