

Bounce on landing in strong wind, go-around and collision with terrain

Aircraft	Cirrus SR22 registered F-HTAV
Date and time	11 May 2013 at about 16 h 20 ⁽¹⁾
Operator	Private
Place	Aix les Milles (13) aerodrome
Type of flight	General aviation
Persons on board	Pilot; 2 passengers
Consequences and damage	Pilot killed, one passenger injured, aeroplane destroyed

⁽¹⁾ Unless otherwise mentioned, the times given in this report are local.

1 – HISTORY OF FLIGHT

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation. As accurate as the translation may be, the original text in French is the work of reference.

Note: the following elements come from recorded data from computers, ATC data and testimony.

The owner of the aeroplane wanted to make a two-day trip to Spain with another person. Not holding a licence himself, he asked a pilot to undertake the flight.

On 10 May 2013, the pilot, accompanied by those two passengers, took off from Aix les Milles aerodrome bound for Madrid Cuatro Vientos (Spain) aerodrome. The flight took place without incident.

The following day he took off, accompanied by the same two passengers, at about 13 h 00 to return to Aix les Milles aerodrome. The flight plan planned the first part of the flight in VFR as far as AGENA⁽²⁾ and continuation of the flight in IFR until Aix les Milles aerodrome.

On the approach to Aix les Milles, following a request by the owner, the pilot called out to the approach controller his intention to reroute to Castellet (83) aerodrome in order to carry out a touch-and-go, before returning to Aix les Milles. Given the wind on the ground at Castellet, he performed an approach followed by a go-around.

The pilot was then cleared to perform a visual approach for runway 33⁽³⁾ at Aix les Milles aerodrome. The approach was stabilised. The speed was about 90 kt⁽⁴⁾, the aeroplane was in fully extended flap configuration⁽⁵⁾ and the auto-pilot was disengaged. The atmosphere was turbulent due to a strong wind in the north-west sector.

During the landing flare, the aeroplane banked about 10° to the left, then returned to a wings horizontal attitude. The left wheel touched the runway and the aeroplane bounced. The pilot started a go-around. At that instant, the air speed was about 60 kt⁽⁶⁾, the stall warning sounded. The pitch increased to 12° and at the same time the aeroplane banked sharply to the left, turned over and then struck the grassy strip located between the runway and the taxiway.

⁽²⁾ AGENA is located north-east of Barcelona (Spain).

⁽³⁾ Paved 1,600 m x 30 m runway, oriented 325°. LDA 1,245 m.

⁽⁴⁾ The approach speed recommended for this configuration is 80 - 85 kt.

⁽⁵⁾ Flap configuration recommended for landing.

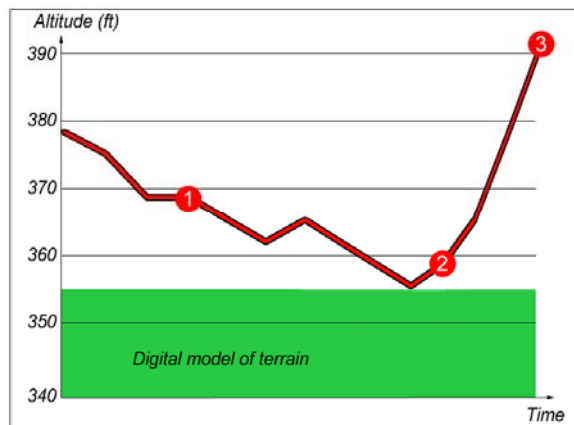
⁽⁶⁾ Stall speed in full flap configuration is 62 kt.

It crossed the taxiway perpendicular to it and came to a halt on its back in front of the hangar at the foot of the control tower.

The passengers evacuated the aeroplane before the emergency services arrived.



Source of the cartographic map : Google Earth



— End of F-HTAV flight path based on Garmin 1000 data

*Times are local
Altitudes on the vertical section have been adjusted to take into account the QNH on the day (1014) and the fact that the aeroplane touched the runway*

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2 – ADDITIONAL INFORMATION

2.1 Aircraft Information

The Cirrus SR22 is a light single-engine four-seat aircraft, equipped with a 310 hp Teledyne Continental IO-550-N engine. It has lateral side-sticks, a single lever power control and a glass cockpit avionics system.

In the event of a balked landing or go-around, the flight manual requires the autopilot to be disengaged, full engine power to be applied and then the flaps to be retracted to the 50 % setting. The recommended airspeed during climb is 75 - 80 kt.

A rapid increase in engine power causes pitch-up moment as well as a rolling movement to the left. To counter this, the pilot must input mainly on the elevator control and the rudder pedals. Given the power of the engine equipping the Cirrus SR22, these effects are significant and flight attitude and roll control by the pilot is even more necessary.

During the accident, the aeroplane weight and balance was within the limits defined by the manufacturer.

The SR22 is equipped with a safety parachute activated by a pyrotechnic device. Airworthiness requirements demand the installation of a placard mentioning the presence of such a device. This placard was not installed on F-HTAV.

2.2 Training on SR22

The manufacturer offers various pilot training courses to owners of SR20 and SR22, including a familiarisation course for pilots who have never flown on these types of aeroplanes. This course lasts three days and contains an average of eight hours of instruction on the ground and ten hours of flight, including seven navigation flights and twenty landings. The programme incorporates the concepts covered in a private pilot's VFR training course, aeroplane handling and managing specific failures and draws attention to human factor aspects and the importance of decision-making.

2.3 Regulations

Under European regulations, the SR22 is not considered a high-performance aeroplane. There is no additional training linked to aeroplane performance.

It should be noted that the American regulations relating to ratings and pilot licences⁽⁷⁾ require specific training for operating high performance aeroplanes (i.e. aeroplanes with an engine of more than 200 hp), which must be logged by an authorised instructor. This endorsement may be obtained after the familiarisation course offered by the manufacturer.

2.4 Wreckage information

The examination carried out on the wreckage as well as analysis of recorded data did not bring to light any failure likely to contribute to the accident. The quantity of petrol in each wing could not be determined.

The pilot had not activated the safety parachute. The aeroplane had not been secured before the wreckage was moved and the first examinations performed.

2.5 Meteorological conditions

The estimated meteorological conditions at Aix les Milles aerodrome were as follows: CAVOK, strong turbulence from the ground to 1,500 m. The wind indicated by the controller during clearance for landing was 320° at 18 - 28 kt.

⁽⁷⁾FAR Part 61 – Certification: pilots, flight instructors, and ground instructors, §61.31 (f).

2.6 Pilot information

The pilot, who held an instructor's qualification and instrument rating, had totalled more than 600 flying hours, mainly on single engine piston-powered aeroplanes of less than 200 hp. He had declared to the insurer that he was able to fly solo on the Cirrus SR22 aeroplane, had carried out three flying hours on type and had EFIS (Electronic Flight Instrument System) and SLPC (Single Lever Power Control) ratings. The validity of this information could not be checked as the pilot's logbook was not recovered.

At the aeroplane owner's request, he had performed two training flights:

- ❑ one flight of 48 minutes four days before the accident including handling exercises as well as traffic patterns at Vinon (83) and Aix les Milles aerodromes. He had performed a go-around on his own initiative ;
- ❑ one flight of one hour two days before the accident with the aim of familiarising himself with the Garmin 1000 avionics system. On his return, he carried out some traffic patterns at Aix les Milles aerodrome.

The pilot had not undertaken the familiarisation training offered by the manufacturer.

2.7 Testimony

The rear-seat passenger indicated that the approach was stable but that the aeroplane banked to the left during the flare. The left wheel touched the runway and the pilot said *"I can't feel it"* and made a go-around. He stated that the aeroplane stalled immediately to the left.

The front passenger indicated that he heard the stall warning after the pilot had started the go-around and that the aeroplane pitched up very quickly, rolling to the left.

Most of the flights that day had been cancelled for the flying clubs at Aix les Milles aerodrome because of the wind conditions and turbulence.

2.8 Previous events

The NTSB investigated about twenty accidents involving the SR20 and SR22 linked to loss of control on go-around in the United States⁽⁸⁾. Six of these accidents were fatal, including five occurring on the SR22.

The probable causes highlighted by the NTSB were mainly inappropriate inputs on the controls. In at least five of these accidents, the pilots had little experience on type.

In Europe, a loss of control on go-around was recorded in Italy. The pilot's lack of technical know-how, as well as a lack of lateral stability, due to fuel asymmetry in the wings, were highlighted.

3 – LESSONS LEARNED AND CONCLUSION

The accident was probably due to the pilot's inadequate corrections on the controls, during the go-around in strong wind conditions. The pilot, used to flying less powerful aeroplanes, may have been surprised by the intensity of P-factor.

⁽⁸⁾Cirrus SR20 and SR22 entered into service respectively in 1999 and 2001.

The absence of a placard mentioning the presence of a safety parachute presented a potential danger for the emergency service teams and others at the wreckage site.

4 – SAFETY RECOMMENDATION

Note: In accordance with Article 17.3 of European Regulation (EU) 996/2010 of the European Parliament and Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation, a safety recommendation shall in no case create a presumption of blame or liability for an accident, a serious incident or an incident. The addressee of a safety recommendation shall inform the safety investigation authority which issued the recommendation of the actions taken or under consideration, under the conditions described in Article 18 of the aforementioned Regulation.

Training on high performance aeroplanes

The investigation showed that the pilot's inputs on the flight controls during the go-around were inadequate and that the pilot may have been surprised by the intensity of the P-factor from the Cirrus SR22 engine. A significant number of losses of control in go-around on Cirrus SR20 and SR22 were due to inappropriate pilot inputs on the controls. The manufacturer has identified the need for specific training on the SR22 which specifically takes into account its relatively high engine power. European regulations do not provide for specific training on these aeroplanes.

Consequently the BEA recommends that:

- **EASA require specific training linked to aeroplane performance for pilots of the Cirrus SR20 and SR22. [Recommendation 2015-007]**
- **EASA study the means to take into account manufacturers' recommendations on training when they identify a specific need, even in the absence of class or type rating. [Recommendation 2015-008]**