



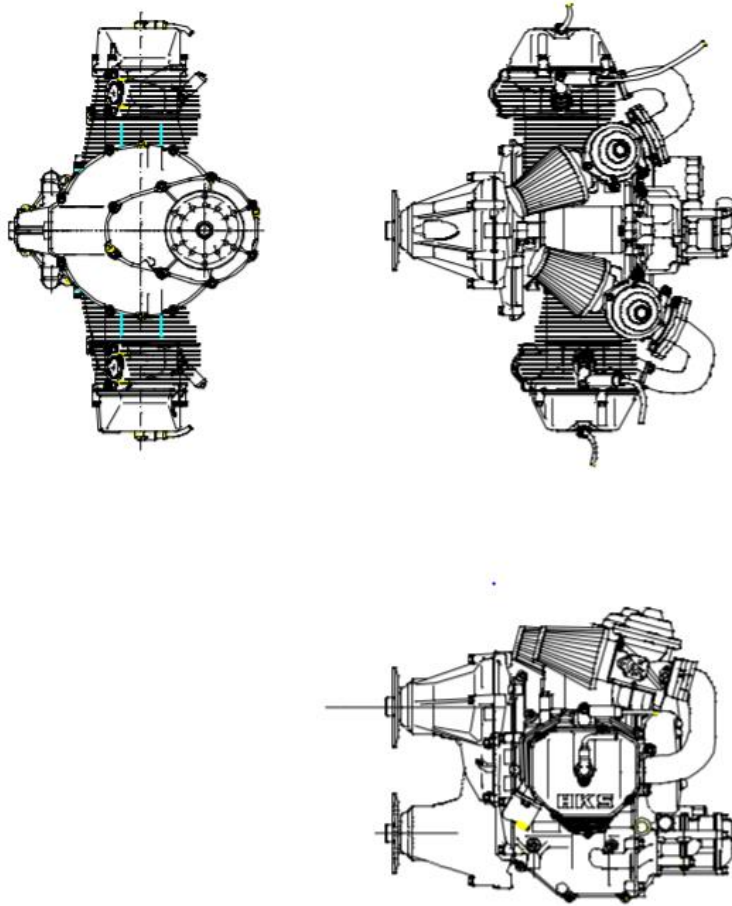
<b>LIMITED ACCIDENT INVESTIGATION REPORT</b>
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<b>Reference Number</b>		CA18/2/3/9963						
<b>Classification</b>	Accident	<b>Date</b>	4 March 2021	<b>Time</b>	0545Z			
Type of Operation		Private (Part 24)						
<b>Location</b>								
Place of Departure		The Coves Airfield	Place of Intended Landing		The Coves Airfield			
Place Accident		1 nm east of The Coves Airfield in Gauteng Province						
GPS Co-ordinates		Latitude	S25°46'27"	Longitude	E027°48'42.3"	Elevation	3885 ft	
<b>Aircraft Information</b>								
Registration		ZU-FOK						
Model/Make		Fokker E3						
Damage to Aircraft		Substantial		Total Aircraft Hours		3.8		
<b>Pilot-in-command</b>								
Licence Type		National Pilot Licence		Gender		Male Age 46		
Licence Valid		Yes						
Total Hours on Type		3.8		Total Flying Hours		1987.6		
<b>People On-board</b>		1+0	Injuries	1	Fatalities	0	Other (on ground)	0
<b>What Happened</b>								
<p>On Thursday afternoon 4 March 2021, the pilot flying solo on-board a Fokker E3 aircraft with registration mark ZU-FOK took off from The Coves Airfield to conduct a proving flight. The Coves Airfield is situated approximately 32 kilometres (km) north of Lanseria Airport. The aircraft was issued a proving flight Authority to Fly (ATF) for flights within a 100km radius from The Coves Estate. The flight was conducted under Visual Meteorological Conditions (VMC) by day. The pilot reported that about 30 minutes into the flight, he experienced a rough running engine followed by an engine stoppage five seconds later. The pilot elected to execute a forced landing on a freshly ploughed field. However, during the landing roll, the aircraft flipped over due to an uneven surface of the ploughed field and came to rest in an inverted position. The aircraft had 20 litres of fuel on-board prior to the accident. The pilot reported minor injuries and the aircraft sustained substantial damages.</p> <p>The aircraft was fitted with a HKS 700E engine, which is a non-type certified engine. The aircraft's operational manual contains a note which states that the possibilities of engine failure always exist.</p>								

This type of engine has been specifically developed for use in ultra-light type aircraft and home-built aircraft. The aircraft was undergoing a proving flight with a restriction to fly within a 100km radius from The Coves Estate. The aircraft, which had accumulated 3.8 hours, was still under the process of undergoing proving flight when the accident occurred.



**Figure 1:** The aircraft as it came to rest. (Source: Pilot)



**Figure 2:** Engine schematics of HKS 700E. (Source: Engine manual)

Investigation found that there were no anomalies with the engine and/or any other systems; and there was enough fuel for the flight on-board the aircraft.

The cause of engine failure was undetermined. The manufacturer indicated that this engine type could fail without warning at any phase of flight.

**Safety Action/s**

None.

**Safety Message and/or Safety Recommendation/s**

Safety recommendation:

(1) It is recommended that the Director of Civil Aviation reviews the use of this engine type which contains a disclaimer that the engine may fail without warning at any phase of flight in all non-type certified aircraft (NTCA) as this poses a challenge when there is an accident or incident as a result of none accountability on the product/part by the manufacturer.

(2) It is recommended that the Executive responsible for accidents and incident investigations reviews the investigation of aircraft fitted with engines such as the type fitted to the accident aircraft as there would be no value in investigating aircraft or engines which have a disclaimer on aircraft parts.

**Purpose of the Investigation**

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and **not to apportion blame or liability.***

**About this Report**

*Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar accident.*

*This report provides an opportunity to share safety message/s in the absence of an investigation.*

*All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.*

**Disclaimer**

*This report is produced without prejudice to the rights of the AIID, which are reserved.*

**This report is issued by:**

**Accident and Incident Investigations Division  
South African Civil Aviation Authority  
Republic of South Africa**