

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Luscombe 8E, G-BSYF	
<b>No &amp; Type of Engines:</b>	1 Continental Motors Corp C85-12 piston engine	
<b>Year of Manufacture:</b>	1946 (Serial no: 3455)	
<b>Date &amp; Time (UTC):</b>	23 July 2022 at 1200 hrs	
<b>Location:</b>	Near East Winch, Kings Lynn, Norfolk	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Extensive damage to the airframe and shock loading to the engine	
<b>Commander's Licence:</b>	Light Aircraft Pilot's Licence	
<b>Commander's Age:</b>	59 years	
<b>Commander's Flying Experience:</b>	1,051 hours (of which 142 were on type) Last 90 days - 2 hours Last 28 days - 2 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

After a precautionary field landing earlier that day, the pilot was attempting to take off in G-BSYF. Despite a long takeoff run the aircraft was not able to accelerate to a speed sufficient to lift off the main wheels. The pilot shut the throttle and begun to brake; the aircraft then veered to the left. The main wheels caught in a crop, the tail lifted up and the aircraft nosed into the ground. The aircraft came to rest inverted and was extensively damaged.

## History of the flight

The pilot was flying between Coldharbour Farm Airfield, Cambridgeshire to Fenland Airfield, Lincolnshire, via Hunstanton. When approaching south of Kings Lynn, the engine began to run roughly. Although the pilot applied carburettor heat, this made no perceptible difference. With the engine at full throttle, and the aircraft descending through 1,000 ft agl, the pilot decided to make a precautionary landing. Having chosen the only field without a tall crop, the pilot made a successful landing with no damage to the aircraft.

Having checked under the cowls, and with the propeller turning with normal compression, the pilot decided to try and start the engine. The engine started immediately and ran smoothly and without issue. Having cleaned the fuel filter and run fuel through the gascolater, the pilot concluded that carburettor icing had been the cause of the power loss.

Having examined the field, the pilot decided that he could fly the aircraft out to avoid the risk of damage from dismantling the aircraft for transport. The crop was low growing sugar beet and the end of the field had only a sparse covering of growth. There were hard soil tracks along the field made by the wheels of the farm machinery which the pilot felt he could use for the main wheels of G-BSYF to run along. Having removed the spats, the plane was pulled back so it had around 600 m of these tracks in front of it and, after several full power checks, the pilot started his takeoff run. Although the tail lifted as the speed increased, the aircraft did not reach sufficient speed to lift the main wheels off due to the surface conditions and the slight crosswind. The pilot closed the throttle and began to brake.

Once the tail settled back onto the ground, it was difficult for the pilot to see exactly where he was going. The aircraft is also fitted with heel brakes that can be challenging to apply evenly, especially at higher speeds. The pilot felt that he had probably applied slightly more left brake, which caused the aircraft to veer to the left and leave the narrow tracks. The left wheel then caught the crops, dragging the aircraft further left. The combination of braking and the resistance of the crops on the main wheels caused the tail of the aircraft to lift, and the nose struck the ground. The aircraft came to rest inverted. The pilot was able to release his seat belt and kick the door open to escape the aircraft. He was not injured in the accident.

The aircraft suffered extensive damage to the lower cowl, engine firewall, windscreen, and tail and wing surfaces, and the engine was shock loaded.



**Figure 1**

Accident field showing the tracks used by the pilot and the sugar beet crop  
(used with permission)

## Available guidance material

Civil Air Publication (CAP) 793<sup>1</sup> offers guidance for pilots who operate from unlicensed aerodromes and sites. The recommended runway dimensions for light aircraft (MTOW > 2,730 kg) are:

*Length – The greater length of 1.25 x Take-Off Distance Required or 1.43 x Landing Distance Required, as detailed in Pilot’s Operating Handbook*

*Width – 18 m*

*Obstacles – No vertical obstacles within 25 m either side of centre line. Runway end obstacles (hedges etc.) not above 2 m high*

Whilst there are no regulations on the minimum width of a strip to be used for takeoff, the guidance suggested a minimum width of 18 m to allow for the pilot to make directional control adjustments during the takeoff or landing without leaving the designated runway. The two tracks used by the pilot in the field were each less than one metre wide with almost no margin for error or correction.

The CAA also provide Safety Sense Leaflet 12: ‘Strip Flying’<sup>2</sup>, which is intended to assist pilots in thinking about safety in flying to and from strips. It states that grass height should be not more than 30% of the diameter of the aircraft’s main wheels and ideally shorter. The height of the sugar beet crop was not measured by the pilot, but pictures of the accident site showed that parts of the crop were probably around the same diameter as the main wheels.

## Decision making

The pilot was concerned that dismantling the aircraft could risk damaging it, and the length of the road journey to recover the aircraft was significant. The pilot was also assisted by another pilot who flew the same aircraft type and considered that the proposed takeoff was feasible.

The CAA Skyway Code (CAP 1535)<sup>3</sup> is intended to provide General Aviation pilots with practical guidance on the operational, safety and regulatory issues relevant to their flying. It states that,

*‘Good decision making is one of the first lines of defence against risk since it allows for risks to be avoided or mitigated, rather than relying purely on skill or luck to manage them.’*

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## Footnote

<sup>1</sup> [CAP 793: Safe Operating Practices at Unlicensed Aerodromes \(caa.co.uk\)](https://www.caa.co.uk/publications/cap793)  
[accessed 1 November 2022]

<sup>2</sup> [https://www.caa.co.uk/media/zrwcxzv0/caa8230\\_safetysense\\_12-strip-flying\\_v12.pdf](https://www.caa.co.uk/media/zrwcxzv0/caa8230_safetysense_12-strip-flying_v12.pdf)  
[accessed 1 November 2022]

<sup>3</sup> <https://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=7920>  
[accessed 1 November 2022]

Additionally, it offers the following guidance on decision making:

- *‘Adopt a cautious attitude to decision making, always checking information and carefully considering the different factors.’*
- *Adopt a risk-based approach – identify risks such as weather or lack of currency. If you identify a number of risks on a particular flight, question whether it is sensible to proceed. Consider modifying your plans to reduce some of the risk factors.*
- *Always ask the ‘what if?’ question.*
- *Avoid exposing yourself to pressure to complete a flight.’*

## **Analysis**

The area used by the pilot in attempting to take off was significantly narrower than the recommended 18 m runway width from CAP793. The wheel tracks were less than one metre wide and did not allow for any margin in directional control. The pilot was unable to remain within the very narrow takeoff tracks in the field during the aborted takeoff. A combination of braking and leaving those tracks resulted in the aircraft nosing over and coming to rest inverted.

The CAA provides considerable guidance for GA pilots to assist in good decision making. The pilot made a sound decision in making a precautionary landing when the aircraft suffered from a partial loss of power. The landing was successful with the aircraft undamaged. However, when faced with an aircraft now stuck in a field of sugar beet, and what the pilot felt to be a normally running engine, a takeoff was attempted from the field. Both the risk of damage during dismantling and the length of journey to recover the aircraft may have contributed to the pilot deciding that attempting to fly the aircraft out of the field was a suitable option.

## **Conclusion**

Having previously made a successful precautionary landing in the field due to a partial loss of engine power, the pilot attempted a takeoff from a sugar beet field. Despite a long takeoff run, the aircraft did not achieve sufficient speed for flight and the takeoff was aborted. The pilot was unable to maintain directional control and the aircraft nosed over and came to rest inverted. The pilot was uninjured and able to extract himself from the wreckage.

Influences on the pilot such as the risk of damage to the aircraft during dismantling and the length of the road journey for recovery may have influenced the pilot’s decision making to consider that attempting a takeoff was a suitable option.