

ACCIDENT

Aircraft Type and Registration:	Yak C11, G-YCII	
No & Type of Engines:	1 ASH 21 piston engine	
Category:	1.2	
Year of Manufacture:	1945	
Date & Time (UTC):	1 June 2005 at 1150 hrs	
Location:	North Weald Aerodrome, Essex	
Type of Flight:	Private	
Persons on Board:	Crew - 2	Passengers - Nil
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	One propeller blade badly damaged; engine shockloaded. Damage to left wing leading edge and left flap	
Commander's Licence:	UK Basic Commercial Pilot's Licence with Instructor Rating	
Commander's Age:	26 years	
Commander's Flying Experience:	882 hours (of which 1 was on type) Last 90 days - 12 hours Last 28 days - 6 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and telephone enquiries by the AAIB	

Synopsis

Whilst conducting his first flight on type with an experienced Yak pilot in the rear seat, the aircraft ended up low on final approach on three successive circuits, on each occasion shortly after selecting the flaps. On the last approach, the aircraft clipped the top of a tree, causing the left flap linkage to fail, but the aircraft landed safely.

History of the flight

The pilot was on his first flight in a Yak C11 and, prior to flight, had been briefed by an experienced Yak pilot who would fly with him. The aircraft is a descendant of

a World War 11 Russian fighter aircraft having tandem seating and a tailwheel configuration.

It was agreed that the pilot on his first flight would sit in the front seat for the flight from a private site in Kent to North Weald Airfield; both pilots had previously flown from North Weald. The front seat pilot was the commander for the flight. The initial part of the flight was uneventful with the commander carrying out some slow speed handling, including stalls. However, he was aware that the aircraft felt very different to any he had flown before and he was finding it a high workload; he commented as such to the other pilot.

On arrival at North Weald Airfield, the commander joined the circuit for Runway 20. The weather was good with a surface wind of 210°/ 14 kt. There are no visual approach aids at North Weald and pilots need to rely on familiarity and runway perspective. During the first circuit, the commander considered that the aircraft was too low during his base leg and went around from finals. On the next circuit for a planned touch-and-go, shortly after selecting flap, he found himself low again. His approach was relatively flat but he achieved a normal landing. Then, after taking off for the next circuit he experienced a sink rate close to the ground just after retracting flap; the flap on the Yak C11 has only two positions, fully up or fully down. At this stage, the commander was not comfortable with the way he was flying the aircraft and expressed his intention to the other pilot that he would land off the next approach. However, this initiated a short discussion about the need to gain as much experience as possible from each flight and the commander decided to carry out another touch-and-go; the recollection of the rear seat pilot was that the commander was going to complete a full stop landing. After turning from base leg to final approach, the commander selected flap and was again aware that he was getting low on approach. He added power but not enough to arrest a developing sink rate and, on short finals there was a loud noise and the aircraft started to drift to the left. The rear seat pilot had seen leaves coming over the top of the left wing and took control. He regained the runway heading and then passed control back to the commander, who carried out the landing. It appeared that the aircraft had struck the top of a tree on short finals and, amongst other damage, this had caused the left flap linkage to break resulting in asymmetric flap.

Additional information

On reflection, the commander considered that he should not have continued with the flight after his misgivings. Additionally, he had expected that he would have received more input from the rear seat pilot. However, the rear seat pilot stated that he was not an instructor and that this was

his first flight in the rear seat of the aircraft. The visibility from the rear seat of the Yak C11 is very poor. The rear seat pilot also commented that he had previously flown with the commander on the commander's early flights on a Harvard aircraft and had been favourably impressed. On reflection, he considered that this may have influenced his approach to the conduct of the flight.

The CAA produce an Aeronautical Information Circular (AIC) 4/2003 titled 'Piloting old aircraft and their replicas'. The final paragraph provides the following good advice:

'Before you start to fly any aeroplane with which you are not familiar, and especially when the design is that of an earlier generation than the one on which you were trained, find out all that you can about it. The flying qualities, the feel of the controls, the unusual cockpit arrangement and unexpected operation of the systems, all conspire to unnerve and reduce the effectiveness of an unfamiliar pilot. Talk first to someone who is used to flying the aeroplane. Finally do not be too proud to arrange, whenever possible, a proper flight demonstration and check by someone who is competent on a strange type. Such aeroplanes can be unforgiving towards pilots who are insensitive to their peculiarities.'

Analysis

It was apparent that the commander was surprised by certain aspects of the handling qualities of the YAK C11. For example, on three successive circuits he ended up low, shortly after selecting flap. This probably resulted from not applying sufficient power to counter the effect of flap. However, the use of a rectangular circuit rather than an oval circuit, together with the limited forward visibility from the cockpit, may have affected his visual perception of the correct approach angle. Additionally, he appeared surprised by the effect of retracting flap after a touch-and-go.

Although the commander was accompanied by an experienced Yak pilot, the ability of the rear seat pilot to provide assistance in the air was very limited by the rear seat view, particularly during circuits. This effectively meant that the rear seat pilot was not in a position to land the aircraft when the commander expressed his concern about his performance. The rear seat pilot did take control, but only when he became aware that the aircraft had struck a tree and then handed control back for the landing.

While the pilots had taken some sensible precautions for the flight, it appeared that the commander did not have sufficient information on the aircraft and related operating procedures to safely complete the flight. Notwithstanding the poor visibility from the rear seat, a flight in the rear seat to observe a type experienced pilot would have been a more sensible option prior to making his first flight on the type.