Designed in 1953, the Brantly B2 taught a generation of private pilots to fly helicopters in the 1960s, and there are still a few airborne today. ***Pat Malone*** *reports*

What price character? We treasure many different qualities in our helicopters – utility, payload and range, speed and agility, comfort, cost-effectiveness, even aesthetics, which is very much in the eye of the beholder. Questioning the appearance of a person's helicopter is like telling a mother her baby is ugly. It might be true, but she doesn't see it, and it's not polite.

But character is something else. Character is a head-turning quality possessed by some men and women, and some machines – a quality that makes them stand out from the crowd, even if they're not conventionally good-looking. Character is presence, charm, idiosyncrasy and uniqueness.

The Brantly is full of character. It is not good-looking, fast or nimble, but it is sufficiently rare – perhaps five airworthy examples remain on the UK register – to turn enough heads to gratify any owner. A chap walks that little bit taller for having a helicopter that few of his fellow pilots have ever seen, much less flown.

Ian Davies is a helicopter owner who prizes character. The prospect of having a modern machine does not set his pulse racing. Instead he opts for a 40-year-old Brantly B2B, complete with oil drips and grease stains, 1960s vintage engineering and 'timeless' styling. The Brantly offers him an all-round flying experience that no modern helicopter can match, one that is worth coping with a few drawbacks for.

Ian is director of development for newspaper and magazine publisher Archant, and his love of aviation was one of the reasons the company bought Pilot magazine when James Gilbert decided to call it a day five years ago. A complete aviation person as well as a connoisseur of character, Ian also has shares in a de Havilland Chipmunk and a hot air balloon.

He is one of four owners of Brantly G-BPIJ, a B2B based at Seething in Norfolk. Of his three fellow owners, one doesn't fly and one lives in America, so IJ is usually aloft in the hands of Ian or his fellow enthusiast John Baker. It came to them four years ago when its then owner brought it to Seething for maintenance, and it seemed that because of circumstances he would be open to offers for the machine. Ian and his friends offered £30,000, and the owner went away happy.

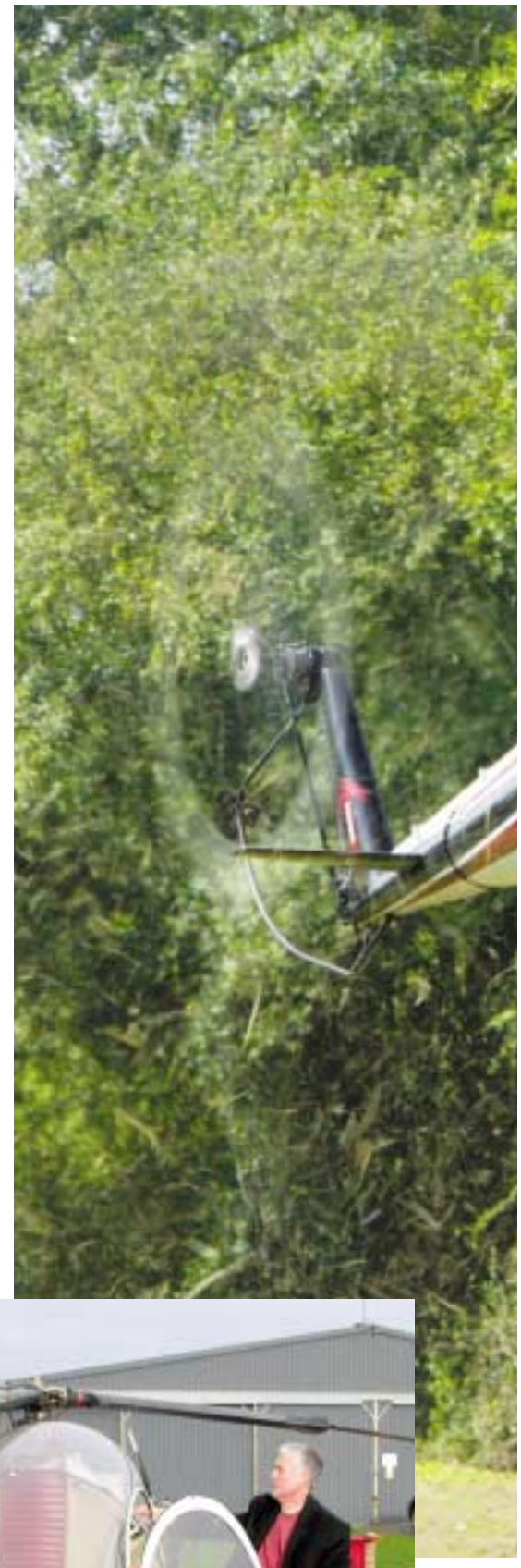
Ian had been thinking of buying a Bell 47 but had woken up sweating in the night too often after having a nightmare about burning money. Says Ian: "I'd done ten hours in a 47 in America when I was getting my licence seven years ago, and I loved the machine but was very aware of just how much they cost to run."

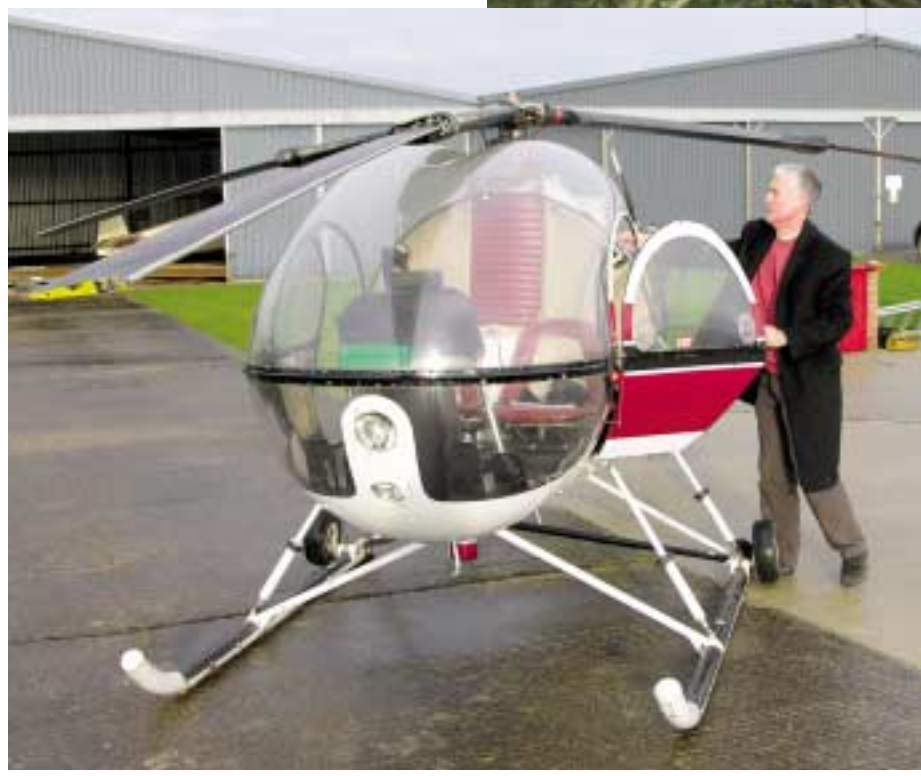
The Brantly, however, offered all the character of the Bell at a fraction of the price. While it probably wouldn't be as cost-effective as the R22 on which Ian eventually got his PPL(H) at Little Gransden, it would certainly be a lot cheaper than the 47 or the Hiller 12C, the only other aircraft that appealed to Ian.

And so, surprisingly enough, it has proved. It's fairly frugal on fuel while component lives are long, and the issue with spare parts is not so much the cost as the availability. It's not a utility machine; when you have to go hunting for components, you're almost always talking significant down-time. But as an engaging machine to fly, the Brantly can't be beaten.

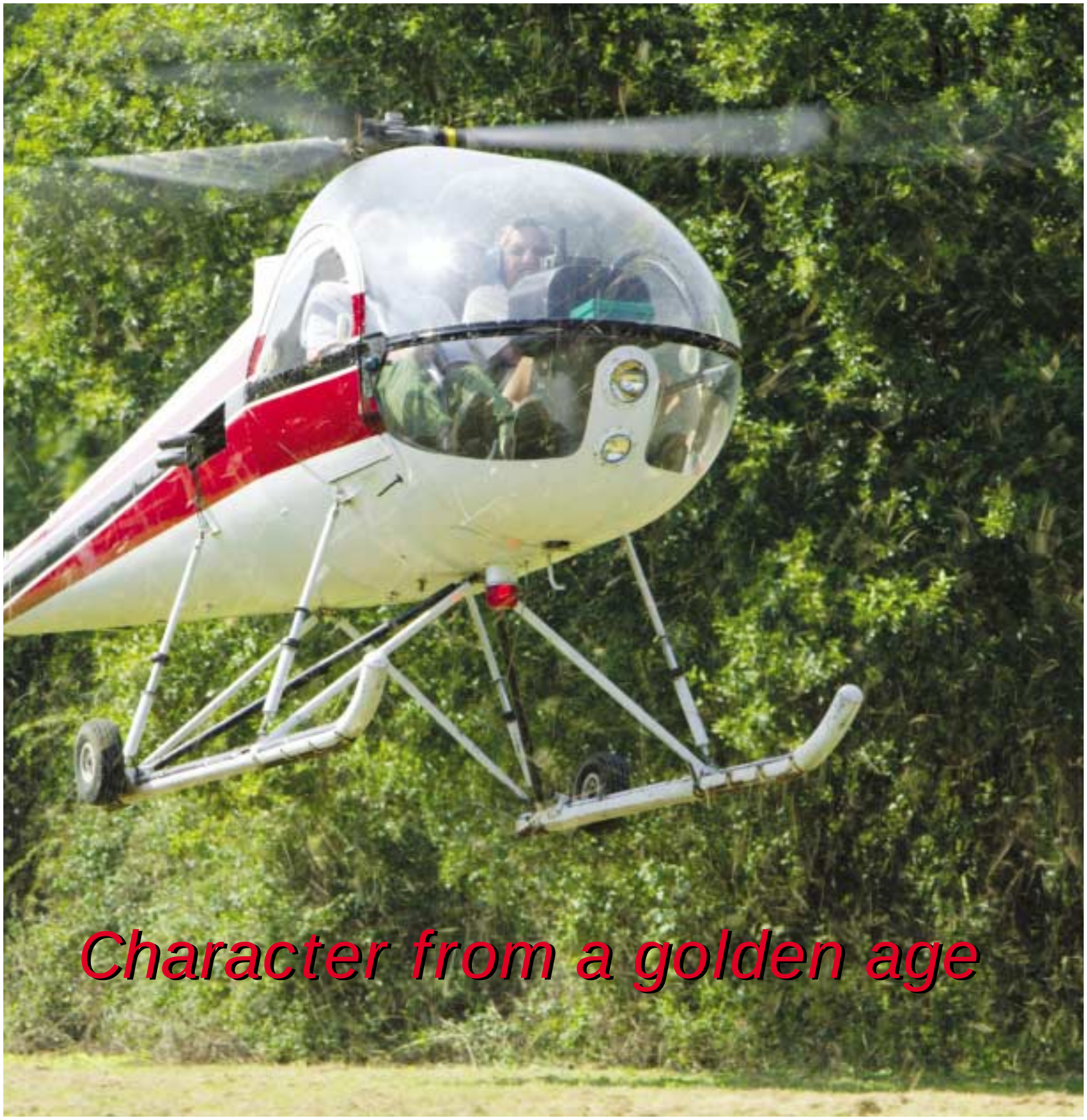
I don't want to harp on about the looks, but it has to be said that Newby O. Brantly, knitting machine magnate turned helicopter designer, was an engineer and not an aesthete. His machine looks like a sideways ice cream cone on stalky legs, with a fringe of lumpy-looking blades reaching down almost to waist height. No rotors-running crew changes or hot refuelling here – I've seen lawnmowers with higher blades. Ian says: "I'm prepared to accept it's an odd-looking machine with some strange features, but it's a very smooth flier – and apart from the fact that parts are hard to come by, finding engineers able to work on it is difficult and getting hold of a type rating examiner is torture, it's been great."

It's clear from the walk-round that the Brantly is a rugged machine, with the elaborate cross-bracing for the skids emphasising the fact that there's nothing flimsy in its design. The Lycoming IO-360 exhausts through two stubs in a slot on the right side of the fuselage and is mounted vertically to drive the rotor directly through a gearbox into which the tail rotor drive slots. The tailcone sports small horizontal stabilisers and a vertical stabiliser atop which is mounted the rather small and (Ian says) ineffective tail rotor. The oil filler for the tail rotor – which has two gearboxes at top and bottom of the fin – is a couple of feet up the drive shaft. Oil pools in the bottom gearbox and is carried to the top by





Main photo: looking like 'an ice cream cone on stalky legs', the Brantly is wholly distinctive Right: owner Ian Davies pre-flights IJ at Seething. Note the blades, which only begin at 40 percent of span



Character from a golden age

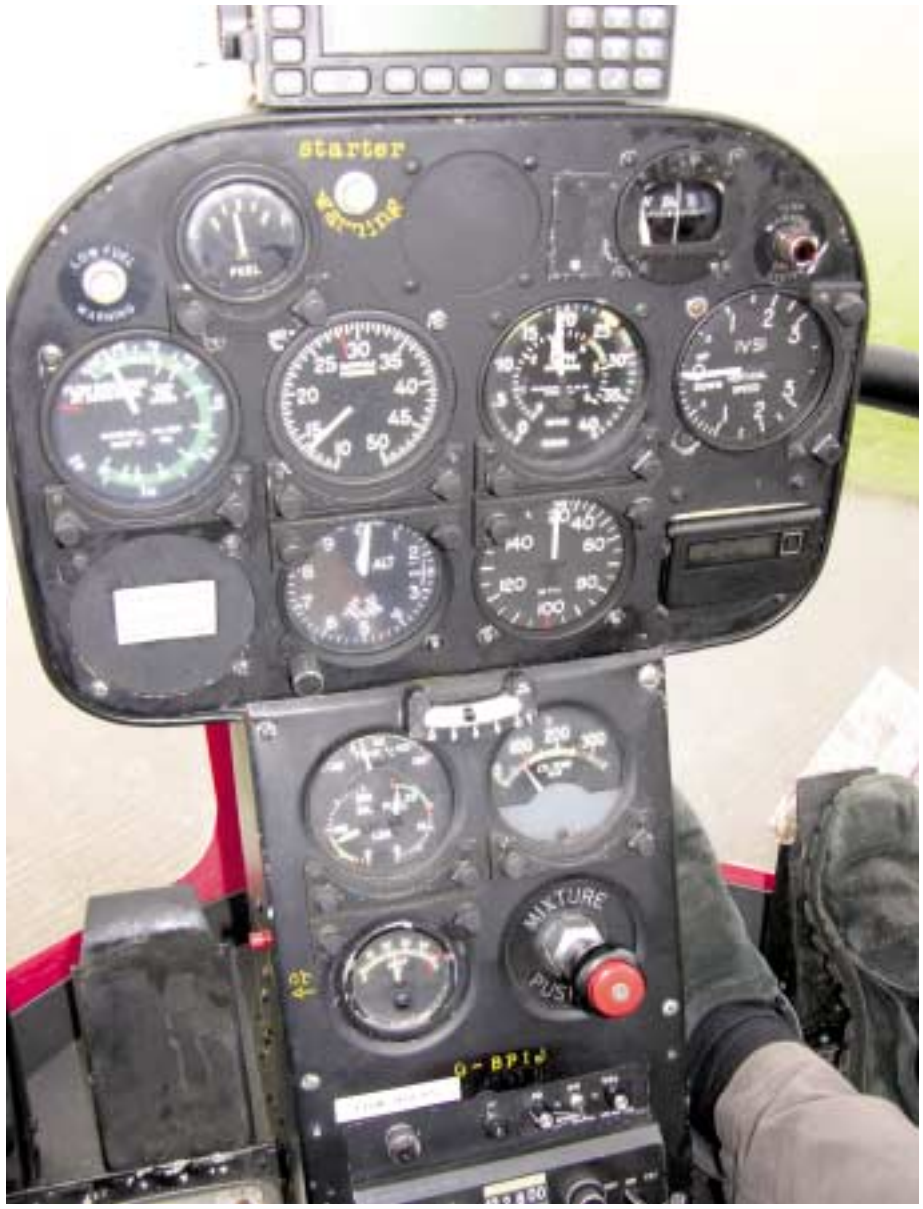
an Archimedes screw arrangement. The oil filler cap is lock-wired and there are no sight glasses, so care is needed here.

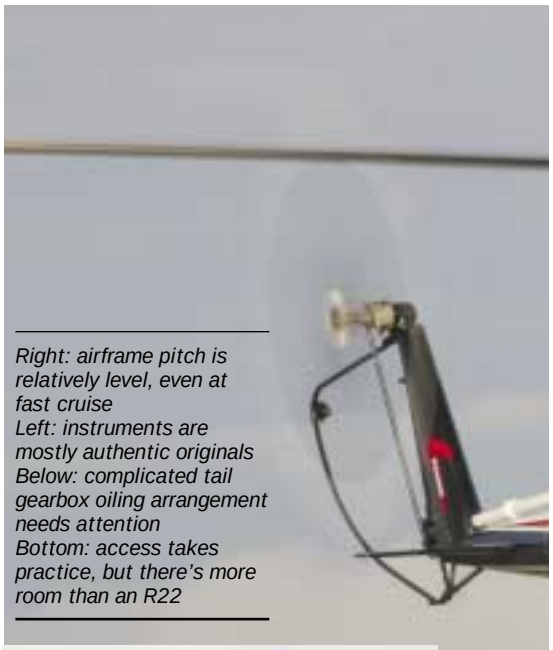
On the left side of the fuselage is a useful baggage area about the size of both under-seat compartments in an R22, although there's a 50lb weight limit on it. Above that is the inspection panel giving access to the oil fillers, and above that the unusual (and unique, I think) Brantly rotor head. Brantly blades proper don't begin until 40 percent of span – the inboard portion, which produces very little lift in any helicopter, is a simple shaft covered by a fairing of airfoil section. It has a flapping hinge at the rotor hub while the blade itself is attached to the shaft with a second flapping hinge. This double action is apparently responsible for the smoothness of the machine in flight. There's also a drag hinge and damper where the blade proper begins, and both hinges throw grease down the blade. Blade inspection is gratifyingly simple, with almost everything at or below eye height.

The bubble is a double Perspex unit split horizontally, with a sort of plumber's bum thing going on at the top. Getting in is like stuffing a misshapen parcel into a pillar box. The doors are small, there is no step and the stick and lever are positioned to cause maximum interference. I noticed that Ian simply leapt in with a half-hitch–Fosbury flop sort of twist, and I'm sure practice makes perfect.

To shut the door one must push down and pull in to make sure the top has caught under a flange, then slide the bolt home. The result was not airtight but didn't rattle. The cockpit feels quite roomy, certainly more so than the Robinson, and smells wonderfully of old leather and new oil. After more than 40 years – Brantly designed the original B2 in 1953 and had it certificated in 1959, and the B2B came along in 1963 – the Perspex has clouded slightly in places, but the view is stupendous, all round and back over your head.

With the exception of a relatively new DI the instruments looked original. Notable were the fuel flow meter, which has the corresponding MAP value on the outside of the dial, and the big CHT gauge which always seems to be operating at the top end of its range. The cyclic is a thin chromed tube with a moulded grip which sports a single button, for the RT. The





Right: airframe pitch is relatively level, even at fast cruise
Left: instruments are mostly authentic originals
Below: complicated tail gearbox oiling arrangement needs attention
Bottom: access takes practice, but there's more room than an R22

collective grip was a little far forward for my liking, and I had to sit up in the seat to make best use of it.

The Brantly is flown from the right. To start, flick on the master switch, push the mixture to rich and turn on the fuel pump until you get a fuel pressure reading. Crack the throttle, return the mixture to ICO then press the start button on the end of the collective. As soon as she catches, push the mixture vernier to full rich and you're away.

Except that this was a cold, clammy December morning and IJ, having sat idle for a couple of weeks, wasn't in any hurry to start. Again and again Ian went through the procedure, only for the Lycoming to cough and die. Finally, just when it seemed the poor old battery was down to its last wheezy heave the engine suddenly clattered into life, and Ian nursed the throttle as various components were dragooned into a semblance of unison behind us.

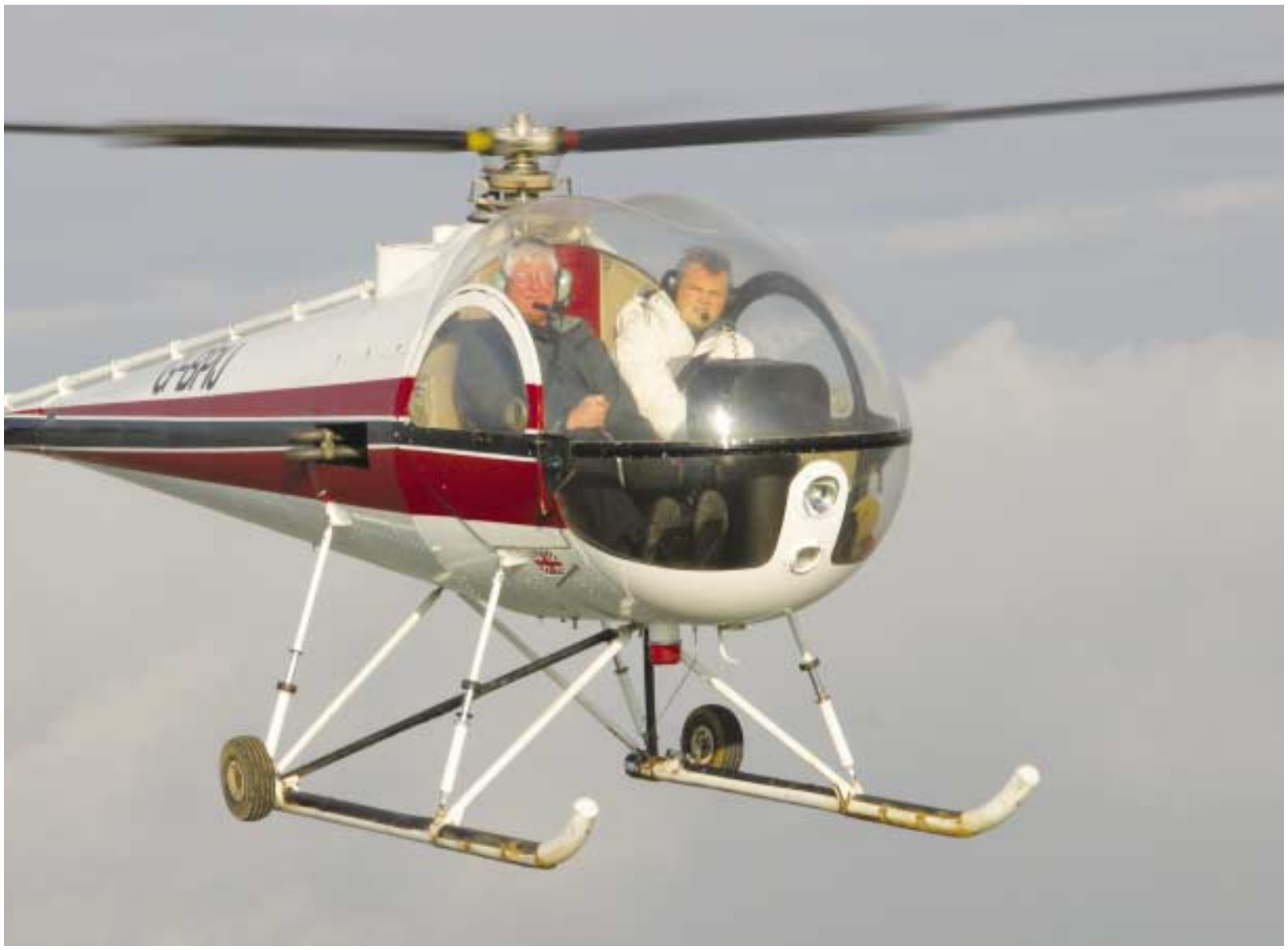
Warm-up is at 1,000 erpm, and the revs are run up to 1,700 before the centrifugal clutch brings the blades online. There's an avoid area for vibrations around 1,400 erpm, and the operating arc is quite small – from 2,700 to 2,900 erpm. The operating brackets for the rotor are 410 to 470 rrpm, and Ian stressed the need to keep the needle right up to the maximum value in order to overcome poor tail rotor authority.

The throttle and collective are well synchronised and it's clear on take-off that the throttle is meant to be used – there's none of the stickiness you often get with aircraft that rely almost entirely on governors. Tweaking the

throttle takes two fingers and the response is rapid, so keeping the needle almost against the redline is a relatively simple matter. With the machine having a heavy head compared to, say, the R22, I found that rrpm changes with collective movement were small and easily matched with throttle.

Flight was quite smooth, although there was a one-per vibration which will be sorted when next IJ makes a visit to the track and balance chap. Having been warned about the tail rotor I had expected worse, but turns in both directions across a wind of about 12 knots were uneventful and the pedals came nowhere near the stop. I kept the revs right up, of course – in fact, throughout the flight I tried to treat IJ like the venerable old lady she is.

Transition to forward flight was very smooth with little tendency to wag the tail, and 25 inches MAP and 60 mph gave us a climb rate of 700 fpm – we had about 15 gallons on board, or about half tank. Cruise at 21 inches gave us just over 80 mph, where fuel flow was between 13 and 14 gph at fully rich. Capacity



is 31 gallons, and you can lean back to 12 gph to give an endurance of more than 2.5 hr to dry tanks. Pushing the nose down and pulling back up to 25 inches brought us close to the 100mph redline, and flight remained smooth. The pitch attitude was still quite level, with none of the strap-hanging you experience with the likes of the Hiller 12 when you're three up and giving it beans. At higher power settings, however, the CHT needle soon began to threaten the redline.

Climbs, descents and turns called for constant attention to throttle and pedals, and a yawstring would have been handy. You have to be quite firm with the collective, which needs to move further than you think to return the proper response. Cyclic pressures are small, and there's a switch under the right seat for fore-and-aft cyclic trim – just motor the switch until it feels right and you can almost take your hand off the stick.

Hovering work was uneventful, with the Brantly operating very much like the 300 or the R22 – I had expected sixties performance, but either they were pretty good back then or we haven't progressed much. Power margins were as good as a modern piston single. Smooth landings and take-offs depended partly on the mood of the oleos, which compress and decompress with unpredictable little jerks that according to Ian can make run-on landings quite interesting.

The problems of ownership centre on licensing, engineering and component provision. Ian says: "We had a blade dinged in the hangar and had an interesting time finding another. They're still making Brantlys in Texas, but of course ours are 'old style' blades and the only option was to talk to the breakers. Brantly were able to point us in the right direction, but we were out of action for a while.

"Worse than that, though, is the challenge of keeping legal. I'd owned this machine for two and a half years before I could do a type rating. It's not worth an examiner or instructor keeping up his Brantly qualification, given the number of customers he'll get, and of course you have to find one of each because the CAA won't allow you to have the same instructor and examiner. The CAA simply refused to be flexible on this, so we ended up using Greg Forrest at Anglian Helicopters. John Baker taught Greg all about the Brantly so Greg could officially teach John to fly it, then Greg did my rating, and we had to go to Gloucester to do the type rating.

"But even with all this pointless nonsense, the experience of Brantly ownership is hugely rewarding. I could own an R22, a 300 or an Enstrom, but the Brantly brings a different dimension to helicopter flying, one that is certainly worth that little bit of extra effort." ■

Below left: twin exhaust stubs exit along the right side of the fuselage
Below: flap and drag hinges are incorporated in the link between the non-flying inner shaft and the outer blade
Below right: inner third of blade is covered by a fairing of airfoil section – which has taken a bit of a beating down the years