Why I love the Luscombe

A revolutionary light aircraft that strongly influenced Clyde Cessna, the Luscombe 8's virtues endure 70 years on. ***Mike Cross*** *reports*

My reasons for choosing the Luscombe? It's a simple, honest, robust aircraft with a relatively high aspect ratio wing, and in engineering terms is basically a glider with an engine nailed to the front. It's cheap enough for me to be able to fly it whenever I want without worrying about racking up bills. It will operate off grass or tarmac and I can fly it solo or take a friend.

It has proper handling with a stick, not a yoke, and the pedals actually do something. The tailwheel configuration is strong and teaches the importance of nailing your approach speed. 03 at Popham is downhill and has tall trees on the approach, and with no flaps a big sideslip is required to lose height. Having pulled off a neat landing it's fun to watch others in more modern machinery taking several attempts to get down.

With only 85 HP it's relatively quiet and rarely causes offence to those on the ground. It's at home on farm strips and gets welcomed because of its age. Maintenance is simple, and we do most of it ourselves under the supervision of a licensed engineer.

What's it like?

Luscombes vary. This description applies to G-BTCH, a 1948 8E with electric start. The pre-flight walk round is fairly standard. The pitot tube on the port wing has no heater, but has a cover to prevent insects nesting in it. It's opened automatically by airflow so it needs checking for free movement. The top half of the cowling opens on each side to give free access to the engine. There's a single fuel drain on the gascolator. A variety of brakes were used, and they are mostly cable-operated so the cables need a visual check. The tail takes a battering on rough ground and deserves a careful check for cracking or damaged rivets around the tailwheel attachment.

The cabin is cosy, not unlike the C152, but it's not so easy to get in and out of because it has smaller doors, is higher off the ground, and has sticks. That said, it's much easier than a Cub! Like the Cessna there are doors both sides and a step on the main gear. Once you're in it's comfortable, with a good view over the nose for all but the shortest of pilots. There is no seat or pedal adjustment so if you're short you may need cushions. If like me you are over 6 ft tall you'll probably find you end up with little support under your thighs. On a long journey this means all of your weight is on your buttocks. At around four hours the aeroplane's endurance is rather more than my own!

There are two simple on/off fuel cocks on the sidewalls set below the panel and forward of the doors. Once you're strapped in they're operated with your feet to give you the choice of left, right, both or off. A pump action primer is fitted and cold starting works with four pumps of the primer and the throttle just cracked. The electrical system uses a dynamo and the starter motor is mechanically operated. A T-handle on the panel works a cable that pulls an operating lever on the starter motor.

Once the engine is started, everything is very conventional. The view over the nose is good and you don't need to weave from side to side to see ahead. Tailwheel steering links to the rudder pedals and the tailwheel will

Lovely Luscombes

There are around 79 Luscombe 8's on the UK register, of which over half are airworthy. Most are on Permits to Fly administered by the LAA, with some on Certificates of Airworthiness. The Luscombe 8 is a two-place airplane with engines ranging from 65 to 150 hp. Construction is all metal except for early variants which had fabric covered wings. Most of those in the UK were imported by Cliff Lovell, who discovered that he could pack three of them into a standard 40 foot shipping container.

There's an active UK type club at www.europeanluscombes.org.uk who organise an annual weekend tour and the Luscombe Rally at Oaksey Park each August.

Most 8As have been modified from their original build standard. For example, G-BTCH, which I share with three friends, started life in 1948 as a model 8A but is now an 8E with all-metal wings and a Continental C-85.

Left: Model 8E has all-metal wing and wing tanks. Note single lift strut and rear cabin windows. Above: 8A has fabric covered wings, two lift struts and fuselage tank, hence no rear cabin windows. Both have the earlier main gear with bracing wires
Below: cosy cabin - similar in size to a 152 - and a view of the relatively high aspect-ratio wing

Above: Nigel Barratt flies 767s for a living and a Luscombe for pleasure Right: turning finals Far right: Martin Waters (G-KENM) is a retired 747 captain and Simon Hornsby (G-BTIJ) flies another Golf-India Juliet for a living, a Sikorsky S61N rescue helicopter G-BDIJ

automatically unlock if you use brakes to tighten the turn. There's no accelerator pump fitted to the carburettor, so the throttle needs to be opened progressively and not suddenly to avoid a lean cut. The small Continentals are susceptible to carb icing, so liberal use of carb heat prior to take-off is the order of the day.

Checks complete and lined up on the runway, the final thing before opening the throttle is to ensure the tailwheel is locked (waggling the rudder pedals will tell you) and carb heat is cold. Acceleration is not exactly brisk so you have plenty of time to think. First thing is to take the load off the tailwheel, then I hold it on the mains until I have 65 mph (60 if solo) indicated before lifting off and holding it in ground effect. Best climb is 72 mph but if obstacle clearance is not an issue climbing at a higher speed will make things easier if it does suddenly go quiet.

Stall is benign; a gentle buffet, then she mushes down. It's difficult to get a wing to drop, even with an enthusiastic entry. I've never spun the aircraft – it's not cleared for aerobatics on a Permit. I understand they do get aerobatted in the U.S. I have seen stall turns and a loop executed in one very prettily but I can't remember where, or who did it.

During the downwind leg I'll apply carb heat, take the power back and wind on full nose-up trim using the crank between the seats. I'll stabilise at 70 mph for the turns on to base and final. With no flaps, speed control is important, and power is used to adjust the descent. Carb heat in at 300 feet. If the throttle's at idle and I'm still too high I'll sideslip to increase drag and lose height. The rudder is powerful and well matched to the ailerons for slipping. It's important not to flare too high. Once it decides not to fly any more there's no chance of arresting the descent. Fly it along the runway keeping the wheels two feet above it. Once the flare is completed the power comes off and I usually three-point it.

In crosswinds, grass is more forgiving (less "grab" on the tyres). Tailwheel aircraft are less forgiving of mishandling than nosewheel types. The C of G is aft of the mains, so a landing on the mains alone will allow the tail to drop, increasing the angle of attack, and you'll go back up in the air. With a nosewheel a landing on mains alone will cause the nose to drop and AoA to reduce so you stay on the ground. Speed control is therefore more critical for a tailwheel type, and you need to ensure there is no sideways drift on touchdown that can lead to a groundloop. Like a car with oversteer the back end will try to overtake the front, but you won't have the option of steering into the skid to stop it. So far I'm someone who is going to

Above and right: adjusting the brakes; the later Silflex gear with fairings removed. Floorboards out for the annual, rudder cables in centre. Robin replacing a rocker cover on the mighty C85

groundloop, rather than someone who has.

Goodyear didn't quite reach the pinnacle of design with our disc brakes. Brakes take kinetic energy and turn it into heat. The more energy you want to absorb, the more heat you need to absorb and dissipate. On a car the discs are cast iron, bolted to the hub, also cast iron, which has a steel wheel bolted to it, and a tyre. There's plenty of thermal mass to absorb the heat and plenty of ventilation to disperse it. Our discs are free-floating rings of steel that aren't bolted to anything. Use them too much and they overheat and warp.

Running Costs

We do most of the maintenance ourselves, which keeps costs down. The aircraft lives outside on a tiedown, with a fitted cover over the cabin and cowlings. We have a metal prop (a lot of the 65hp models have wooden props). With four in the group we pay £45 per month each and £35 per hour wet. Occasionally we stick our hands in our pockets when funds run short.

Things to watch for

There was a duff batch of metal used for some wing spars, which can result in intergranular corrosion. An annual inspection is called for by an Airworthiness Directive because it's not possible to identify affected aircraft or to anticipate when the problem might surface. The chances are that anyone who might be affected already has been. Also mandated are an internal inspection of the spar carry-throughs in the cabin roof and a check of the fin attach bracket. Others include checking for cracking of the rocker shaft lugs on the cylinder heads and chafing of fuel lines by control cables. All of these should be OK if the aircraft has a current Permit or C of A but it's as well to have them looked at before purchase. They are all simple to check. A careful examination should also be made of the area round the tailspring attachment. It takes a lot of strain from bumpy strips. You're looking for broken or missing rivets, cracks or other damage to the rearmost frame and its surroundings. New parts are readily available and inexpensive. ■

Right: look for broken or missing rivets, cracks or other damage to the rearmost frame and its surroundings. This was spotted on a pre-flight inspection

Luscombe 8 History

The Luscombe 8 prototype first flew in December 1937 and was a milestone in the development of light aircraft. It featured for the first time a pressure cowl for cooling, and at a time when its competitors used wood or welded metal tube and fabric construction it featured all metal stressed-skin fuselage construction.

When Cessna introduced the 140 and 120 models more than ten years later in 1949 they copied many of the Luscombe 8's design features, and it's easy to misidentify them if you don't know what to look for. The Luscombe has an oleo main undercarriage compared with the Cessna's spring steel version, one roof window compared to the Cessna's two, cutaways at the rear of the wing roots and a differently shaped tail. Don Luscombe's fuselage construction was copied with the fuselage being assembled on a jig and the upper and lower halves joined by a wide strap to facilitate rivet bucking and jig removal. In many ways Don Luscombe's design can be seen as the forerunner of Cessna's long-running line of high-wing piston singles.

Various versions of Model 8 have been produced. Those on the UK register are all 8As, 8Es or 8Fs. Early models had fabric covered metal wings and are easily recognised as they have two lift struts per wing. They were powered by a Continental A65 and had a 14 US gallon fuselage tank. The 8B, certified in March 1940 featured the rival Lycoming O-145 65 hp engine but was not a success, with customers preferring the Continental engine. Later models feature all-metal wings of simplified design with two 12.5 US gallon tanks and Continental C85 engines. These have a single lift strut on each side making them easy to recognise. Some have been retrofitted with the Continental O-200, and there were some fitted with the 150 hp Lycoming O-320. There's even a clipped wing turbine variant fitted with a 150 hp APEX T62-32! Early fins and rudders were rounded and later ones squared off. They are interchangeable and it's not uncommon to see a square fin with a rounded rudder and vice versa. Two main gear variants exist. The original main gear had streamlined bracing wires while the later 'Silflex' gear has no bracing wires and a slightly wider track.

Production started at Trenton, New Jersey. Don Luscombe lost control of his company in 1939 and in 1945 production moved to a new purpose-built factory at Garland, Texas. In 1949 the Luscombe Airplane Corporation was declared insolvent. In 1950 it was acquired by the Texas Engineering and Manufacturing Company (Temco) and in 1953 it ceased to exist when Temco bought in all of the Luscombe shares. In 1955 Temco sold the production rights and tooling to Otis Massey in Fort Collins, Colorado, who produced an additional 80 aircraft, the last being rolled out of the factory on May 17, 1960. In total 5,867 Model 8s had been produced.

Vital statistics (8E)

Empty Weight	850 lb
Gross Weight	1400 lb
Length	20 ft
Wing Span	35 ft
Vne	145 mph
Cruise	112 mph claimed
	(100 mph is more realistic)
Engine	Continental C85 – 85 HP
Fuel consumption	16-18 litres/hour

Bibliography

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Websites

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