

## ***The ROBIN DR400***



Built in France from 1972 to the present day (DR401) with remarkably little change, the Robin DR400 differs distinctively from the aircraft of American origin commonly found in most flying clubs, schools etc. in the UK. Immediately obvious are the unusual cranked wing and sliding canopy providing substantially more window area than most light aircraft.

The wing is light, stiff and strong, with the dihedral of the outer panels imparting great lateral stability in flight. Being fabric covered, it presents a smooth surface to the airflow - unadulterated by overlapping panels and rows of rivets. However, the real secret of its contribution to high performance lies in the pronounced wash-out (twist) in the outer panels. Since they have a lower angle of attack to the airflow than the centre section, they create less drag in cruise flight. They also ensure particularly benign stall characteristics since they stall well after the centre section without the need for "retro-fixes" like leading edge stall strips.

Although now cribbed by other manufacturers, the DR400's forward sliding canopy was distinctly avantgarde when it first appeared. It allows a large glass area with excellent fit and good aerodynamics. Combined with low cockpit sides and modest instrument panel height, the end result is an unrivalled view out of the cockpit - putting to shame the small windows, view-blocking panels and blind spots of most light aircraft.

There is more elbow room in the DR400 than the staple C172/PA28 and Robin have taken the effort to make the cockpit a comfortable environment for all occupants, with good seats, individual fresh air vents for everyone and a comprehensive heating system to front and rear. The wooden airframe also makes it significantly quieter, damping noise and vibration, so more relaxed and less tiring to fly in for long periods.

The wooden airframe confers a number of further benefits. It has a potentially very long life, being immune from cycle fatigue and corrosion. It is remarkably resistant to knocks and bashes which would leave dents or holes in metal aircraft and even major damage is relatively easily repaired. Despite their elegant and sporty demeanour DR400s are exceptionally rugged and durable as evidenced by their outstanding reliability record as training aircraft.

Almost obsessive drag reduction is an obvious theme of the DR400 design. Although aided by the wooden structure, this is at its most apparent in the elegant GRP cowlings and fairings.

The wheel fairings in particular are an object lesson in what can be achieved with careful design and scrupulous attention to detail.

In bald terms, the net effect of these aspects of the DR400 design is outstanding performance. In comparison with equivalent aircraft with the same engine, the DR400 is generally faster, climbs better, carries a higher payload and can be significantly more economical to operate.

There must surely be a downside? Of course there is. Being entirely hand-crafted in the old-fashioned sense, the DR400 is expensive to build. It also prefers to be kept in a hangar, though to be well cared-for, any aircraft, metal, composite or wood should probably be hangared.



The DR400 has been intelligently designed to make excellent use of simple, rugged and reliable systems and components. Robin did not fall prey to the French disease of extreme nationalism where everything has to be of French origin even when far more appropriate American parts are readily available. Hence we find sensible items like Cleveland brakes alongside French classics such as the Citroen 2cv door handle (which is hard to beat in this application).

Robin's inherent build quality and superior finish explain why even old DR400s often look far smarter than much newer metal aircraft - and hold their value so well.

Beyond economic and performance advantages, the DR400 offers outstanding flying qualities and its real trump card - pilot and passenger satisfaction.

Stability in all axes may not be that rare a quality, but it is not often combined with such powerful and sensitive controls as in the DR400. The aircraft is viceless and extremely easy to fly but still conveys a feel of sportiness and verve completely lacking in others. The magnificent view out never ceases to impress - although it can spoil the enjoyment of aircraft with "letter box" windows and towering instrument panels!



The wide-track undercarriage with highly effective hydro-pneumatic shock absorbers (instead of undamped bendy bits of metal or composite!) flatters the pilot and offers a generous 22 knot published crosswind capability. It also copes comfortably with rough strips allowing full advantage to be taken of the DR400's excellent short field capability.

*It is worth bearing in mind that DR400 performance is so good that each engine size equates approximately to "one or two sizes up" in Cessnas, Pipers etc. For example, performance of a 118hp DR400/120 Dauphin 2+2 is similar to a 160hp C172, PA28 or TB9 and a 180hp DR400/180 Regent to a 200hp PA28R with retractable undercarriage and constant speed prop!*