

## Pilot Flight Check

# The Robin HR200

This sleek little trainer is a good example of the reasons its maker - a small family firm - has captured nearly half the French lightplane market

by ALAN BRAMSON

### ROBIN HR200/100 CLUB\*

#### Specifications

Engine	Lycoming O-235-H2C, 100 hp
Seats	2
Length	21 ft 10 in
Height	6 ft 4 in
Wingspan	27 ft
Wing area	134 sq ft
Max weight	1,720 lb
Empty weight	1,135 lb
Useful load	585 lb
Fuel capacity	32 gal

#### Performance

Range, 75% power, no reserve	650 sm
Max speed, sea level	134 mph
Cruise speed, 75% power (best altitude)	124 mph
Never-exceed speed	184 mph
Max rate of climb	760 fpm

\* Manufacturer: Avions Robin S.A., Darois Airfield, Dijon, France.

*Super-clean lines (note, for example, the well-enclosed gear) and superior cockpit visibility distinguish the HR200. Photo by the author.*





Photos courtesy of Flight International, except as noted.

■ ■ In the early days of aeronautics, pilot training presented something of a problem. Few, if any, flying machines had dual controls, and at best the “instructor” first demonstrated how to control the beast, then swapped seats with his pupil and made ready to grab whatever control he could reach when panic occurred. At worst he got out and was reduced to running alongside the flying machine, shrieking instructions while the pupil made brief hops.

During the First World War the problems of pilot training on a grand scale had to be faced. Training methods required standardization, and suitable aircraft became an urgent requirement. Gone were the days of designing “by guess and by God”; aircraft had to perform their required task—not just fly. Bombers were required to carry a good load to the enemy targets, while fighters were expected to fight, and that demanded good climb performance, fire power, and high maneuverability.

Those were the days when aviation’s disappointments—aircraft that didn’t make the grade—were often demoted to the role of trainer. But the folly of this line of thought soon became apparent, and it was not long before military training aircraft, designed for that purpose, appeared on the scene.

If the air forces of the world were

quick to learn the lesson that a good trainer must be just as much a specialist as a bomber or a fighter, this cannot be said of the civil flying training movement, for so often the clubs and larger schools have had to make do with lightplanes that were originally intended for another purpose. And such aircraft do not always make ideal trainers.

Exactly what is required of a training aircraft is, like most things, a matter of opinion, but my list (which enjoys some support on my side of the Atlantic) would run something like this:

- It should have customer appeal (i.e., be good to look at).
- The noise level must be low to allow good teaching conditions.
- The aircraft should be strong, not just aerodynamically but physically, so that it can withstand being pushed around at flying schools.
- It should handle well but at the same time inspire confidence.
- It must offer comfort to pupil and instructor.
- A cramped cabin is not an ideal classroom.
- Visibility should be excellent in all directions.
- Cruise performance should be good enough for serious navigation training.
- The aircraft should be cleared for aerobatics.

• Operating and maintenance costs must be as low as possible.

Clearly this is a formidable specification and, in the opinion of many instructors, one that has rarely been achieved. I was therefore eager to fly the little Robin HR200 since, on paper at any rate, it appeared to meet many, if not most, of the requirements listed for my ideal trainer.

Readers of this magazine may recall my flight check of the Robin Tiara, a sleek, high-speed tourer [January PILOT]. In that article I made brief mention of the remarkable Avions Robin concern, a small family business building a fine range of light aircraft at Dijon, France. Since Pierre Robin was himself at one time a flying instructor, I expected a lot of his trainer. And I was not to be disappointed.

The HR200 can best be described as a compact little aircraft with a man-sized cabin and the handling of a fighter. The airframe (stressed to +6 Gs and -3 Gs) is based upon a simple metal structure with clean lines.

Throughout the entire range of Robin aircraft, attention to detail has resulted in performance figures unequalled by other lightplanes of the same power, whatever their country of origin. For example, the landing gear on Robin aircraft is so well-enclosed that only on

the most powerful models has it been thought necessary to introduce a retractable undercarriage. The fixed gear on the HR200 is no exception.

The wing is fitted with electrically operated, slotted flaps. There are the fashionable swept fin and rudder and the now usual stabilator/antibalance tab. The HR200 is offered with a choice of 100-hp, 120-hp, or 160-hp Lycoming engines, but this test report is confined to the lowest-powered version.

Two antislip walkways are provided on the wing roots for entry to the cabin via the large, forward-sliding canopy, which opens to reveal an "office" a good bit wider than those of most comparable aircraft. A bench seat for two is fitted in the standard version, while the "Club" HR200 has individual adjustable seats, among other refinements.

There is a deep instrument panel with room for three rows of dials and all the radios likely to be required in this class of aircraft. A small console, situated between the two seats, carries the trim wheel and its indicator, fuel cock, flap switch and position indicator, ignition key, mixture control, carb-heat control, generator switch, master switch, and fuel-pump switch. There is a separate throttle control for pupil and instructor.

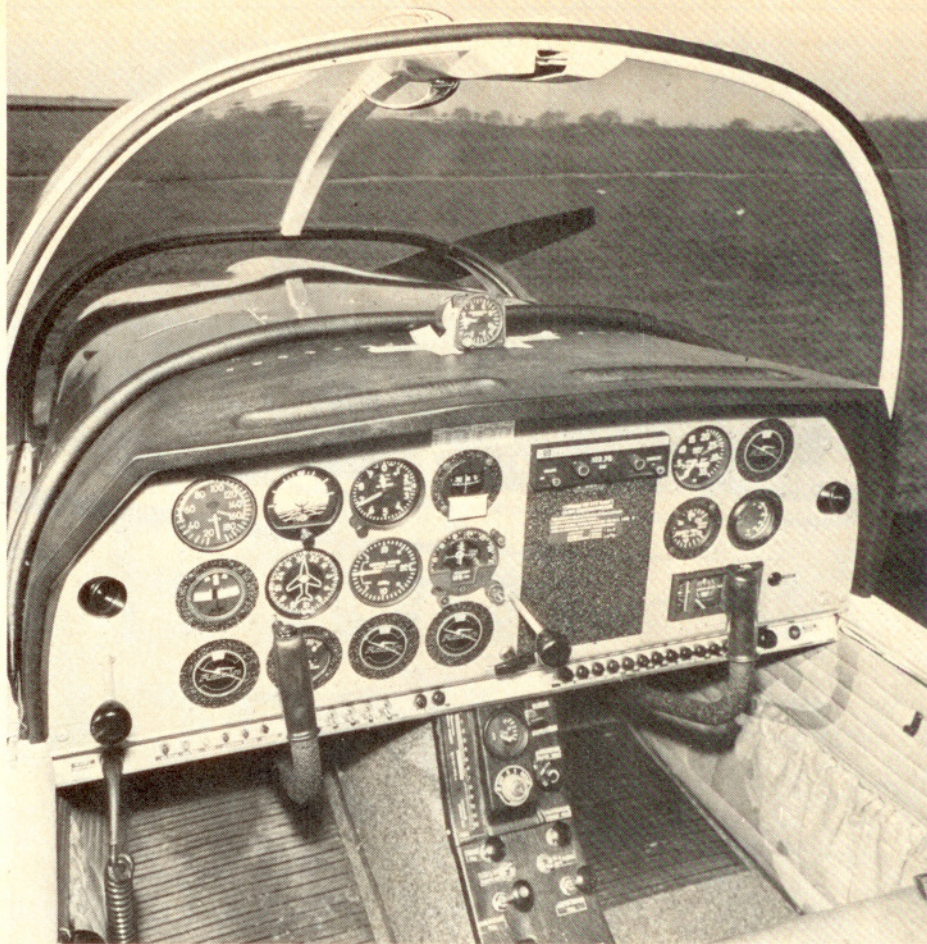
All engine instruments are grouped together to the right, while below them is a line of very accessible fuses. Low down on the left is the usual Robin warning panel of small colored lights that tell the pilot the flaps are not fully up, the fuel pump is on, the generator has failed, or the fuel is low, etc.

With such a deep instrument panel, it is remarkable that the manufacturers have contrived to allow room for the pilot's legs while at the same time providing him with the best forward view—or, for that matter, the best view in any direction—I have ever experienced in a fixed-wing aircraft. The side windows come down to elbow level, and the view ahead is further enhanced because in flight the nose drops away below the horizon, while visibility above and behind is without equal.

There is a large luggage shelf behind the two pilots (maximum weight 60 pounds), and it is provided with quick-release tiedown cords. Each occupant has a fresh air vent.

Having started the engine and released the brakes by pressing the toe pedals, I made off toward the active runway. Nosewheel steering is good, and the excellent all-around visibility, powerful disc brakes, and above-average ride over grass should rapidly build up pupil confidence.

Power checks and vital actions completed, I lined up on the runway and opened the throttle. The HR200 runs straight, is eager to fly, and has an uncommonly low noise level. Off the ground with the aircraft settled at 75 knots (86 mph), I was surprised to see a 1,000-fpm climb indicated, and it seemed hard to credit that there were



The roominess of the HR200's panel takes away nothing from leg room or forward visibility. In this aircraft, a G-meter has been temporarily taped to the top of the panel.

only 100 horses up front. True, I was flying the aircraft solo, but the tank was full (32 gallons). Later I did a climb check with a large passenger and we averaged in excess of 750 fpm.

Formation flying can be hard work in a low-powered lightplane. There is so little reserve of power that it is difficult to regain station when for any reason the lead aircraft pulls ahead. Then again, so many light aircraft suffer from poor, unresponsive ailerons, and these call for a fair amount of wheel twisting in other than calm conditions.

While formation flying is well down the list of vital exercises for a student pilot, I mention it here because in many respects it can reveal such weaknesses in stability and control as may exist. The HR200 is a great formation ship with firm but positive ailerons that respond to the smallest movements of the stick; yet somehow the designers have managed to provide this high degree of control without producing a "twitchy" airplane.

At 3,000 feet a power setting of 2,500 rpm produced an indicated 105 knots (121 mph), which trued out at 109 knots (125 mph), and at that speed the HR200 is quieter than many other aircraft with considerably less glass around the cabin, a tribute to the aerodynamic design of the canopy. My measured speed was slightly higher than that claimed by the manufacturers for this

power setting, but this may be accounted for by the fact that I was flying without a passenger in the right-hand seat.

Power-off stalls are straightforward, but to achieve a positive "G" break the nose must be held high. I recorded these figures: clean, 50 knots IAS (58 mph); with 20° flaps (the max flap setting), 45 knots IAS (52 mph). In each case there was slight prestall buffet; then the nose went down with the wings level. Stalls off a rate one descending turn caused a gentle wing drop.

Like most modern light aircraft, the Robin HR200 has little lateral stability but very pronounced directional damping. In pitch, 1½ cycles were required to resume 105 knots (121 mph), hands off, after the nose had been raised to 90 knots (104 mph) and the stick released.

While the HR200 is obviously not in the same class as a Zlin or a Pitts, it is delightful for all basic aerobatic maneuvers, particularly in the rolling plane. The spin, however, is a more complex story.

Although spinning forms part of the French private-pilot syllabus, it seems the authorities there have been turning a blind eye; consequently the Robin company was in no hurry to obtain the necessary clearance. In Britain the spin is mandatory, and, partly to meet this requirement, tests were carried out by the Airworthiness Division of the British

Civil Aviation Authority.

These tests, together with the findings of the French test pilots, have gained for the HR200 its spinning and aerobatic tickets in the United Kingdom but not in its country of origin, for the French require yet more tests. (How we humans like to complicate our lives!) However, so limited is the amount of "up" elevator that, although a spin entry does occur, after half a turn or so the speed increases and a spiral dive develops.

I think this is a pity, because it should be possible to demonstrate the full spin recovery in a modern trainer. For after all that has been said and written over the years, the spin in its various forms remains a killer, and the only way to combat these accidents is through education and training. In an HR200 the instructor can certainly demonstrate spin entry through misuse of controls, but the words are hardly out of his mouth before a spiral dive is developing.

A setting of 2,000 rpm returns 80 knots (92 mph), and at this setting—which is ideal for around the pattern—the HR200 is quieter than many an auto at that speed. Flaps may be lowered at up to 98 knots (113 mph), and this provides a generous margin over the normal approach speed range of 60–70 knots (69–81 mph).

To meet FAA and British CAA airworthiness requirements, Robin has had to limit flap depression to 20 degrees. This is a pity, particularly since the re-

quirement relates to a rather unrealistic lateral stability/sideslip situation. As a result, the HR200 is, in my view, lacking in drag on approach, but I am advised by the manufacturers that they are working on the problem.

The landing itself is perfectly straightforward, with sufficient elevator control remaining to hold off the nosewheel during the post-touchdown roll.

How does the Robin HR200 fit into the flying training world?

While one man's ideal aircraft can be another man's pain in the neck, I believe that most people reading this article would, given the opportunity, fall in love with the HR200. Apart from the flap handling, comfort, visibility, and appearance are all excellent, while the climb and cruise performance can make you feel the engine is being run on straight bourbon, bearing in mind the limited power.

After more than 30 years in flying instruction, I would be hard-pressed to name a better trainer, and I am certain it will produce a good pilot. Experience in France and at the few schools so far operating the type in Britain seems to indicate good serviceability and low maintenance.

The French franc is very strong against most currencies at present, so that what started life as a cheap club machine has now become as expensive as some other trainers, although few of these have a +6G/-3G aerobatic airframe.

Robin is offering the 100-hp trainer in a "Standard" and a more comprehensive "Club" version. The more plush alternative includes wheel fairings, two-color paint scheme, heated pitot, full instrument panel, lighting, anticollision beacon, individual seats, and King or Narco nav/com. (Anticorrosion treatment is standard on all Robin aircraft.)

Such an aircraft would cost 122,000 francs at the factory, so you would have to convert that into dollars at the going rate [\$28,767 at press time—Ed.]. Discussions are in progress with a view to appointing a U.S. distributor. However, during a recent visit to Dijon when I talked to Pierre Robin about the future of his company, he told me he was determined not to allow Avions Robin to become too large, since he would rather design and develop new aircraft than license production elsewhere.

The factory is like a new pin, and—having flown 11 of the 12 models in the Robin catalogue—I was not surprised to learn that this little family business has now captured almost 50% of the French light aircraft market in the face of competition from all over the world, as well as the government-owned Aérospatiale (maker of the Rallye series) and Reims Cessna.

As I said at the beginning of this article, power for power a Robin will beat all comers on all-around performance. And—to me even more important—Robin has put the fun back in flying. □