

# Look, no hands



**A**t the World Assembly in Greece in June IAOPA President Phil Boyer gave a run-down on the changing demographics of general aviation in America, where the most noticeable trend is the emergence of a new category of flyer, the man or woman Boyer calls the “no monkey business” pilot. The big growth sector is personal travel, where the pilot has little interest in aviation per se but recognises that in many situations, there’s no more efficient way of getting from A to B.

Many of these people are moving away from airliners, overcrowded airports and Caliban-like shoe inspectors and into ‘personal airliners’ like the Cirrus – relatively easy-to-fly GA planes capable of coping with most weather conditions – and are building the qualifications to use them to the full. What they want is speed, what they want is kit, and what they don’t want is stick ‘n’ rudder thrills with the wind whistling in the wires.

I was contemplating Boyer’s remarks while flying from Bodmin to Bruntingthorpe on business in the Robin DR400. I’d programmed a turning point near Kemble into the Garmin 430, hooked it up to the S-Tech autopilot and engaged the altitude hold. All I had to do was scan the instruments, keep a lookout and talk to ATC while being conveyed to my destination almost as a passenger. Purists will no doubt throw the magazine to the floor in horror at the notion of hands-free flight, but I have been reduced to the status of autopilot’s assistant, and I wouldn’t have it any other way.

Is the DR400, I wonder, the perfect aircraft for ‘no monkey business’ flying in the UK? Suitably equipped, it’s capable of everything except acquiring an altitude and landing itself. It’s not an airways machine, but unlike the Cirrus it’s happy operating from short grass fields, and it doesn’t sacrifice too much by way of speed – lay the whip to her and she’ll show

you 140 knots, and she’s happy cruising at 120. Over typical British distances, you won’t land long behind the Cirrus. The Robin is a sturdy aircraft with little to go wrong – fixed undercarriage, fixed pitch – but it has to be said, it’s good for monkey business too. If you want to fly it with your hands, it’s a willing and responsive aeroplane.

The first caveat that everyone mentions when you talk about the Robin DR400 is the fact that it’s a wood and fabric aircraft, and that means you need hangarage. I do know people who leave them out of doors (and the quality of modern aircraft covers preserves them well enough) but for preference you want the aircraft out of the weather. In fact, if you’re not going to be flying for a while, it’s worth keeping the covers on in the hangar, too.

The Robin is identifiable a mile away because of its Corsair-like cranked wing. The theory is that it improves roll stability – when

*It's not 'real' flying, is it? Pat Malone defends his role as autopilot's assistant on a Robin DR400*



Keith Wilson/SFB Photographic

you bank, the 'down' wing is presenting more surface area relative to the vertical than the 'up' wing, so the tendency will be to return to wings level. Same effect applies in yaw; whether it works in practice I don't know, other than to say that the DR400 is pretty stable in all axes, and much of that stability is down to the wing. With its pronounced outboard dihedral, washout and taper from the leading edge, it makes the stall just about as benign as it could be and helps ensure that the ailerons are effective right up to the breakaway.

It's also a very pretty aircraft all round, to my mind – well proportioned and stylish, with a sliding canopy that enhances its racy lines and gives easy access to front and back seats.

The walk-round is straightforward, although ageing bones will protest at having to crawl underneath to reach the fuel drains – two of them fairly accessible underneath each 40-litre wing tank, one of them quite accessible under

the engine, and one that a midget in his gardening clothes would grumble at having to tap, under the fuselage ahead of the wing trailing edge, for sampling the 110-litre main tank. Total useable fuel is 189 litres, and I flight plan at a very conservative 40 litres an hour at 125kt, so you'd need a bum of steel to run full tanks dry. There are fuel filler caps at the front of each wing near the root and on the fuselage left side roughly above the wing spar, this last being easier to reach if you drop the flaps – something you do anyway when parking to stop yourself stepping on them as you get out.

The baggage area is accessible through a hinged window aft of the back seats, so stowing your pitot cover, your static vent blanks and your briefcase is dead easy. I often keep the raft, the covers and the kitchen sink in there – there's ample room, and the weight limit is a generous 132 lbs. There are static

vents either side of the fuselage, you have the all-flying horizontal stabiliser to full-and-free, the rudder hinges to check, and the all-metal ailerons to wiggle. Be careful when you do this because the manufacturer provides two horizontal pillars on the dashboard to hang your headphones on, and when you check the ailerons the sticks tend to batter seven bells out of the cans. The walk-round continues with all the usual stuff, but when you're checking the oil it's worth being especially careful if there's someone else flying with you, because it's precisely at this point they will choose to slide the canopy forward over the oil filler hatch, amputating your arm.

When you're getting in, be careful not to step off the non-slip coating on the wing, because your foot will go through the fabric and your mender will greet you with a wry smile and a bloodcurdling invoice. There's ample room inside, with the impression of spaciousness enhanced by all that Perspex. Once buckled in, slide the canopy back and make sure the lock has engaged. I've been warned it can look shut without being locked, but I've never experienced it. The visibility all round is excellent, with a one-piece windscreen stretching from left shoulder to right and barely enough paint above your head to keep the sun off. Worth keeping a baseball cap handy.

Basic T-panel, and above the instruments a row of warning lights – red for warnings, green for flaps and pitot heat, yellow for messages from the Garmin 430s in the centre of the panel. Lights, pitot heat and so forth are in a row to the right. Engine instruments are below the flying clocks, including an RPM gauge with a red avoid arc from 2150 to 2350, to cover some vibration issues I'm led to believe. I thought initially this would be a bit of a bore, but in practice one cruises above 2350 (just over 60 percent power) and flies slow or descends below 2150, so it's not an issue. The notes advise the pilot to avoid 'prolonged' operation in the red arc, but what precisely that means I don't know. Far off to the right there's OAT, EGT, a second altimeter and the ventilation, which is a bit French. There are three plungers on the panel, one above the other. Pull out the top one for defrost, pull out top and middle for heating in front, pull out top

**Left: the DR400 is a French favourite; conceived by Pierre Robin and Jean Délémontez, it flew first in 1972**

**Below: turn co-ordinator houses autopilot information, with disconnects on stick**





and bottom for heating behind. Could there be an easier way on doing that, monsieur? (The pilot's notes are also cursed with that gratuitously complex French weight and balance diagram, for which life is too short.) There are two throttles, one in the middle and one on the left. I find that I fly a yoke-equipped plane with the left hand and keep the right on the throttle, a stick-equipped Robin with the right hand and the left on the throttle. Go figure. Below the left throttle, alongside the master and alternator switches, are the autopilot and trim masters. The DI has two knobs, the left one for resetting and the right one for the heading bug. The autopilot functions are incorporated in the turn and balance, which has its own knob above it. There's an up-and-down mixture control at the pilot's right knee, a trim wheel and indicator close by, and a tank selector below the mixture, with the fuel pump switch above it. In the 'off' position, the tank selector covers the starter button.

With the parking brake plunger on the console engaged – pull it out – the master switch on, strobe on (I leave it on all the time anyway), mixture rich, fuel selector to the fullest tank and pump on, mag on left, prime with three or four injections of throttle which is then left cracked, shout 'clear prop' and push the starter button. When the Lycoming O-360 bursts into life, mags to both, RPM to 1200, fuel pump off, ALT on. The lights before your very eyes will remind you the flaps are down –

**Above: cranked wing and large all-flying tailplane make for a sweet-handling, stable aircraft**

**Right: twin Garmin 430s help to take the sweat out of long cross-countries**  
**Below: trim indicator and manual trim control; tank selector in 'off' position covers starter button**



**Below: propeller tips have just nine inches of ground clearance**

**Below right: wing tanks each hold 40 litres, comfortably enough for an hour; main tank holds 110 litres**



getting in and out, remember – so retract them with the 'handbrake' handle, test the warning lights with the switch at left and call for taxi.

The DR400 hugs the earth a bit. There's only nine inches between the tips of the Sensenich and the ground, so on uneven surfaces or crossing from tarmac to grass you must exercise extreme caution. It is advised that you avoid exceeding 1200 RPM until the oil temperature reaches the green at 60 degrees, so there's plenty of time to programme the Garmins and test the autopilot. Once you've turned the S-Tech master on, the autopilot will take a few seconds to get its act together then reward you with a steady green 'RDY' light. Pushing the selector knob cycles between stabiliser mode, heading mode, and high and low track. 'Stabiliser' holds heading, 'heading' answers the bug on the DI, and 'high track' is for VOR or GPS tracking. 'Low track' is more sensitive and is used for approaches. Choose ST by pressing the select knob once, and if you then turn the select knob, the stick should follow. Push again to select HD and do the same with the bug on the DI, and again the stick should follow. Stir the stick to over-ride the autopilot, and while it should be difficult, it shouldn't be too stiff. 'Altitude hold' is a blue button on the stick, and in flight you may get a beeping noise to prompt you to trim – there are lights on the instrument to tell you whether it wants you to trim up or down. If you knock off the altitude hold or the autopilot with the red switch on the stick you'll get an insistent beeping noise for five seconds which I thought would be annoying until I did it in flight by accident, at which point I discovered it wasn't annoying at all.

By now you should have adequate oil temperature, and once you've done your power checks you can drop a notch of flap – there are only three options, take-off, landing and up – line up, check the DI, controls full and free, gently apply full power and go flying. Acceleration is strong, even uphill through the long grass at Bodmin. With two up and full fuel she wants to fly at 60 knots after about 300 metres, and the merest back pressure will allow her to do so. The cowling slopes down quite steeply towards the spinner so forward visibility in the climb is relatively good, and in level flight it's particularly good. Even at full power the noise level is not excessive, certainly well below that of Witchita tin. If you're used to



Keith Wilson/SFB Photographic

**Top left: canopy slides forward for access - be careful if you're dipping the oil**  
**Left: useful baggage area is accessed via a hinged window**  
**Above: the wings are tapered on leading and trailing edges, with washout outboard of the crank**

Cessnas and Pipers the speeds are a little on the brisk side. Best rate of climb with take-off flap is 81kt (92kt clean) and with the ASI white arc ending at 92kt you have to be careful not to overstress the flaps. Unless I'm heavy, I'll easily see a steady 1000 fpm on the VSI, and if I'm on my own 1200 fpm is more like it. Max all up weight is 2425 lbs, giving a decent useful load of 1100 lbs.

I knock off the fuel pump and retract the flaps at 500 feet. After levelling off, reducing RPM to 2350, the top of the red avoid arc, settles her out at around 115kt, while the bottom of the arc, 2150 RPM, gives you around 90kt. The electric trim is quite robust, and it can sometimes be difficult to trim precisely; if you engage the altitude hold before you've trimmed to perfection you can end up stabbing at the button while the autopilot nags you to get it right. It's worth trimming manually and trying again.

The controls are quite light, the all-flying tailplane giving crisp pitch response — the anti-servo tab on the tailplane makes pitch control heavy at the extremes — and the metal ailerons providing sprightly roll rates. Adverse yaw is barely noticeable. The aircraft benefits from a little rudder before a turn, although it will go round as well as any American single if you neglect the footwork. If you let go the controls, she can carry on in a straight line indefinitely if you're correctly trimmed. The

Robin is rather more slippery than similar Cessna and Piper aircraft and will take longer to slow down when you cut the power; it pays to think well ahead when you need to wash off speed for flaps.

Clean, she stalls at a whisker over 55kt. You get plenty of notice from the stall warner and she mashes and nods before the nose breaks away, with little tendency to drop a wing. With full landing flap the breakaway came at 51kt, power off, and again she remained stable in roll. The Robin won't keep flying down to cycling speeds like, say, the 172, but it is no drama queen. The glide with a windmilling prop seems to be about eight to one, according to my crude experiments.

So much for hand-flying. My usual practice is to set course and engage the autopilot, attain my desired height and engage the altitude hold, then follow the map and look out for traffic. I tend to switch off the autopilot as soon as I encounter turbulence; the S-Tech will cope adequately with everyday lumpiness but it's quite slow to react, so it's more comfortable to do it yourself. The ASI redlines at 166 knots, and Vno is 140. There's no need for fuel tank management. She can handle any mismatch, although I tend to run out the wing tanks first (two hours plus) then I've got two and a half hours left in the middle, with plenty to spare. The Garmin gives me a FREDa alert every 30 minutes (although I find that I'm

doing the checks every five minutes) and all the checklists are also entered into the 430. Not real flying, is it. But it gets me where I want to go. I knock off the autopilot when I start my descent. Applying full carb heat costs about 250 RPM and makes the engine lumpy, so I tend to warm the carb at a higher power setting then return the control to cold for the descent unless carb icing is a pressing issue. Full flap on finals, and 68 knots gives 500 fpm, with that big tail giving ample authority in the flare. The undercarriage is forgiving enough to absorb cannon fire, although if you get the speeds right you can feather her down every time.

And so you're arrived, fresh and ready to do business. And no monkey business. ■

**Robin DR400-180 Regent**

Wingspan:	8.72m
Max height	2.23m
Length	7.10m
Empty weight	1314 lbs
MAUW	2425 lbs
Useful load	1111 lbs
Max baggage	132 lbs
Climb (MAUW)	800 fpm
Max cruise	140kt
Vne	166kt
Fuel flow	Circa 35 lph
Endurance	5hr 40m
Service ceiling	14,700 feet
Engine	Lycoming O-360 180