Micro-jet Masterpiece

The world's smallest twin-jet is a proper aeroplane, designed by a professional aeronautical engineer – and the progenitor of a whole family of very efficient designs

Words: Bob Grimstead **Photos:** Karen Grimstead

Reactions to my wife Karen's excellent photos of this sweet little aeroplane have included: "Scary", "Noddy plane", "Bubble-car on wings", "Something from the Jetsons". On the other hand more knowledgeable aviators have commented: "Very jealous", "Cool", "Awesome" and "Lucky bugger!" Ignore the naysayers - this really is a fine aircraft.

It was built by former South Africans Sakkie Van Heerden and Davie Botes. They are serial homebuilders who, between them, have a LongEz, a Wittman Tailwind souped-up with a massive Lycoming O-320 and aluminium-skinned wings, an RV-8A with an 0-360, and a very modified Aztec they call 'The Bitzer' from which Karen took these photographs. Looking for something smaller to construct, they originally considered the Bede BD-5 before turning to an uncompleted Cri-Cri project based on the airfield, bought that and built it.

I put in 'massive' when I wrongly thought it had an O-360 (double original O-200 power)

It took them two years, but this was not a quick-assembly kit in the modern sense, more a bundle of raw components that must be properly fabricated. First flying with Limbach piston engines, they soon converted it to turbojet power, subsequently devising and fitting a smoke system in which they burn baby oil. Apparently they get strange looks when checking out at the chemist's with an armful of bottles!

I'm fascinated both by unusual-looking aeroplanes, and by very lightweight, efficient ones, and admire aircraft with responsive controls and good visibility: the Cri-Cri has all these attributes in spades. Yes, with those tiny turbines it does take a while to get airborne, but once in its element it is superb, with supremely light controls giving instant response.

First you have to get in. Both Sakkie and Davie are tall like me, so I was optimistic, although Sakkie cautioned me to wear close-fitting clothing and lightweight shoes. The canopy swings over to its right and you simply step up six inches from the ground on to the seat, put your hands on the sills to take your weight and feed your feet down into a pair of long, dark tunnels either side of the bulbous main fuel tank, where they eventually come to rest on invisible pedals in the distance. Then lower yourself into the cockpit.

ABOVE: **'once in its element it is superb, with supremely light controls giving instant response'**

LEFT: **The cockpit is snug but comfotable and the tiny panel contains everything necessary. Left sidewall has dual thrust levers and flap selector**

The seat is just a sheet of aluminium squab with a deckchair-like canvas backrest. There wasn't sufficient headroom for the foam cushion I'd planned to sit on but I managed to squeeze a length of foam padding behind me. Some pilots might be uncomfortable sitting with legs astride the fuel tank and had it contained volatile Avgas I might too—but I was quite content with the far less flammable kerosine. The tank is made of translucent fibreglass with the contents marked externally, although the lower levels can be difficult to read accurately in the dark down by the floor, so they've fitted a proper and necessarily very accurate fuel gauge. Feed is independent to each engine, and two internal flop tubes ensure continued flow in all attitudes.

kerosene?

The instrumentation is both comprehensive and easily comprehended, given the cramped panel space. The guys made best use of this by changing from a straight-across panel to one folded to give two supplementary side sections. Thus they squeezed in, from top to bottom and left to right: timer, slip ball, engine master switches and start/kill buttons, pilot-cooling fan switch and outlet, master switch, G-meter, ASI, digital engine readouts, fuel transfer pump switch, pre-takeoff checklist, Icom handheld radio, VSI, digital altimeter, a nice clear fuel gauge, the equally essential voltmeter (once the battery capacity drops below 10.5 volts you're in a glider) and a tiny Garmin GPS. That's an impressive complement for a panel that is just 21 inches wide. It's topped by a domestic kitchen timer, which you set to your estimated endurance immediately before starting. Thereafter, its bright red segment gradually reduces, reminding you not to dawdle.

nine volts, my error, sorry

BELOW: **Between them these engines produce 94.4 pounds of thrust (420 Newtons) and burn a maximum 78 litres per hour of Jet A-1**

Taped outside on the canopy's front is a classic glider-style yaw string, so you don't have to look inside to stay in balance. There is also an angle of attack vane ahead of the right main gear leg which sounds a buzzer above fifteen degrees A o A.

The cockpit is snug but not cramped with everything nice and close. Twin quadrant thrust levers with black knobs fall just under one's left hand on the sidewall, with the three-position flap lever immediately below them. Symmetrically on the right is another, longer lever with a pair of strong bungee cords attached part-way up. This is the pitch trim bias. A similar bungee bias lever is fitted to the rear of the control column for aileron trim, while the bike brake lever is attached to its front face. An ingenious geometry gives differential braking →

Flight Test | Colomban Jet Cri-Cri

when the stick is moved left or right. Today's wind is calm, the temperature 24°C—comparatively cool for Western Australia—and the pressure is 1024mb. For my first flight my fuel is limited to a full main tank plus five litres in each wingtip to ensure reasonable takeoff performance from our 900m runway. With the Cri-Cri's minimal empty weight, 33 litres (27kg) of fuel, plus my 75kg in light clothes, we weighed 184.6kg, or only ninety per cent of the 205kg MTOM (maximum takeoff mass). I could easily have taken the full 43 litres of fuel, but every extra five degrees OAT or ten kilograms of mass adds around 100m to the takeoff roll, so, as ever with a very light airframe, attention to weight is critical.

Pushing my feet left and right, I confirmed by looking over my shoulder to the rudder a few inches behind me that I had full and free movement, plus nosewheel steering. Waggling the short stick fore and aft and sideways confirmed the same with flaperons and stabilator. At this stage the elevator felt quite heavy, but I knew that was because of the trimming bungees. Colomban's very comprehensive Flight Manual specifically mentions this, while warning, 'stick load becomes very light at over-speed'.

Now the excitement begins—and it can be a bit breathless. Given the thirst of all jets at low altitudes you never waste a second, so SOP for this Cri-Cri is to tow it to the threshold, complete the pre-flight external check, check the fuel cocks between the footwells are in their usual 'on' position, hop in, strap up tightly (fixed five-point harness, but I can easily reach everything), visually check the circuit very thoroughly, close the canopy, make a 'lining up' radio call and only then start the engines. Fully close both thrust levers, select engine master switches 'on', press the twin 'kill' buttons for one second, fully open the thrust levers for a brief self-test sequence and then close them again. Set that vital clock to 33 minutes and clamp on the brakes with your right hand.

The engines now wind up—and an ANR headset helps, because it gets quite noisy. I spotted wisps of oily smoke from the right nozzle before both engines lit almost simultaneously, the left with a two-foot blue flame. The rpm peak and then subside to idle after a maximum EGT of 550˚C and we're in business, the whole process taking just under a minute.

Despite following the placarded checklist, and probably distracted by that unfamiliar starting routine, I forget to select flap. With another quick scan of the approach, I release the brake lever, expecting to roll forwards under residual thrust, but no, I have to open the taps quite a long way before we screech forward and on to the runway. About sixty to seventy per cent rpm seems necessary. I have been warned that the steering and brakes are sensitive, so I check we're centred and straight, clamp the rudder pedals as best I can and cautiously push forward the twin levers until the rpm have audibly peaked — at a mind-boggling 120,000rpm! A quick glance inside to check we →

BELOW: **Two ten-litre wingtip tanks were added to counteract jet engines' thirst**

Please credit Howard Jones for these photos. Thanks

AoA vane sounds a warning horn at 15˚, tiny pitot head tube protrudes just ahead of it

Triangular leading edge strips ('Toblerones') give excellent pre-stall buffet

'Flaperons' combine flap and aileron function in one surface, operated through a clever mixer box

Poised for engine start as close to the runway as practicable to minimise fuel consumed taxying, ground crew show just how tiny the Cri-Cri is

Key to efficiency

The wing is key to the Cri-Cri's efficiency. See its high aspect ratio. See its semi-symmetrical laminar-flow aerofoil. That slightly modified Wortmann section has an unusually deep 21.7 thickness/chord ratio, which makes it strong as well as giving it high lift at comparatively low airspeeds. If you run this wing through a fluid dynamics programme you'll find that, while the mainplane alone is quite a good lifting surface and its Junkers full-span flaperons are extremely effective, it's actually the combination of these two and the precisely tailored slot between them that makes this aircraft so efficient. With a chord of only 480mm, it has an exceptionally low Reynolds Number*, encouraging laminar flow. Structurally, the wing has a single 2024-T4 Aluminum I-Beam spar, with one sheet per side of pre-formed 2024 Alclad skin epoxy-glued on to close-set Klégécell 100 or Divynicell foam ribs. The lack of rivets provides a very accurate and smooth profile, further enhancing laminar flow over most of the chord. Like a glider's, the wings are quickly removable for easy transportation or storage.

For those not familiar with flaperons, these trailing-edge surfaces are lowered symmetrically as flaps, but also operate differentially as ailerons, thanks to the geometry of a smart mixer box. They are in four segments, bolted together in pairs, and don't have conventional spars but simply four light aluminium ribs apiece — one at each end and two more at the hinge attachments. Rigidity is provided by being filled with Klégécel foam for twenty per cent of their chord over the entire span.

Because gas turbines are thirstier than piston engines, the builders have made and fitted extended wingtip fuel tanks, each holding ten litres and effectively doubling endurance. Between them these little jet engines can burn up to 1.3 litres per minute at full throttle, so they work on an average total consumption of one litre per minute or 60 lph, which isn't expensive when you consider that jet fuel and red diesel attract no tax.

The fuselage is a simple rectangular box built around four lengthwise L-section 2024-T3 aluminium angles and light 2024 bulkheads onto which are riveted 2024 Alclad skins. Further stiffening and noise suppression are provided by bonded Klégécel stringers. Topping this assemblage is the comparatively huge streamlined bubble canopy. Actually, only the front half is a blown bubble, the rear part is a single-curvature piece of thin Lexan.

The tail surfaces are all constructed the same way as the wings, but with symmetrical and thinner Wortmann 12% aerofoils. The T-tail has an all-flying tailplane ('stabilator') operated by push/pull tubes and high enough to be out of the propwash or jet stream blast. The rudder is deflected by cables and has a fixed trim tab while bungees provide adjustable bias to both stabilator and ailerons.

The main undercarriage is a U-shaped glassfibre lamination. Its small 210x70 wheels have Bowden cable-operated bicycle disc brakes. The nose leg has bungee shock absorption and its 200x50 wheel is steerable through the rudder pedals. All are enclosed by the tiniest spats. Right at the rear underside is a sweet little tailspring to prevent fuselage damage on over rotation during takeoff or landing. Ahead of it is a handy transparent panel for inspecting the control linkages.

The result of all this meticulous design is an airframe that weighs a mere 82.6kg.

Now to the really fascinating bit – those minuscule jet engines. Davie and Sakkie originally fitted the current standard Limbach twin-cylinder two-strokes turning Prince propellers, because they were proven aero engines equipped with (single) integral magnetos and carburettors and commonly used on self-launching gliders and some of the bigger UAV drones. Unfortunately, after 23 hours of test and fun flying, they discovered a fatigue crack in the right engine pylon, apparently caused by the high-revving two-stroke engines' vibration. After much analysis and testing this ingenious pair devised improved pylons, but by then Limbach had closed down so obtaining spare parts became problematic. So they turned to thoughts of vibrationless jet propulsion.

Aware that at least three other jet-powered Cri-Cris had flown in Europe, they researched the turbine options available, eventually designing and making new pylons and mounts for a pair of 210-Newton thrust Czech PBS TJ20A turbojets. These are single-shaft engines with single-stage centrifugal compressors, annular combustion chambers and single-stage axial turbines. They have integral intake filters and outlet nozzles. Engine bearings are lubricated by adding 3% of turbine oil to their kerosine, Avtur, diesel or Jet A-1 fuel. Each system includes a fuel pump and two electromagnetic valves. Starting is electric, with a single ignitor plug in the combustion chamber, while thrust control is digital electronic, i.e. 'fly-by-wire'.

have thrust in the high nineties of per cent and then I concentrate on keeping approximately straight as we squiggle along the runway.

Speed builds inexorably and I see fifty knots by the halfway point. Pre-warned about the inevitable T-tail pitch sensitivity, I very gradually and progressively ease back on the stick while concentrating like mad to stay straight in what is effectively a jet-propelled 60mph go-kart steered with the feet. After twenty seconds and about 600m we pop into the air at sixty knots and the highly sensitive steering gives way to a slightly less sensitive, but still lively, aerodynamic rudder. Simultaneously the external noise reduces as we climb away from the runway's sound-reflecting surface, dwindling to a steady loud hiss.

Zooming smoothly upwards I hit the stopwatch, timing the first minute's climb as 1,050fpm at a not-very-steadily held 105-110kt. Best climb rate speed is actually 100kt, with the best climb angle happening at ninety, although 110 knots is the recommended normal climb speed.

Boy, this aeroplane is lively, and my reactions aren't yet attuned to its controls' sensitivity, but what a delight it is as I do become used to it. I glance out at the engines a metre away to see a satisfying dull red circular glow within each one and a smile spreads wide across my face.

Passing 1,500ft and very aware of the jets' five-minute full power limitation, I throttle back to the maximum continuous power of 80% rpm—a 'mere' 96,000rpm, which gives about 105kt in level flight. Now I can relax and concentrate on the Cri-Cri's handling: its controls are light and very responsive in all axes, although perhaps liveliest in yaw. Brief tests establish that it's stable in all axes too, although only barely in roll, so I can relax my grip on the stick for a few seconds to scribble some notes.

Now, we're not talking about certified aeroplane levels of stability here, which require several pounds of forward or backpressure to effect a ten-knot speed change. The Cri-Cri's control forces would be measured in grammes, so Cessna, Piper or Decathlon drivers would be advised to fly a Turbulent, Corby Starlet or Taylor Monoplane before venturing into one of these. Nevertheless, when trimmed it is positively stable, albeit having possibly the lightest controls I've yet encountered. Think 'jet Pitts'.

Visibility is superb. Indeed it is unsurpassed, and to my surprise there is no sense of being sat on, rather than in, the airframe. It is all cosy and comfortable and actually unremarkable in the nicest possible way.

Throttling back the left engine to idle (there is no 'critical engine' with jets, of course) I can maintain altitude at 2,000 feet and around eighty knots. Opening up the other to full thrust demonstrates a small positive rate of climb, although I am working too quickly to time it accurately.

ABOVE: **that 'nose probe' is actually a 4.7kg tungsten balance weight on a strong arm, mounted to compensate for the low mass of the turbojet engines**

LEFT: **grinning from the glasshouse, Bob felt he was very much sat in the Cri-Cri, rather than on it, as its appearance might suggest**

The lightest controls I've yet encountered. Think 'jet Pitts'

That needs perhaps three-quarters rudder deflection, albeit with a very light force, against about half deflection with only eighty per cent rpm set on the live turbine.

Next, reducing thrust to idle on both jets I find, unsurprisingly given those long wings, minimal cross-section and wetted area. It takes a while for the airspeed to reduce, but eventually at around 55kt I feel a distinct burbling of buffet which gets ever stronger as the speed continues reducing. Being much more familiar with the widely-used NACA23012/15 aerofoil, I'd forgotten what good stall warning some other wing sections provide. Also there are small triangular stall strips on the inboard leading edges (what some folk call 'Toblerones').

Eventually at exactly fifty knots, with unmistakable rumbling buffet, wallowing, wing-rocking and some sink, and requiring quite a strong pull force, the Cri-Cri's nose nods, but immediately resumes flying. This little delight really does not want to stall. Much the same happens with takeoff flap selected, but the buffet begins at fifty knots and what break there is comes with a gentle nose nod at just 45. There is instant recovery the moment I ease off the backpressure and virtually no height loss afterwards. Davie and Sakkie have blocked off the full flap position for safety after having been startled by a wing drop during the flare, so 45kt indicated is the minimum flying speed for this example, and I reckon that is quite low enough.

Aerobatics up to +4/-2g are approved, provided fuel quantity is below fifteen litres. By now in the main tank it is, but the tips still have fuel in them, so I flick on the transfer pump switch, deciding first to fly some medium and steep turns. These are also easy and instinctive, the aeroplane rolling in and out quickly and turning in a remarkably tight radius.

Now I want to practise some approaches and go-arounds. I was warned that, being a clean airframe and with little flap drag, the approach needs to be from a low angle. Sakkie had given me an approach gate matrix and I referred to that. There appears to be little problem except the perennial one with jets of ensuring there is some residual rpm in the final stages to obviate the risks of a slow spool-up from idle for a go-around. That uses up most of the remaining fuel but, guessing that landing this unique aeroplane might be tricky, I am very reluctant to return with less than an absolute minimum of ten minutes' endurance, and preferably fifteen. For the same reason I have stayed close to the airfield's overhead throughout. The main tank still reads fifteen litres, and I have to presume that most of the wing tanks' fuel has now been consumed (they don't have gauges), so I go straight into the aerobatics.

Vne is 140kt, with a Va (design manoeuvring speed) of 100. Colomban recommends quite a high airspeed of 130kt for entry to looping figures, but I reckon a lower speed will be fine for an aileron roll. Not intending to use anything like full deflection, I leave the rpm at 80%, reduce airspeed to 120, make a quick 3g pull-up to just ten degrees above the horizon (clean airframe, remember) and assertively apply left aileron. Upside-down… upright! That was soon over! *Did I roll? Guess I must have…* Better try again the other way. Again quick - →

just four seconds. Oh boy, I could roll this little beauty all day long.

What about a barrel roll? Same airspeed, same power, up, over and around we go. Sweet as condensed milk. I try another the other way. Dead easy! Okay, now for a loop. I dive to 140kt, pull back gently with an eye on the G-meter to limit acceleration to +4g and over the top we go, with about fifty knots indicated at the apex as I ease off the backpressure to round out the loop a little. Just right. Definitely not circular, but acceptable for a first attempt—and of course no rudder required because there's no propeller.

Okay, that's enough pleasure, now for the challenging bit. I told the guys I planned to fly at least one low approach to a go-around to get the feel of things, and perhaps a second if I had sufficient fuel, so I close the thrust levers, transmit, and descend into the circuit. The flap limit speed is pretty restrictive at seventy knots, and a bit hard to comprehend because—as ailerons—the same surfaces can be moved to full deflection at 100 or more. Still, if that's what the book says...

Approach speed is usually calculated as 1.3 times the stalling speed in the landing configuration—in this case 1.3 x 45kt, or 58kt. Let's say sixty for ease of reading. My concern is the unknown position error, plus this unaccustomed tiny aeroplane has minimal momentum and no propwash to save the day, and engines that are slow to respond from low rpm. So I make my first approach at 65kt, reducing to sixty over the fence.

Oh boy, I could roll this little beauty all day long

Sakkie's matrix says fly at 65kt with flap from late downwind at 700ft and just five per cent power and 400fpm downwards until over the hedge when speed can be reduced to sixty and power increased to 8%. I'll freely admit that at first I don't find it easy to hold the speed that accurately. Plus these controls are so light it feels as though I'm going too slowly until the ground rushes up and past. I am over-controlling in the slightest bumps of a near-calm day.

My first approach does indeed result in a go-around, and so does my second, despite side-slipping off some height and ensuring I cross the fence at 65kt—but unfortunately at ninety feet. Downwind again, with the timer reading just fourteen minutes of fuel remaining until silence, I have a good think. A tiny annoyance is my right elbow repeatedly bumping the pitch trim lever. I solve this by pushing it right back as far as it will go, and in so doing realise that, because of the extremely light controls, I haven't been properly in trim. Now I am correctly trimmed for 65kt, albeit holding the tiniest of residual backpressures, my third approach goes much better, with more precise speed and height

control, although at sixty over the numbers I still seem a bit fast and land quite deep. This very clean aeroplane sits a mere handspan off the deck and thus, of course, floats in ground effect if you let it. So, like all jets, you don't flare and hold off as you would in a propeller aircraft, you just check the descent, ensuring the nosewheel is higher than the mains, and then let the aeroplane settle in that attitude.

Touchdown is nicely nose-high, quite soft and at fifty knots as advertised. The engines have spooled down to idle but accelerate quickly enough, so I make this a touch-and-go. Emboldened by my increasing familiarity, I fly the next approach at sixty for 55 over the boundary and am rewarded by a touchdown on the piano keys. For my final effort I completely close the right engine's thrust lever to try an engine-out landing. Since all my approaches thus far have effectively been glides with both engines virtually at idle, this is little different, and now I really seem to have nailed the landing.

Ensuring both thrust levers are completely closed, I gently squeeze the brakes as the speed falls through thirty, cogniscant of Sakkie's warning that they can be sensitive, and we rumble to an easy halt using most of the runway. The timer reads ten minutes, perhaps enough for two more attempts. After landing I discover my mates have been running an informal sweepstake on how little fuel I would have remaining. I don't think anybody guessed as high as the fifteen litres I actually had. Shutting down is even simpler than starting. You simply press the red 'kill' buttons and the engines quickly wind down to nothing and then undergo a series of automatic motoring cycles to cool their internals.

My second flight is for these photographs. The temperature is below 20°C and there is a →

Flight Test | Colomban Jet Cri-Cri

An innovator and his aeroplanes

Michel Colomban is a professional aeronautical engineer who has worked for several major companies, including Morane-Saulnier, Potez and Aerospatiale. He is also an enthusiastic general aviation pilot and a prolific homebuilt designer.

Colomban's initial design was the piston-powered MC 10 Cri-Cri, which first flew in 1973. Originally designed as a minimal single-engined aeroplane, Michel couldn't find a suitably-sized powerplant, so he re-designed it for two nine-horsepower, 137cc, two-stroke, pylon-mounted engines. Very light and efficient, its structure was claimed to be the only one then able to lift 170 per cent of its empty weight and it was said to be delightfully aerobatic. He named it 'Cri-Cri' after his young daughter Christine's nickname (French slang for a cricket as it imitates the sound it makes).

Due to the original engines' limited performance, the aeroplane was upgraded first with a pair of 12hp 125cc American McCulloch two-stroke singles, and then similar but simpler 160cc two-stroke Finnish Valmet SM160J snowmobile engines, re-designating it the MC 12. Colomban has since sold several hundred sets of plans. The current version, the MC 15, uses twin two-stroke twin Limbach L275E engines (said to be derived from Volkswagens) that are no longer available new.

The first jet Cri-Cri was Yves Duval's in 1997, using JET Cobra turbines and burning propane as a fuel, although it has subsequently been converted to electric power. Sakkie and Davie's Cri-Cri is the fourth and first flew as a jet in 2015.

Colomban's Cri-Cri was so popular that in 1987 he went on to design a plans-built, side-by-side two-seat derivative, again with an aluminium and composite structure, which he named the MC-100 Ban-Bi (from ColomBAN and BIplace — two seats). The Ban-Bi was said to be capable of an awesome 190mph on the eighty horsepower of a Rotax 912. Given that the historical measure of aeroplane efficiency has been one mph per horsepower, that is an almost fantastic achievement. The Ban-Bi's design rights were quickly snapped up by Christophe Robin (son of legendary lightplane manufacturer Pierre Robin) to become the 1995 all-composite Dyn'Aéro MCR 01 Banbi kitplane. This developed into a family of types having up to four seats and two engines. Regrettably, Dyn'Aéro is now defunct.

More recently, Colomban designed his 2007 MC-30 Luciole (Firefly) an efficient single-seat tailwheel ultralight of mixed aluminium, plywood, GRP, foam and fabric construction. This is normally powered by a tuned 25hp four-stroke Briggs & Stratton V-twin, but also in Luxembourg by an electric motor. I don't think anybody will fit jets to this!

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www.lightaircraftassociation.co.uk/engineering/TADs/133%20COLOMBAN%20CRI-CRI.pdf

seven or eight knot headwind, so they re-fill the main tank and put ten litres in each wingtip, giving me the full 43 litres and thus perhaps 45 minutes of low-level endurance. This time I remember to select takeoff flap, hold it on the brakes, open the throttles (spool-up takes less than five seconds) and then release the lever when I can hear the rpm have peaked. To my slight surprise, this little aeroplane now fairly leaps forwards, romping along the runway until I spot sixty knots out of the corner of my eye and tweak it into the air after just eighteen seconds and maybe 450 metres.

The photography is easy. It has been said many times in these pages that close formation flying will reveal an aeroplane's true character. For the Cri-Cri a single word will suffice: precision—provided the pilot handles its sensitive controls with sympathy. Physical inputs are not needed, this little gem simply goes where I want, when I want.

For frontal shots I try side-slipping gently at first because I have no idea how well these jets will cope with high intake airflow angles. I don't get to full rudder deflection, but I do get enough of a yaw angle to hear and feel serious burbling from airflow breaking away from the canopy. And still the turbines hiss contentedly. Acceleration in flight is surprisingly spectacular. Once those tiny whizz-wheels are up to around seventy per cent rpm, they whip up to maximum thrust almost instantaneously, giving a real push in the back!

And this time I've got the approach nailed. Crossing the fence at just under sixty knots and fifty feet, we barely float before touching down within 100m of the threshold at 45kt and roll out in less than 400m.

My initial reactions were "What an absolutely superb aeroplane! What fun. I could have aerobatted it all day long. It's so responsive... I really, really enjoyed that." This was a landmark air test for me in several ways. The Cri-Cri is both my 250th type and my 25th jet type, plus the most fun I've had in a new aeroplane in a very long time. Best of all, Davie & Sakkie have fitted a smoke system and want me to display it for them next season. I can't wait!

MC15 JET CRI-CRI

Dimensions

Wing span	5.30m
Length	3.90m
Height	1.20m
Wing area	3.4sq m
Aspect ratio	8.5

Weight

Empty equipped	82.6kg
Maximum at takeoff	205kg

Performance

Vne	140kt
Max level speed	XXXXXXXXX
75% cruise speed	107kt
Full flap stall	45kt
ISA MSL Takeoff distance	366m
ISA MSL Landing dist	950m
climb rate	1,180fpm
ISA MSL Max endurance	61min

Engine

Two PBS TJ20A turbojets giving 210N thrust at 120,000rpm. TBO 50hr or 500 starts. Distance between engines 0.95m.

Fuel

One 23 lit fuselage tank and two 10 lit wingtip tanks. Fuel - Either JET A-1 or Diesel fuel with 4% (1:25) MIl-L-23699 turbine oil.

3%?