Pilot Flight Check:

The Cardinal RG

Economical and easy to fly, Cessna's super-clean high-winger offers retractable-gear advantages at a lower-than-premium price

by PHIL VAN OSTRAND/AOPA 447409

■■ At a basic price of $25,995, the Cessna Cardinal RG is not the plane for everyone. But for the pilot who wants a retractable-gear single, with four seats, fine cruise performance, good hauling ability and a niggardly thirst, the RG may be the answer.

A cantilevered high winger sans struts, the RG has an almost stiletto-like appearance. Its stick-man legs detract from the plane's otherwise clean lines, but gear up and locked, it's a sexy bird. Although 27 feet of riveted metal span from spinner to tail cone, the aircraft looks deceptively compact. That misapprehension is corrected on closer inspection; there's leg-stretching room aplenty.

One of the RG's little surprises comes during preflight. The aircraft's fuel reservoir drain is located under the pilot's seat, and the dumps are under the cabin. So if you're standing outside when you pull the drain handle, you'd best be fleet afoot or your shoes might get a 100/130 octane polish.

Prestarting and starting checklists are conventional, and the 200-horse Lycoming IO-360-A1B6D on the subject RG was purring after less than a dozen turns of the 6½-foot prop. The mill is fuel injected and the prop is constant-speed.

Groundhandling the RG was a snap, with very crisp nosewheel steering. Although the plane uses bungee steering through the rudders, control authority was very solid, and little help was needed from the twin disc brakes. Runup is conducted at 1,800 rpm, and a 150-rpm drop is allowed on either mag, with a 50-rpm difference between them.

When taxied onto the active at Cessna's Pawnee Division strip near Wichita, the aircraft weighed 2,500 pounds, or 300 pounds shy of its maximum gross weight. The RG broke ground after some 700 feet.

Even though the outside air temperature at 5,500 feet was a warm 66°F, the ride was surprisingly smooth for a summer morning in central Kansas, and just right for some cruise checks. The RG's power computer came in handy here. At straight-and-level cruise, using 75-percent power—23 inches of manifold pressure and 2,600 rpm—the RG's airspeed indicator worked its way up to 160 mph (139 knots) indicated, for a true airspeed of 177 mph (154 knots). Reducing the power to 65 percent—23 inches and 2,300 rpm—resulted in a true airspeed of an even 173 mph (150 knots). The aircraft's flight manual cruise charts say you can lean the RG to a miserly 9.5 gph and stretch the 60 gallons of avgas some six hours. That works out to a 1,040-sm (900-nm) range without reserves.

Throttled back to 55-percent power—20.5 inches and 2,350 rpm—the RG settled down to 141 mph (122 knots) indicated, or 155 mph (135 knots) true. And that while burning just under nine gallons per hour.

It should be noted again that these performance figures involved an RG flying 300 pounds under gross. The formal Cessna figures, therefore, don't quite match, since they were computed from a gross-weighted plane. For example, the Cessna book says an RG at 75-percent power and 5,000 feet will true at 166 mph (144 knots). At the same altitude at 65-percent power, the book calls for 158 mph (137 knots), and at 55-percent power the book shows 147 mph (128 knots) true.

The RG was an equally good low-speed performer. Power off and clean, the aircraft stalled at 67 mph (58 knots); power on, she fell off at 59 mph (51 knots). With gear and flaps down and the stall horn moaning, the plane stabilized at 51 mph (44 knots) indicated. Even though the stall horn never let up during this slow-flight check, the RG was rolled into moderate banks, both right and left. Control was loose, but there was still plenty there. Straight ahead, the plane broke at an indicated 45 mph (39 knots), with a gentle pitch down.

Control forces in the RG are light and extremely well-balanced. Electric trim would make the aircraft a little easier to manage when things get busy; however, the plane's manual trim was sim-

ple to manipulate and was both quick and positive.

Turning into the pattern at Cessna's facility at Strother Field near Arkansas City, Kan., it was time to test the RG's pattern habits. This is an extremely clean aircraft, and if you don't think well ahead, you can discover that you're 2,000 feet above pattern altitude, five miles from the strip. Should such a situation arise, the pilot has three options: (1) He can pull the throttle all the way back, confess his lack of planning and listen to the RG's gear-warning beeper while he dives for the right altitude; (2) He can make a series of wide 360s, thus confessing to all who can see that he's a dummy who can't think ahead; (3) He can run out 10 degrees of flap at 150 mph (130 knots), drop the gear at 141 mph (122 knots), pull the power and descend rapidly with nobody the wiser.

We elected option number two. There wasn't anybody around.

The RG is easy to fly in the pattern, and the large windshield gives the pilot all the visibility he should need—providing he looks out of the windows. The large glass area, coupled with the pilot's position in front of the RG's modified laminar flow wing, provides a panoramic view.

Coming in with an additional 10 degrees of flap below 111 mph (96 knots) and throttling back to 81 mph (70 knots) on downwind, with the gear down, set up an ideal visual approach. The RG's flaps cause very subtle pitch changes, and application of the full 30 degrees of flap on base doesn't lead to a 30-second wrestling match with the trim wheel.

Turning final and slowed to 75 mph (65 knots), the RG flew itself down to

RG is as clean and uncluttered looking from the back as from the front. Fully cantilevered wing, positioned behind the pilot, has almost 30 square feet of flap.

the runway. On short final, Cessna check pilot Mike Mawhirter (AOPA 276447) suggested that a little power be carried into the flare; otherwise the plane tends to settle right through the flare and into a solid arrival. He was right. So 12 to 15 inches of manifold pressure should be held right into the flare before pulling the throttle.

The weekend base for the RG was Oklahoma City's Expressway Junction Airpark, which is conveniently located among 1,500-foot-agl towers, a freeway overpass, a hill and a milk plant. The 3,000-foot strip, plus good service, took most of the pain away.

During flights into and out of Expressway, the RG handled the obstacle clearance problems with ease. All short-field and obstacle clearances were flown just as the book says, with 30 degrees of flap at an indicated 71 mph (62 knots) and a minimum of fuss on landing.

Genuine short-field departures over the hill at the north end of Expressway's Runway 2 netted a maximum rate of climb equal to the book figure of 1,000 fpm. All takeoffs were made with the recommended 10 degrees of flap. Flap retraction on climbout produced very little pitch change.

Climbing out of Expressway on an 83°F morning, en route to Tulsa, the RG reached a cruising altitude of 7,500 feet just under 15 minutes from brake release.

On the return trip from Tulsa, the RG underwent another series of speed checks. Level at 6,000 feet this time, with 65-percent power and leaned to 11 gph, the RG indicated a cool 155 mph (135 knots), or 175 mph (152 knots) true.

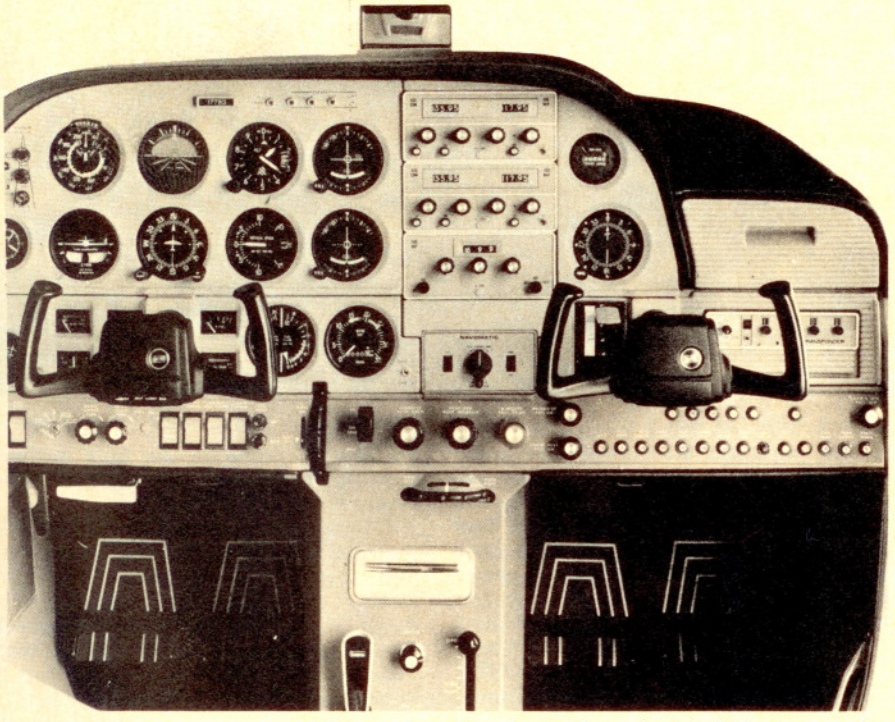
Powering down to an economical 61 percent, at 22 inches and 2,300 rpm, the plane stepped out at 169 mph (147 knots) true while burning an indicated 9.5 gph.

Instrument flying proved to be no problem, despite an autopilot VOR coupler with a mind of its own. After trimming, the RG could be easily flown hands-off, and only moderate monitoring was needed in light chop.

Cessna's engineering staff designed the RG's instrument panel for IFR flying. Although all the important flight and engine instruments are grouped right in front of the pilot, the panel isn't cluttered, and it's easy to scan. The only problem we had centered around the placement of the transponder. After shoehorning in a pair of Series 300 nav/coms, a digital ADF, and a Navomatic autopilot, about the only place left for the transponder was in the lower right-hand corner of the panel. Code changing required a little twisting and turning, but it was no big thing.

With the addition of the optional boom-mounted microphone, the plane was well-equipped for single-pilot IFR flight anywhere in the U.S.

During a brief night checkout, the RG's landing and taxi lights were more



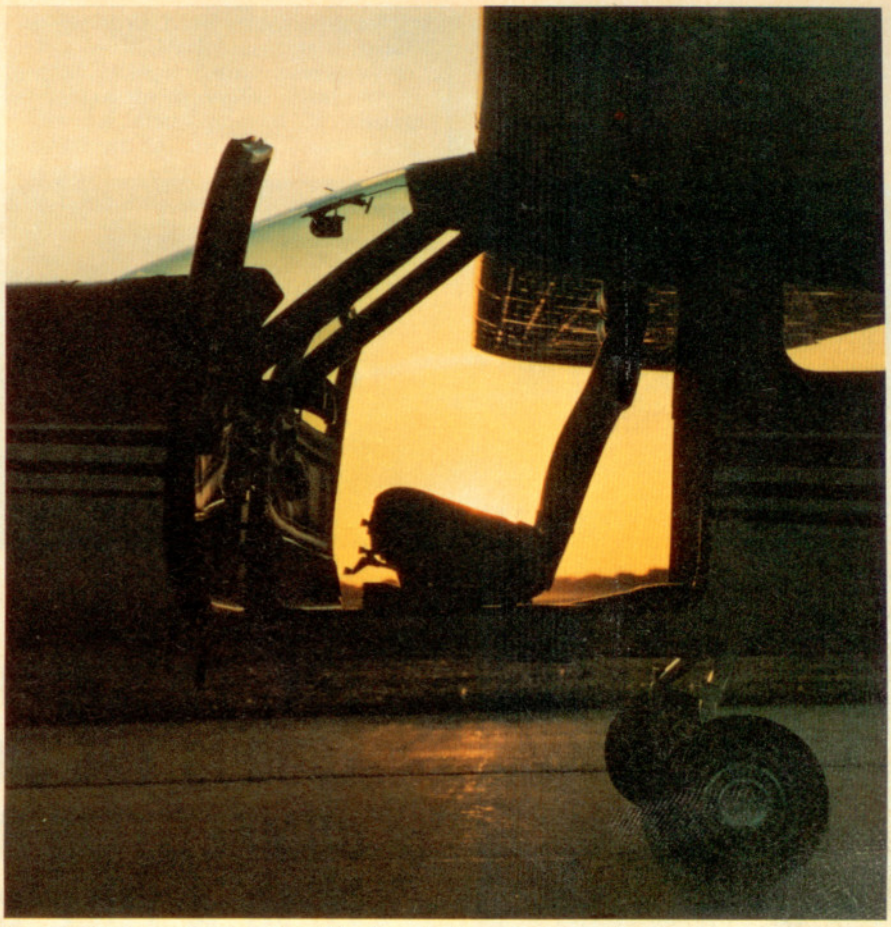
RG's panel provides plenty of room for full IFR instrumentation. Instruments are grouped in a basic "T" for quick scanning.

than adequate. The two nose-mounted, sealed-beam units put a good pool of light in the touchdown zone. The lights can also be used as an additional marker light during operations around the airport.

Time out now to play a few games with the RG's load-lifting abilities. As equipped, the plane used in the flight check tipped the scales at 1,794.8 pounds, including some 134 pounds of avionics, options and accessories. That left 1,005.2 pounds of useful load to be divided up among bodies, bags, and gas.

With a full fuel load of 360 pounds, the aircraft could not legally carry four 170-pound "typical" people because of gross-weight problems. With full fuel and four persons aboard, the plane would tip the scales at 2,834.8 pounds—too heavy.

By reducing the fuel load to 43 gallons (each fuel tank has a 22-gallon mark in the filler neck), however, the aircraft could legally carry four people and 67 pounds of baggage. As a practical matter, four-place airplanes are seldom filled.



Car-sized doors on the RG make getting in and out a snap. Inside, there's plenty of comfort and stretch-out room for four large adults.

With three people, the RG could top its tanks and still have room for about 120 pounds of luggage.

And with all those bodies aboard, it's nice to know Cessna has provided ample ventilation. Side-window vents supply the air flow on the ground. "Eyeball" vents for the pilot and copilot are standard equipment, and two additional "eyeball" vents are available as an option for back-seat passengers.

Although the waist-high baggage area will hold more than 100 pounds of luggage, this is where you pay for retractable performance. The RG's mains fold back into a large well cut into the 20.6-cubic-foot storage area, which is placarded at 120 pounds maximum load.

Access to the baggage area is excellent through the large key-locked door. The waist-high door level goes a long way toward eliminating baggage-handler's stoop, but again the gear storage well can make luggage handling tricky if you plan to put any heavy bags in the front of the storage area.

All in all, the Cardinal RG is a give-and-take airplane—it can give and take a lot. This spindle-legged bird is quick, versatile, and easy to fly, with lots of style, sensitivity, and range. The RG may not be within every man's reach, but when you're within arm's length, it's hard to say no. □

CESSNA CARDINAL RG

Specifications

Empty weight	1,660 lb
Useful load	1,140 lb
Maximum gross weight	2,800 lb
Maximum baggage	120 lb
Wingspan	35 ft 6 in
Wing area	174 sq ft
Length	27 ft 3 in
Height (nose strut depressed)	8 ft 7 in
Fuel capacity	61 gal
Oil capacity	9 qt
Engine	Lycoming IO-360-A1B6D, 200 hp
Propeller	78 in., constant speed
Wing loading	16.1 lb/sq ft
Power loading	14.0 lb/hp

Performance

Top speed, sea level	180 mph (156 knots)
Cruise, 75% power, 7,000 ft	171 mph (149 knots)
Range, 75% power, lean mixture, 7,000 ft	945 sm (820 nm)
Range, maximum, 10,000 ft	1,210 sm (1,050 nm)
Service ceiling	17,100 ft
Rate of climb, sea level	925 fpm
Takeoff ground run	890 ft
Over 50-ft obstacle	1,585 ft
Landing ground roll	730 ft
Over 50-ft obstacle	1,350 ft
Stall speed, flaps up, power off	66 mph (57 knots)
Stall speed, flaps down, power off	57 mph (49 knots)