



Cardinal Facts-1969 Style

More horsepower, new instrument panel, semi-akro maneuvers allowed, snazzy paint schemes, plus impeccable manners.



Entire instrument panel is biased toward the left, with all gauges centered in front of pilot. Vent window can open up to 120-mph.



Molded headliner provides more interior room, houses individual air vents for each passenger. Seat in baggage area for small, light, people.

WHEN CESSNA UNVEILED ITS FIRST sleek Cardinal last year, lots of folks figured it could easily take a 180-hp engine. Well, the '69 bird has those extra 30 horses. It also has panel changes, new paint, and 130 pounds more useful load. The added muscle has added 90-fpm to initial climb rate, upped top and 75% cruise speeds by 6 and 4 mph, respectively. Service ceiling is boosted to 15,800 feet. Optimum range is 770 miles (6.5 hours/118 mph).

Most significant Cardinal changes are in engineering; the '69 is certificated for steep turns, lazy 8's, chandelles, full-flap slips and spins. Permissible load factors are plus-3.8 to minus-1.52 G in the normal category with flaps up; plus-3.5 with flaps down and plus-4.4 to minus-1.76 in the utility category.

Last year starting with a vast, sloping goldfish bowl of a windshield, it would appear that Cessna set out to build a Ford Mustang with wings. The result was a sexy-looking rig, easily the most attractive in the company's single-engine line. A total of 1,164 came off the production line.

This time our newest test Cardinal, N30273, blue and white like a bluejay, looked sleek and splendiferous sitting on the Cessna delivery ramp even with rain trickling off its/her (take your choice) nose spinner. Rain showers were walking through the area every half hour or so giving us a good chance to test the plane's weather sealing.

Right off, the Cardinal demonstrates winning ways at rampside. The plane has four-foot-wide doors on both sides; they lock open at about 91°, revealing an interior big enough to house a Navajo rain dance.

This bird must have the industry's greatest seat distance. A six-footer can cross his legs in the rear with the front seats full back. "This airplane is very close to the 205-206 in total cubic inches," says C. H. "Chuck" Hinson of Cessna. "It's a little narrower, but in cubes it's very close." The carburetor air filter has been moved from beneath the spinner to inside the left air intake. All instruments have been moved over to the left in front of the pilot. This time there's an instant check list centered at the bottom of the panel.

There are split landing light (Continued on page 64)

completely new aircraft—the "CSX", a close support fighter to replace the A-7D; the "SX", a long-range strike fighter to succeed F-111.

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Bell AH-1G HueyCobra, now in its second year of Vietnam combat, can do "everything a fighter plane can do," according to one Army source. In house-to-house fighting, he said, AH-1G can deliver firepower not only into buildings housing VC but into windows of specific rooms from which they're firing. You call it—they cream it.

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switches, a cigarette lighter by the ash tray, an optional map light under the pilot's control yoke, three notches instead of two on the electric flaps; the switch is marked in degrees. There's a grab handle built into the panel bottom. The crank-open vent windows are beefed for use up to 120-mph; the overhead air vents have improved plastic nozzles. The rearview mirror rides atop the panel.

You *step* into a Cardinal, you don't climb into it. It rides low to the ground. I had 300% more difficulty fighting my way out of the back seat of a new sedan that same day as I did in getting out of N30273.

One of the best things about Cardinals is the nose wheel. Anyone who's ever used power, brakes and full-up elevator to drag a wheel around a 360° turn on the sidewall will appreciate this system. The linkage turns the wheel 45°. After that it's free casting, and the airplane pivots on its inside wheel like a DC-9.

The four-cylinder Lycoming is notably quiet; idling vibration is negligible. Electric flaps are fast and silent. N30273 cleared a 50-foot obstacle at the thousand-foot mark in a normal take-off with less than 5-mph wind, 42 gallons of fuel

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(of 49 maximum), 230 pounds of plantman and 150 of check pilot. The '69 definitely seems a little more eager than the '68, perhaps by 100 feet.

Climbing at 88-mph IAS, full throttle, from Cessna's 1,384-foot elevation, we got nearly 1000-fpm for the first couple of hundred feet, then it stabilized about 740 fpm. From 3,500 to 4,500 MSL, we timed N30273 at 640-fpm in 60° outside air temperatures. Then we were in the clouds, and so it seemed a good place to quit. Clouds in that neighborhood often contain F-105's from McConnell AFB.

Take-off and climb figures could be significantly better with a variable pitch prop. Why doesn't Cessna offer one as an option? They must be saving it for next year. Overloading has become a fashionable sin among disciples of the Dilbert school of flying, who are certain to welcome the roomy Cardinal with cries of joy. But the payload, at an empty weight of 1,440 pounds, is 758 pounds. So follow directions, you Dilbertians.

Full throttle at 2,000 feet MSL, 62° OAT, yielded 147-mph on the Cardinal's true airspeed indicator—a figure that tallied quite well with sea level book figures of 150 for the Cardinal. At 75 per cent (2,550-rpm), N30273 cranked out 138-mph on 10-gph; 65 per cent yielded 132.

It's a mystery to me how Cessna engineers are able to retain a similar control feel in everything from a 150 to a Skymaster, but they do. When you examine it, this bird is totally unlike other single-engine Cessnas. The full cantilever laminar airfoil, the all-flying tail, the tapered tubular steel landing gear, as well as the 180-hp mill, all are peculiar to the Cardinal. Yet the rig flies very much like a 172. I'll bet they could even build a biplane with that familiar Cessna control feel.

Clean, the airplane stalled at a corrected 61-mph (57 indicated); at 56-mph with a full 30° of flap. Power on, dirty, the Cardinal hung on until 46-mph; at 50 indicated, with half flaps, N30273 flew quite solidly.

In turn, Hinson, then I, chopped the power, dropped full flaps, crossed the controls and hauled back on the control yoke. The airplane shuddered with a peculiar lateral twist and finally stalled gently at about 56-mph true, straight ahead. There was no hint of a spin, no directional change.

It requires a pretty stiff shot of power and some aileron to get a good solid spin out of this bird, and a firm hand on the controls to keep it there. With the aft wing location there seems to be less upward travel in the normal porpoising of a fully-stalled Cardinal. Even at the top of the fourth or fifth oscillation the light, effective ailerons gave complete and positive control. In fact, even with full flaps, no power and crossed controls you can stall the airplane and play "rock the boat" with the ailerons without courting disaster.

It's stable. You feel it should do something. But it won't unless you add a bit too much aileron. Then you get a bank. Hinson looked at me and grinned. "What would we be doing if we were in your

Luscombe?" he asked. "We'd be damn busy," I said succinctly.

The Cardinal is much more stable in the pitch and yaw axes than in the roll axis, where it is only fractionally on the plus side of neutral. In a hands-off bank of less than 10°, it will return to normal flight. At 10° it holds the turn. Anything past that and it sticks its nose down and begins to tighten up gradually. The increasing airspeed acts to tighten the turn rather than to raise the nose.

This is a clean airplane, but, naturally as the speed drops off it wants to come down. And it does, in a flat attitude. The first landing I shot at nearby Cook Field I made without flaps, just to see what the airplane felt like.

Coming down what would've been a high final in a 172, I thought I was going to overshoot my mark by something like 100 yards. As it turned out, I needed just the barest shot of power to make it at all.

If you're looking for it, the laminar airfoil makes itself known on take-off. That little tendency to "hang up" in a high-drag, low-lift attitude is there, though it's not pronounced and there's always plenty of instant elevator to take care of it.

Flap and power changes have little trim effect on the Cardinal, and deliberately neglecting to retrim before take-off did not lead to objectionably high forward stick pressures. You can fly the pattern on the trim tab alone if you insist and if the air's smooth.

The stabilator approximately doubles in effectiveness as you sink into the ground cushion. Cessna has changed the linkage ratio this year between the control wheel and the stabilator movement; this is a change noticeable only in the last part of the round-out. It gives a more direct ratio between column and stabilator travel and probably gives better gust control. Sorry we didn't have any gusts.

There's plenty of stabilator to drag the tail down to about 35-mph, but it demands such a ridiculous nose-high attitude it's hard to see how even the most nervous student could do it accidentally.

It would be hard to make a bad landing in the Cardinal. The tapered tubular gear can give a limousine ride on rough, untended turf. The gear moves laterally as well as vertically, and soaks up bumps like you wouldn't believe. Also, the airfoil clings to its lift with surprising determination.

I deliberately approached a little high and held 273 off, waiting for something interesting to happen. We just settled slowly to the ground as I kept fractionally adding elevator. Finally we touched with a barely perceptible jolt somewhere below 50-IAS.

We were airborne at 600 feet in a short-field take-off; a few minutes later I shaved 100 feet off that in a soft field attempt. We were indicating 48-mph and Cessna's vibrating reed stall warner was piping in our ears, but at least we were airborne without sinking back into the asphalt. I did take another 500 to get that next 25-mph. Maybe I was over-careful—that Cessna exec out-weighed

me by 80 pounds, don't forget!

Coming down final at 70-mph, it's no problem to roll out and turn around within 500 feet with no tire squeal. We made one stop on some rather shaggy grass in about 400. Outbound, N30273 lifted off the rough turf at about 750 feet with half flaps and 40 gallons of fuel remaining.

Any week-end flyer should be able to get a grossed-out Cardinal off asphalt in 750 feet, using a short-field take-off. And, if you want to make a carrier approach, you can cross the fence with power and full flaps at about 55-IAS and set it on a pool table.

I shot one standard pattern, chopped the power on the end of the down-wind leg, dropped half flaps as I rolled onto base, followed with full flaps down final, held 70 across the fence and flared out. There was no bounce, no thump, no jar. The tires didn't even squeak.

Hinson looked over, raised his left eyebrow and inquired politely, "Are we down?" With my all-biz frown I waved my right eyebrow back at him. "Of course," I responded "I make all my landings that way. Don't you?"

That's the Cardinal. It'll make anyone look good if they'll just let it.