THE CITATION TURNS 20

Cessna bet the company on it—and won.

BY RICHARD L. COLLINS

The first Cessna jet I flew was a T–37, 35 years ago, on August 21, 1957. That particular airplane may still be flying because the T–37 is still a staple in Air Force jet training. At the time, I thought how neat it would be for us to have a general aviation version, and indeed, Cessna at one point considered a four-place civilian model of the airplane. ■ When I flew a Citation for the first time 20 years ago,

PHOTOGRAPHY BY MIKE FIZER

on April 17, 1972, N514CC, I thought about that T–37. I also thought this airplane was a lot better idea than a four-place T–37. Cessna had taken some things from the T–37, the wing form mainly, and had developed an all-new class of airplane. Forget the jokes about bird strikes from the rear—that first Citation I flew was as close to what it was intended to be as you can get in an airplane. Cessna Chairman Dwane Wallace had literally bet the company on the Citation concept. The airplane was to be Cessna's answer to the turboprop, only it was faster and jet smooth. The original Fanjet 500 name was dropped in favor of "Citation" to better position the airplane.

As I sat in the roomy cockpit 20 years ago, enjoying the excellent handling qualities and visibility, I thought that Wallace had won the bet, but I wasn't quite sure. I wrote, "The Citation is enough to make one wonder: Is it a neither/nor or an either/or? If it turns out to be neither a lot better than a turboprop nor almost as good as a jet, it is sunk. If it is either a lot better than a turboprop or almost as good as a jet, Cessna can make green their official corporate color." The latter turned out to be true.

When I flew 514CC, the word from Cessna salesmen was to use it like any airplane. Just do what you do, only do it faster and quieter. I did, however, bump against a strong limitation on the airplane. As it was originally equipped and certified, this particular Citation was at gross weight with full fuel, two pilots, and a satchel full of books. Full fuel was not an overabundance, either. The maximum takeoff weight was later increased from 10,850 pounds to 11,850 pounds to improve the useful load situation.

On that first flight in a Citation, we flew from Wichita to Tulsa and back, and I was quite impressed by the low work load involved in hand-flying the airplane over the distance. When we got back to Wichita, I had another mission for the Citation, a light-airplane mission. I was there in my Cherokee Six, and the vacuum pump had failed the day before. I needed to take it across town to what was then Piper Airpark to get it fixed. There was a 2,800-foot strip at

Piper, and the Citation folks couldn't miss that opportunity. "Fly the Six over there, and we'll pick you up in the Citation."

I flew the Six to Piper and then walked over near the runway to watch the Citation land. (Lest someone point out that the Six outran the Citation, I left before it did.) The quiet arrival was impressive, as was the turnoff at midfield after landing into quite a stiff breeze. Then I got to fly the airplane back over to the Cessna delivery center airport, a 3,800-foot paved strip. (The strip at Piper Airpark is now an entrance road to Colonel James Jabara Airport. Every time I drive down that road, I think about the Citation landing on it.)

The Citation made a quiet arrival, landed on a 2,800-foot strip, then made a midfield turnoff.

A little more than 20 years later, when walking around 20-year-old Citation 800W at its base at Taughannock Aviation on the Ithaca, New York, airport, I felt like I was about to go flying with an old friend. This airplane is serial number 14, very close to that first one. The panel is virtually original. The airplane has recent paint—some call it the "Batmobile" scheme—and it has had one interior refurbishing and is about due for another. There are about 6,600 hours in the log, so the airplane has averaged only 330 hours a year during its lifetime.

This one was originally built with seven passenger seats. Two were corner seats at the front of the cabin; the club arrangement for four provides the primary seating area; and there was a seat/toilet in the back. Today, because it is used for charter, it flies with five seats in the cabin—one corner and the club—to avoid the cockpit voice recorder rule for six-passenger, two-pilot turbine aircraft operating under the FAR Part 135 air taxi rules. When airplanes, even turbine airplanes, reach a certain age and value, the addition of expensive

items like a CVR becomes less attractive financially.

On a walkaround, the airplane looks not much the worse for wear. You can tell from looking at the fuselage skin that it has been pressurized and depressurized a lot of times, and the windows have a bit of a crazed appearance, but that is about it. In every way, the airplane looks as modern as one that rolled off the Wichita line yesterday.

On board, settled into the left seat, the appearance is not quite up to what is rolling off Cessna's line today. One positive note is that the cockpit seats are easier to get to because there is no lengthy console between them, housing more exotic avionics. This airplane flies with only the basics for navigation—VOR, DME, and ADF. Maintenance is a problem because of the age of the avionics and the fact that there are not a lot of parts around. To counter this, Taughannock buys spares whenever they are available; for example, it has a complete spare weather radar unit.

The attitude indicator/flight director and horizontal situation indicator are classic big ones from the good old days. Few pilots have seen a bull's-eye flight director like this one—just fly

Big and businesslike, the CE-500's bull's-eye flight director (below) was state of the art in the early 1970s. Easy to read and fly, some high-timers yearn for its return.

the airplane to the center of the bull's-eye, and you'll be fine—though at the time it was put in the Citation, it was also being used in 747s.

Because of the basic nature of the avionics package, the circuit breaker panels are small by comparison to new jets. All the switches are on the left side of the panel. The Citation was not initially certified as a single-pilot airplane, but it was designed to be one from the very beginning. The trim, speed brake control, power levers, and flaps are all on the center console. The cockpit has that original feeling, with only a few additions. An STC'd anti-skid system has been added, and you can tell by the switch that it is an addition. It's a nice addition because the airplane has no thrust reversers. The small auxiliary artificial horizon has a nonstandard switch, so there has been some change there.

Getting started is a check-list matter and is relatively simple on the early Citation. I have always found the vertical-tape engine instruments confusing on a start, with this flight no exception. I guess pilots with square heads like round gauges, or something like that.

Some jets will test your mettle when taxiing, but the Citation steers like any

other Cessna. The brakes are fine, too, though on this airplane, they required an occasional pumping.

With all the numbers calculated—V_1 was 101 and rotation speed 107—we were ready to go. The drill is for the pilot flying to push the fan speed up to 90 percent and then let the other pilot adjust for the 96.5-percent-power goal computed for this takeoff.

Acceleration is excellent, though not breathtaking. It tracks true and is one of the nicer jets right at rotation. The nose can be brought up smoothly to the target attitude, and it stays put. The demands to trim right after liftoff are less than in speedier jets, mainly because the acceleration isn't as spirited. In fact, in some jets, if you don't get a handful of throttles soon after liftoff and reduce power, you'll bust the airport traffic area speed limit. The alternative is to have a nose-up pitch attitude that the passengers might not like. In the original Citation, you don't have to reduce the power so quickly.

At rotation, the nose can be brought up smoothly to the target attitude, and it stays put.

Where piston airplanes tend to become noisier and rattle more with age, ol' 800W is quiet and smooth. The rate of climb is okay and quite adequate for mid-30s cruising. The original cruise specification on the airplane showed 335 knots at Flight Level 350 on 870 pounds per hour.

For high-flying airplanes, winter winds are always a consideration. My keeper on this flight, Bill Maul, flies the airplane a lot on charter and allowed that it is a 2.5-hour airplane with IFR reserves. "How far west from Ithaca, nonstop on a bad winter day?" I asked.

"Oh, Cincinnati, maybe Indianapolis," he said.

Both those are under 500 nautical miles. Maybe that distance seems short, but remember, this is an airplane that was designed to be Cessna's answer to the turboprop, not a transcontinental jet.

For a descent, the power is brought back to flight idle. If more is needed, the speed brakes are effective at increasing the descent rate. Speed brake deployment causes a rumble and a slight pitch change.

Visibility was one of the original design requirements for the Citation, and while this can result in warm pilots because of the greenhouse effect, the big windows are greatly appreciated when joining a traffic pattern. The handling qualities are appreciated, too. As the airplane is slowed

and configured for landing, nothing happens that demands a lot of pilot compensation. All that's necessary is to know the proper power settings for each event, and it all works out as a fingertip flying affair.

I had forgotten how nice the old bull's-eye flight director is to fly. Practice a few ILS approaches with one, and you can become the ace of the base. It's one of those things from the good old days that might be nice to see again.

V_{REF} for the approach was 104 knots, and the last number I heard Maul call was "ref plus five." Wishing to make a nice landing, I flared and held the airplane off for a bit. A Citation, even the original with the short wing, will float, and float it did. The touchdown was soft, but it was also 2,500 feet down the runway, which is not how it should be done. On the second landing, I was still five over reference speed at the threshold, but I let it land, with a thump, and we made a reasonable turn off without smoking the brakes. It is possible to land short and smoothly, but that takes a little practice.

When the airplane was first introduced, much was made of it being a jet that any reasonably alert pilot can fly. That goal was fully met. If there was a design goal missed, it was the one that eludes virtually all designers—weight. On the original spec, the target for maximum takeoff weight was given as 10,350 pounds. It was up to 10,850 by certification, and 1,000 more had to be added to that to make it a truly versatile airplane. Again, that is typical of most new designs, piston or turbine.

Even the short-wing Citations will float. It's possible to land short and smoothly, but it takes practice.

Cessna doesn't make the original Citation now. It evolved into the Citation II and V, with longer bodies, longer wings, wider landing gear, and more power. These airplanes moved the Citation away from the turboprops and more into the jet arena in a time when the turboprops were flying ever faster. Now, though, Cessna is making a move that affirms the original decision to build the Citation. Twenty-two years after the first flight of the original, the CitationJet made its first flight. Sporting what is basically the original fuselage, the CitationJet has Williams Engineering–Rolls-Royce FJ44 fanjet engines, a T-tail, and a new wing that is attached to the fuselage, as opposed to running through the fuselage. The new airplane is expected to cruise 30 knots faster than the original, even though it has 14 percent less thrust and will burn less fuel. It should be a fitting successor to a unique and capable airplane—the original Citation. □

Cessna Citation 500

Current market value: $450,000–$750,000

Specifications

Powerplants	Two Pratt & Whitney Canada JT15D-1A, 2,200 lbst ea
Length	43 ft 11 in
Height	14 ft 4 in
Wingspan	43 ft 11 in
Wing area	260 sq ft
Wing loading	42.2 lb/sq ft
Power loading	2.61 lb/lbst
Seats	7
Cabin length	17 ft 6 in
Cabin width	4 ft 6 in
Cabin height	4 ft 4 in
Empty weight	6,390 lb
Max ramp weight	12,000 lb
Max takeoff weight	11,850 lb
Useful load	5,460 lb
Zero fuel weight	8,400 lb
Fuel capacity	544 gal (2,672 lb)

Performance

Balanced field length	3,295 ft
Cruise speed, max	343 kt
Endurance, max cruise w/45-min rsv	3 hr 5 min
Max certified altitude	35,000 ft
FAR Part 25 landing distance	2,305 ft

Airspeeds

V_1 (takeoff decision)	101 kt
V_R (rotation)	108 kt
V_2 (takeoff safety)	122 kt
V_{LO} (max gear operating)	176 kt
V_{MO} (max operating limit)	289 kt
M_{MO} (max operating limit)	M 0.705
V_A (design maneuvering)	187 kt
V_{FE} (max flap extended)	176 kt
V_{REF} (reference)	112 kt

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.