

Cessna

Citation VI

What looks like a Citation III, flies like a Citation III but costs nearly \$1 million less than a B/CA-equipped Citation III? Answer: A Citation VI.

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Cessna Aircraft Company has a unique answer to cost containment for business aviation: offer two midsize jets based upon the Citation III airframe. One, the Citation VI, is a standardized aircraft with sufficient features to minimize the need for expensive options, thereby increasing production efficiency and lowering the price paid by the customer. The other, designated the Citation VII, to be fitted with more powerful Garrett engines and available early in 1992, is for customers who want the same size aircraft but need more customized outfitting as well as more performance-at a price that is between \$1.3 and \$1.5 million higher than that of the Citation VI. Customers have a broader choice, and Cessna has a broader market.

Since entering service in 1983, Cessna's Citation III has been a popular mid-size business jet, typically outfitted to carry seven to nine passengers and offering a maximum NBAA IFR range of approximately 1,500 nm with full payload. With tanks full, maximum IFR range approaches 1,900 nm. Enhancements in recent years have included certifying the aircraft for Honeywell's SPZ-8000 digital flight control system and making minor but attractive improvements to the airframe.

Although certified to FL 510, the Model III operates between FL 390 and FL 430 on most trips. Production of the Citation III stopped recently after 202 aircraft had been manufactured. The last of the breed has been sold and will be delivered to customers by year end.

Cessna's mid-size business jet production line has not

stopped, however. Replacing the Citation III is the new Citation VI and its upscale look-alike, the Citation VII.

Whereas the Citation VII will offer operators more interior options, digital avionics and Garrett's powerful, 4,000-pound-thrust TFE731-4R-2S turbofans, the Citation VI is standardized and offers limited options.

Because greater standardization results in a more efficient production process and lower component costs, a B/CA-equipped Citation VI lists for \$7,230,000-more than \$800,000 less than the recently discontinued Citation III's B/CA-equipped price of \$8,050,375. Also, the new model has a 500-pound lower basic operating weight (13,400 pounds versus 13,900 pounds) since less standard equipment is installed. Both the Model III and Model VI are powered by two Garrett TFE731-3B-100S turbofans producing 3,650 pounds of static thrust at ISA, sea-level conditions, and both aircraft have identical performance at equal weights. Obviously, for equal fuel loads, the Citation VI's lower BOW offers an advantage. For example, with maximum fuel (7,329 pounds for both models), the Citation VI can carry a maximum payload of 1,471 pounds compared to the Citation III's 971 pounds.

ONLY YOUR ACCOUNTANT KNOWS

Don't jump to the conclusion that the Citation VI looks or behaves like a bargain-basement Citation III. In every respect, it is a capable, attractive aircraft worthy of its own proud niche in business aviation. Nor is the cus-

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tomers denied ample choice with the Citation VI: three interior options are available, as are additional avionics and an APU. Cessna's intent, however, is to offer a standard package with sufficient features that make customization unnecessary.

Equipped in a manner similar to the typical Citation III of several years ago, the Model VI features Honeywell's SPZ-650 analog flight control system with 5-inch by 5-inch EFIS displays for pilot and copilot, and optional Freon air conditioning is available.

Even for the most discerning aviator, no differences are evident between the Citation VI and recently manufactured Model IIIs. Product improvements that have evolved since the Citation III entered service are incorporated in the Citation VI, and the use of analog rather than digital architecture for the flight control system is transparent to the pilot.

In addition to the SPZ-650, standard avionics for the Citation VI include a Honeywell Primus 650 color radar and a single Honeywell AZ-810 digital air data system. Communications, navigation and identification (CNI) are provided by Collins, as is the radio altimeter. Long-range navigation and flight management is provided by Global Wulfsberg's GNS-X.

In keeping with today's technology and needs, dual Mode S transponders are part of the Collins package.

Exterior dimensions, basic structure and systems are identical for the Citation III and the VI. Pushrods and cables are used to move the rudders elevator and ailerons, with hydraulics powering the ailerons and cables providing a manual reversion capability in roll. Like yaw and pitch control, rudder and aileron trims are manual. Pitch trim, however, is achieved electrically by means of an AC motor moving the horizontal stabilizer. An independent DC-powered system serves as a secondary means of pitch trim. Four hydraulically activated and manually controlled spoilers on each wing serve various functions, and 3,000-psi hydraulic pumps on each engine supply the needed power. An electrically powered pump functions as a backup system in the event both engine-driven hydraulic pumps fail. Outboard spoilers augment ailerons for roll control, two

CESSNA CITATION VI ESTIMATED OPERATING COSTS

| | |
|-------------------------|------------|
| Average Stage Length | 500 nm |
| Average Block Speed | 400 kts |
| Average Block Fuel Flow | 232 gal/hr |

A. DIRECT COST: \$ Per Flight Hour

| | |
|--|-----------------|
| Fuel (232 gal/hr x \$2.10 per U.S. gallon) | \$487.20 |
| Maintenance | |
| Labor (2.4 man hours x \$51.00 labor rate) | 122.40 |
| Material | 135.00 |
| Engines (Garrett MSP-no set TBO) | 182.84 |
| Landing Fees, Pilot Expense, Food, etc. | 10.00 |
| DIRECT COST | \$937.44 |

B. FIXED ANNUAL COST: Total \$

| | |
|---|------------------|
| Hangar Rental (\$1,300 per month x 12) | \$15,600 |
| Personnel and Benefits | 121,000 |
| Insurance: | |
| a. Hull (0.35% of hull value) | 26,600 |
| b. Admitted liability | 4,000 |
| c. Legal liability | 2,400 |
| d. Medical payment | 1,500 |
| Miscellaneous, Office Supplies, Telephone, Recurrent Training, etc. | 10,000 |
| FIXED ANNUAL COST | \$181,100 |

C. TOTAL ANNUAL BUDGET:

| | 400 Hours | 600 Hours | 800 Hours |
|---------------------|------------------|------------------|------------------|
| Direct Cost | \$374,976 | \$562,464 | \$749,952 |
| Fixed Cost | \$181,100 | \$181,100 | \$181,100 |
| TOTAL BUDGET | \$556,076 | \$743,564 | \$931,052 |
| Nm per Year | 160,000 | 240,000 | 320,000 |
| \$ per nm | \$3.48 | \$3.10 | \$2.91 |

Source: Cessna Aircraft Company

center spoilers are used as speed brakes, and the inboard surfaces serve as ground spoilers.

Flaps for the Citation VI are constructed of Kevlar and graphite composites and are divided into three spanwise sections. Powered electrically, they can be positioned anywhere between fully retracted and full down, although the flap-position handle has preset stations for takeoff, approach and landing.

Two 24-volt, 44-ampere-hour, nickel-cadmium batteries installed under the floor of the tail-cone baggage area combine with 28-volt, 400-amp starter-generators and two generator control units (GCU) to supply regulated electrical power. Alternating current for avionics and pitch trim is produced by two 115-volt, 400-Hz,

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SPECIFICATIONS CESSNA CITATION VI

| | |
|-----------------------------------|---------------------|
| B/CA EQUIPPED PRICE | \$7,230,000 |
| SEATS | 2+7/9 |
| ENGINES | |
| Model | 2 GED TFE731-3B-100 |
| Power | 3,650 lb ea. |
| TBO | OC |
| DESIGN WEIGHTS (lb/kg) | |
| Max ramp | 22,200/10,070 |
| Max takeoff | 22,000/9,979 |
| Max landing | 20,000/9,072 |
| Zero fuel | 15,900/7,212 |
| BOW | 13,400/6,078 |
| Max payload | 2,500/1,134 |
| Useful load | 8,800/3,992 |
| Max usable fuel | 7,329/3,324 |
| Payload (max fuel) | 1,471 /667 |
| Fuel (max payload) | 6,300/2,858 |
| LOADING | |
| Wing (lb/ft ²) | 70.5 |
| Power (lb/hp) | 3.0 |
| PSI | 9.3 |
| LIMIT SPEEDS | |
| V _{MO} | 330 KCAS |
| M _{MO} | 0.835 Mach |
| V _{FE} | 207 KCAS |
| V ₂ | 129 KCAS |
| V _{REF} | 112 KCAS |
| PERFORMANCE | |
| BFL (ft/m) | 5,030/ 1,533 |
| BFL, 5,000 ft. | |
| ISA + 20° C (ft/m) | 8,572/2,613 |
| Climb (fpm/mpm) | |
| All-engine | 3,699/ 1,127 |
| Engine-out | 805/245 |
| Certificated ceiling (h/m) | 51,000/15,545 |
| All-engine service ceiling (ft/m) | 43,000/13,106 |
| Engine-out service ceiling (h/m) | 23,500/7,163 |
| Part 121 | |
| landing distance (ft/m) | 2,388/728 |
| NBAA IFR range (nm) | 1,892 |

solid-state static inverters, while a 200/115-volt, three-phase, 5-KW alternator on each engine provides constant-voltage, variable-cycle AC for deicing the horizontal stabilizer.

Bleed air is used to anti-ice engine inlets, wing leading edges and the windshield. (Alcohol spray is available as a backup for deicing the pilot's windshield.) Engine bleed air, regulated by electropneumatic pres-

surization control units, maintains a 9.3-psi It differential pressure and an 8,000-foot cabin altitude up to the aircraft's certified ceiling of 51,000 feet. Sea level pressure can be maintained to approximately 25,000 feet.

Single-point fueling as well as two over-wing ports feed fuel to integral tanks in each wing and to a single fuselage tank. No external or interior power is required when the single-point system is being used. Ejector pumps are the primary source of fuel pressure, with DC electric pumps available for starting and emergency use. Each fuel tank is coated for protection against micro-organisms, and fuel heaters are used for fuel icing protection.

FLYING THE CITATION VI

A careful preflight reveals no surprises. The Citation VI exhibits all the quality of workmanship and exterior finish the business aviation community has come to expect of Cessna's mid-size jets. Inside, the passenger area too is impressive, particularly since it is here that Cessna claims to have made concessions to contain costs. The aircraft we flew had no APU, although one could have been installed in the aft-baggage area, but would have detracted 200 pounds capacity and 6.0 cubic feet of volume from that area. Instead, external power was applied and the aircraft was cooled to a comfortable level by the Model VI's optional Freon air conditioning system.

Main cabin seats are comfortable and easily adjustable, and the floor is devoid of seat tracks. Finishing includes leather covers and sturdy, easy-to-operate tables positioned between the club chairs. A standard refreshment center provides a full complement of conveniences. Insulation has been added to the floor area for better heat distribution, and sound isolation and air flow have been improved compared to earlier Citations. During flight, at FL 390 and Mach 0.83, we measured an average sound level of 81 dbA.

From a pilot's point of view, the Citation VI is identical to the most recently delivered Citation III. The aircraft is comfortable to operate and able to achieve book performance. In particular, good handling qualities and very capable trailing-link landing gear make the Citation VI a pleasure to fly.

Rarely do we see comparable capability for less money, but the transition from Citation III to Citation VI appears to be an exception. **B/CA**