

# FLY BY NIGHT

The Caravan joins the FedEx fleet.

BY MARK TWOMBLY

*8:00 p.m.:* An hour before scheduled departure, Steve Honermann and copilot Steve Dipiazza report for work. The gleaming all-white Cessna Caravan they will fly is being loaded with purple, white and orange packages. Soon, the pilots will transport the packages on the first leg of a 12-hour journey that begins at Tri-State Airport in Huntington, West Virginia. There will be a change of planes in Louisville, Kentucky, and again in Memphis before the packages reach their final destinations.

*10:15 p.m.:* The Caravan's three-blade, paddle propeller slows to a stop on the cargo ramp at Standiford Airport in Louisville. Ground han-

dlers form a bucket brigade and off-load about 1,000 pounds of packages from the Caravan.

*11:01 p.m.:* A tattered DC-3 rumbles into view, blue flame capping the exhaust stacks. Brakes creaking, it pirouettes neatly into position beside the Caravan. The two-man crew alights and walks over to Honermann and Dipiazza to exchange friendly insults. Honermann is asked why he prefers carrying boxes at night to carrying passengers during the day. "I've never had a box throw up on me," he answers. In a few weeks Dipiazza will be checked out as captain on the Caravan and will fly the Louisville run alone. The ground crew begins clearing the DC-



PHOTOGRAPHY BY WILLIAM A. FORD



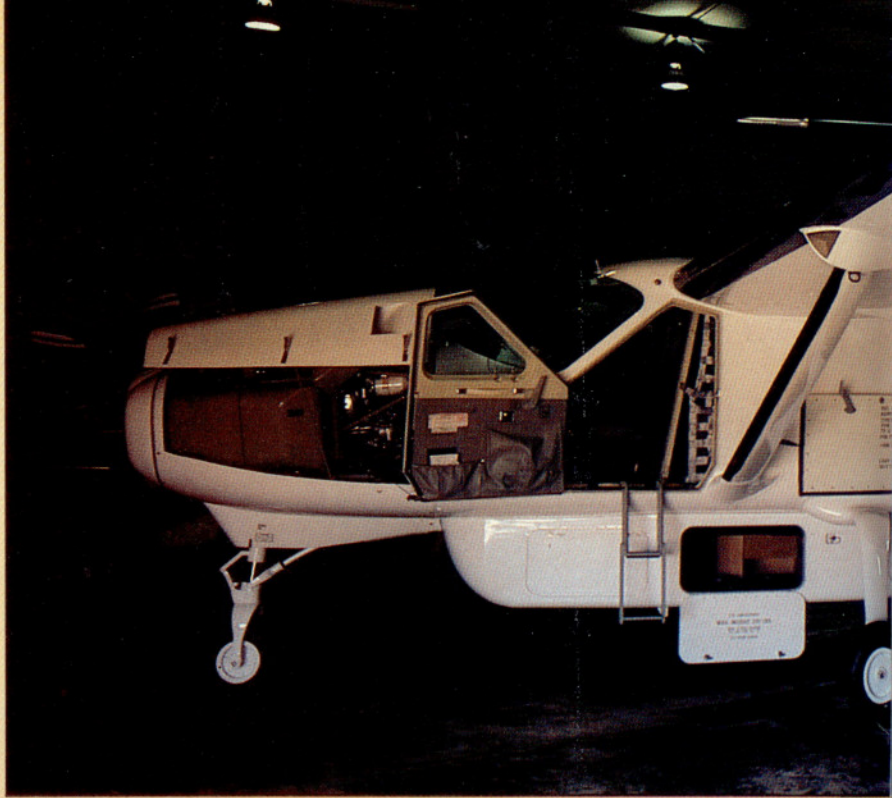
3 of purple, white and orange packages that had been loaded in Parkersburg and Charleston, West Virginia.

11:05 p.m.: Ramp workers don headsets or stick fingers in their ears to block the turbine shriek from the purple, white and orange Boeing 727 lumbering to a stop in front of the two smaller aircraft. A huge cargo door on the forward fuselage of the 727 yawns open, and a semi-circular metal container filled with packages from the Caravan and DC-3 is hoisted aboard.

12:15 a.m.: Honermann, Dipiazza and the DC-3 crew are asleep above the cargo office in a tiny room furnished with a vinyl couch, three mattresses and a makeshift desk. The 727 is taxiing out for the departure to Memphis.

5:00 a.m.: A different 727 arrives at Standiford from Memphis with a fresh load of packages to transfer to the Caravan and DC-3. In the bunk room, the pilots begin to stir.

6:15 a.m.: The Caravan takes the active at Standiford. An hour later, it touches down at Huntington. The airplane is unloaded, and an 11-hour duty night ends for Honermann, Dipiazza and the Caravan.



## FLY BY NIGHT

With modern engines, instruments and avionics The FedEx Caravans contrast with their older work mates—DC-3s and Beech 18s. But their job, absolutely, positively getting it there the next day, is the same.

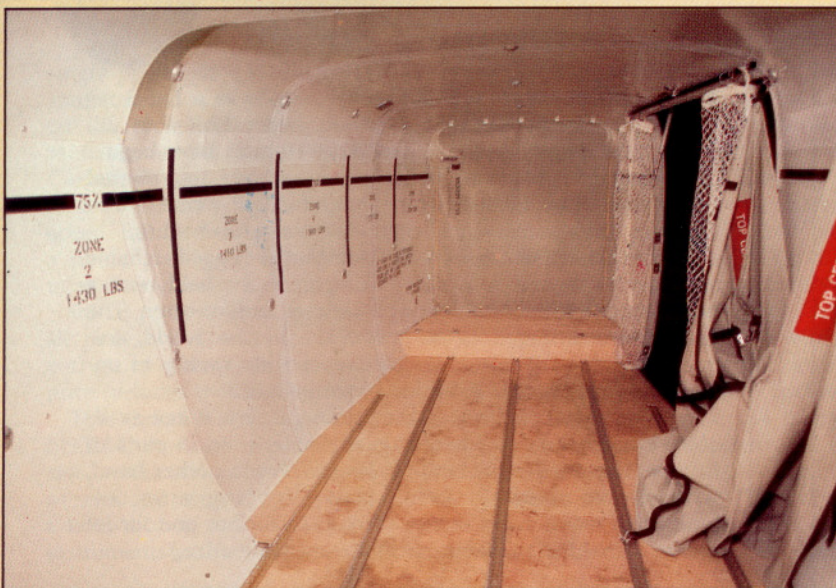
The Cessna Caravan is the newest member of an odd assortment of aircraft that earn their living hauling freight. Cargo handlers traditionally have flown cheap-to-buy round-engine trucks—Twin Beeches, Convairs and DC-3s—that are older than the pilots flying them. Most fly at night, when few people see their grimy, battered physiques.

The Caravan is different. It is the college-educated kid dressed in a clean shirt and tie reporting for work at the loading dock. Compared to most other small cargo aircraft, the Caravan is expensive, custom-designed for its mission and lavishly outfitted for single-pilot IFR.

Cessna has developed a special version of the standard 208 Caravan, designated the 208A, for Federal Express Corporation, which has ordered 30 with an option for 70 more. The 208A is designed and built strictly for hauling packages. There are no windows along the fuselage, and the airplane is restricted to two occupants only, pilot and copilot. There are no environmental







systems for the cabin aft of the cockpit.

The bare cabin, which is lined with protective panels, can hold 254 cubic feet of cargo. Vertical nets allow boxes to be stacked to the ceiling. An additional 83 cubic feet can be loaded in an underbelly pod made of Kevlar and Nomex honeycomb panels. The 208A has a maximum gross takeoff weight of 8,000 pounds, compared to 7,300 pounds on the standard 208. Payload is 2,960 pounds over a 100-nm leg with a 50-nm mile alternate and 45 minutes fuel reserve.

To compensate for the belly pod's effect on directional stability, the 208A has a vertical stabilizer eight inches taller than the standard 208 vertical fin. Also, the PT6A exhaust stack is twisted to direct soot away from the pod.

The standard avionics package on the Caravan consists of Sperry Radio Corporation equipment, but Federal Express specified a complete King avionics system for the 208A to maintain continuity with its other aircraft. The King package includes a KWX 56 four-color weather radar and KFC 250 flight control system with flight director, HSI and three-axis autopilot.

The special cargo Caravan also contains a number of safety features for the pilot. A 9G crash barrier separates the crew from the cargo hold, and the cockpit is equipped with smoke goggles, quick-don oxygen masks and a nine-pound Halon fire extinguisher.

Finally, 208A pilots are not likely to wake up in the morning to discover the Caravan's nicad battery is dead because the ground crew left the lights on in the cargo hold. A solid-state timer turns interior lights and two exterior courtesy lights off after 30 minutes.

Unlike the Federal Express fleet of Boeing 727 and McDonnell Douglas DC-10 freighters, the 208As will not make nightly round trips from major U.S. cities to the Federal Express package-sorting hub in Memphis. Instead, they will be based in smaller cities (such as Huntington) and each weeknight will fly to an airport (such as Standiford) served by one of the colorful Federal Express transport-size jets.

The Caravans will become the backbone of Federal Express's 60-route feeder system, a system currently supported by a hodgepodge of aircraft types including Beech 18s, DC-3s, Cessna 402s and 404s and de Havilland Twin Otters. (Before the Caravan arrived, Honermann flew the Huntington-to-Louisville route in a Beech 18.) Federal Express has contracted with three freight operators to fly and maintain the Caravans: Mountain Air Cargo in Denver, North Carolina; Baron Aviation in Vichy, Missouri; and Union Flight in Sacramento, California.

Honermann and Dipiazza fly for Mountain Air Cargo. Mountain Air is an example of the growing sophistication and specialization of the air freight business. Founded in 1974 at a small, one-runway airport in Denver, North Carolina, Mountain Air started with a fleet of Beech 18s that carried heavy cargo on short-haul routes.

The turning point came with the deregulation of the trucking industry. As truckers took advantage of eased licensing restrictions to move into the short-haul, heavy freight shipping market, Mountain Air switched its emphasis to express cargo.

*continued*



The complexion of Mountain Air's fleet changed. There were fewer bulky items to be shipped, and more small packages and overnight letters. Day-to-day reliability was imperative, so turbine equipment was added, including Beech 99s, de Havilland Twin Otters and turbine conversions of the Beech 18. "You've got to do the job every night," explained Hugh Bingham, Mountain Air's executive vice-president. "We do what it takes. We like to see 100-percent completion. You stake your reputation every night in this business."

Now most of Mountain Air's flying is for Federal Express, Purolator and United Parcel Service. With an average monthly manifest of 1.3 million pounds of packages, Mountain Air is ranked among the top light aircraft cargo operators in the country. There are 32 pilots on the payroll, and the fleet consists of 11 Twin Otters, 6 Beech 99s, 3 turbine conversion Beech 18s, 4 Cessna 402s and 404s and 11 Beech 18s.

The aircraft are based in 46 cities in the eastern half of the United States, but they regularly return to western North Carolina. Little Mountain Airport, owned by the three men who also own Mountain Air Cargo, serves as the maintenance and administrative base for the company.

A few days after Mountain Air chief pilot Bob Brady ferried the Caravan from Wichita to Little Mountain Airport, the hangar housed a Beech 18 and N801FE, the first of at least 10 Caravans that Mountain Air will operate under contract to Federal Express. The two airplanes represented two generations; one just getting started, the other nearing retirement.

The Caravan belongs to the new breed of cargo airplane, one that will further Mountain Air's reliance on PT6-powered aircraft. There are 20 PT6-powered airplanes in the company's inventory, and Mountain Air has logged more than 80,000 hours of PT6 time.

Mountain Air is cutting its Beech 18 fleet in half as the Caravans arrive at the rate of about two per month. The grizzled Beech 18s require constant maintenance and, with their battered exteriors and archaic cockpits, are considered slightly embarrassing by management.

The Caravans may be replacing Beech 18s at Mountain Air Cargo, but Cessna advertisements suggest the Caravan may be the long-awaited replacement for the DC-3. That is a claim that cuts deep into Joe Rogers' sense of propriety. Rogers and his copilot, Kevin (Dog) Brennan, fly a DC-3 for Hoganair in Clarksburg, West Virginia. Rogers and Brennan used to park beside a Mountain Air Beech 18 every night in Louisville. Now they pull up next to the Caravan.

When Rogers had a few nights to scrutinize the new arrival after it took over Mountain Air's Huntington-to-Louisville route, he delivered his assessment. "I'm upset. You tell Cessna there is no comparison between that and a DC-3. The only aircraft that can replace a DC-3—and it won't even do a good job of it—is the old Twin Beech. You can load this Caravan up and put it all in there," he said, gesturing at his airplane. "Then you can load it up and put it in there again. Now, I wouldn't mind the thing if it weren't for that ad. But that has got me fairly disgusted." □

PILOT PRÉCIS

# CESSNA 208 CARAVAN

Wichita's flying boxcar



BY EDWARD G. TRIPP

**T**he Caravan I, which Cessna heralds as a DC-3 replacement, has been certified under FAR Part 23, and deliveries of the landplane version have begun. The floatplane and amphibian versions have just started certification tests. With deliveries underway, the true test of Cessna's concept of a world-class workhorse has begun.

Design goals included an airplane that is rugged, reliable and easy to service, maintain and repair in the field, with a large (unpressurized) cabin for passengers and/or cargo. The field was considered to be anywhere in the world, frequently with very primitive facilities, a wide variety of operating conditions and extremes of temperature.

In many parts of the world, aviation gasoline is not available. In many places where it is available, even in parts of Europe, the price is prohibitive. Jet fuel, on the other hand, is obtainable practically everywhere. (The long-range outlook is for avgas supplies to shrink even further and for jet fuel to be readily available, with a reasonable price.)





That, plus the requirement to lift significant loads with a single powerplant, dictated turbine power. A single-engine configuration was selected to keep initial, operating and total life cycle costs, including scheduled and unscheduled maintenance, as low as possible. The Pratt & Whitney of Canada PT6A-114, flat-rated to 600 shp, has been coupled to a Kevlar composite, 100-inch-diameter Hartzell constant speed, full feathering propeller. The engine is mounted with a five-degree-down and three-degree-right offset to minimize torque and p-factor.

Initial price is steep, particularly for a utility airplane. Basic price, which includes a basic avionics kit, just one seat and set of controls and corrosion proofing, is \$595,000. The price includes training for two pilots and one mechanic.

The aircraft *Pilot* Creative Director Art Davis and I flew, N9225F, the third production aircraft, is the commuter version, which is outfitted for two crewmembers and eight passengers and is equipped for all-weather operation, including a known-icing package, color radar, dual controls and flight instruments and an autopilot. The list price is \$715,645.

Cessna expects the combination of dispatching ease and life-cycle costs, compared with the aging utility fleet, to make the Caravan I competitive. Anticipated production, set at five units per month, is sold out through May 1986, not including the option for 70 that Federal Express holds.

The 208 looks just like the biggest brother in Cessna's former and current line of single-engine airplanes, from the 120/140 on. You need to get close to it, or have another aircraft next to it, to recognize how huge it is. Larger single-engine aircraft have been built over the years, but most of us will not see them.

The wingspan is 52 feet 1 inch; height to the top of the vertical stabilizer is 14 feet 2 inches; and the airplane is 37 feet 7 inches long. Internal space, including the cockpit, is 17 feet 4 inches long, 5 feet 2 inches wide at the maximum point and 4 feet 3 inches high. Total internal volume is 341.4 cubic feet, with 254 cubic feet aft of the cockpit.

The cabin is large enough to seat 14 people in those countries where it is permitted (FAR Part 23 limits the passenger load to nine). Folding seats—tubular frames with







nylon covers—are one seating option that permits quick changes between people- and cargo-carrying missions.

Much attention has been paid to serviceability, so that the airplane spends little time in the the shop. Access to most systems—which have been kept as simple as the engineers could make them—is good. It is as self-contained as possible, and consideration has been given to practical field repairs to major components. For instance, the wing was designed to accept impact outboard of the fuel bays and provide for simple repair or replacement.

The standard lead-acid battery (nickel cadmium is an option) can be removed quickly from the airframe to keep it warm during low ambient temperatures. The fixed landing gear is designed to minimize damage to the fuselage in the case of hard impact.

Flight controls are conventional cable, as are the aileron and elevator trim controls. The aileron cables have two loops, inboard and outboard, that are independently rigged to simplify and speed adjustment or repair.

Single slotted, semi-Fowler flaps span 70 percent of the wing and have a standby electric flap drive.

Spoilers are mounted forward of the outboard end of the flaps to aid lateral control at low speeds. They are interconnected to the ailerons and deploy proportionally to aileron travel when up-aileron deflection exceeds five degrees.

The electrical system incorporates two main buses and two avionics buses. The major power source is a 200-amp generator. A 95-amp standby alternator and a standby ignition igniter are options.

The alternator is part of the optional known-icing package, which includes electric propeller, windshield deice (a removable flat glass plate held by a bungee cord) and pneumatic boots on the leading edges of the wing, lift struts and tail surfaces. The vacuum system, including the pneumatic elements of the deice system, is driven by engine bleed air.

There are four doors: one on either side of the cockpit, a two-piece cargo door on the aft left side of the fuselage and a two-part airstair door on the aft right side. The hinges are large and simple, and the supports are stout.

A retracting, folding boarding ladder is standard on the pilot's side and a \$450 option on the copilot's side. A stowable, folding fueling ladder is a \$335 option. These help make the airplane independent of ground equipment.

There is an inboard fueling option available (\$505; standard equipment in the amphibious and floatplane configurations) that reduces useable fuel from the standard 332 gallons to 240 gallons because of wing dihedral (full fuel can only be loaded from the outboard fillers).

Maximum ramp weight as a landplane is 7,335 pounds; maximum takeoff and zero fuel weights are 7,300 pounds. Maximum usefull load is 3,535 pounds. Full fuel uses up 2,224.4 pounds of that. N9225F has a basic empty weight of 4,405 pounds and a payload with full fuel of 705.6 pounds. With IFR reserves, the Caravan can haul 2,720 pounds 200 nm or a 1,000-pound payload 970 nm at a cruising altitude of 10,000 feet. Maximum cruise speed at that altitude is 183 knots; maximum endurance is 5.4 hours at that power setting. At 25,000 feet at maximum cruise power, endurance is just under nine hours at a true airspeed of about 165 knots. Service ceiling is 27,600 feet; the certified maximum operating altitude is 30,000 feet.

Total takeoff distance at sea level and standard temperature to cross a 50-foot obstacle is 1,665 feet, and landing distance without use of propeller reversing is 1,550 feet. The

## CESSNA 208 CARAVAN

Attention to those  
service aspects  
that will keep the  
Caravan flying  
in rugged conditions  
should appeal  
to many operators.

Caravan's stall speed in the landing configuration is 60 knots.

Properly qualified and trained pilots should find transition to and operation of the 208 surprisingly easy. Despite its size and weight, it handles well both on the ground and in the air. Despite its size, there is not the problem with mass and inertia that there is with most other large airplanes. But, although it has a jet engine, it does not fly at jet speeds. The biggest concern in ground maneuvering is maintaining proper clearance from obstacles.

The cockpit provides a good working environment. It is big and wide and high above the ground with good visibility—and it is well organized. The noise level is acceptable for an airplane

of this type, particularly when a propeller setting below the maximum of 1,900 rpm is selected. Control forces are surprisingly light. The assistance provided by the spoilers during low-speed maneuvers reduce pilot effort and improve response. Rudder and aileron coordination require some conscious effort.

Initial takeoff was made at a weight within 100 pounds of gross. Minimizing the ground run requires definite rotation at 65 knots with 10 degrees of flaps. Initial rate of climb was just under 1,200 fpm. Forward visibility is nil in a maximum performance climb at best rate speed of 105 KIAS. Kirby Ortega, the Cessna pilot with whom we flew, suggested a cruise climb speed of 120 KIAS with power set at 1,750 rpm and 1,700 pounds of torque. Visibility was much better, and the rate of climb was still over 1,000 fpm.

After briefly sampling cruise performance, we conducted the basic check-out maneuvers—steep turns, slow flight and stalls. It is a benign airplane, despite its size and weight.

Before sampling a variety of approaches, landings and takeoffs at a small strip, Ortega demonstrated a few of the Caravan I's emergency features. With airplane weight at approximately 6,900 pounds, we feathered the propeller to simulate an engine-out emergency. At 90 KIAS, the rate of descent was slightly more than 500 fpm. I deployed full flaps and reduced speed to 75 KIAS. The rate of descent increased to 600 fpm, and sufficient elevator authority remained to flare for a simulated landing (this was confirmed later during a maximum-performance obstacle clearance approach and landing). At best glide speed (96 KIAS at 7,300 pounds) and with the propeller feathered, the gliding distance from 10,000 feet is slightly more than 20 nm.

With the fuel shut off, enough fuel remains in the reservoir tank to provide three minutes of engine operation. In the event of a fuel control failure, there is an emergency power lever that enables the pilot to bypass the control.

Despite its docile characteristics and relatively simple operational and systems demands, Cessna has not been able to get the FAA to grant one of the company's original design goals. Single-pilot IFR for passenger-carrying operations under FAR Part 135 are not permitted; the FAA denied the petition for a waiver. There is hope that the FAA will change its mind after experience is accumulated.

Maximum-performance takeoffs and landings thrill on-lookers and display Caravan's STOL characteristics. Its good low-speed handling makes such maneuvers easy to perform.

The attention to those service aspects that will keep the Caravan flying in rugged conditions should appeal to many operators. The easy handling characteristics and good cockpit environment should make it a favorite of working pilots.

And surely there is a sportsman pilot somewhere who will convert one into a flying motor home. □