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TOWN AND COUNTRY CARAVAN

Enter the pattern at about 100 knots. Put the gear and first notch of flaps down. Turn base at about 90 knots; add more flaps; slow to 80 knots on short final with full flaps; set up a slightly nose-high landing attitude and reduce the power slowly; smile broadly as the airplane settles nicely on the runway. A primer on landing a 3,000-pound Cessna

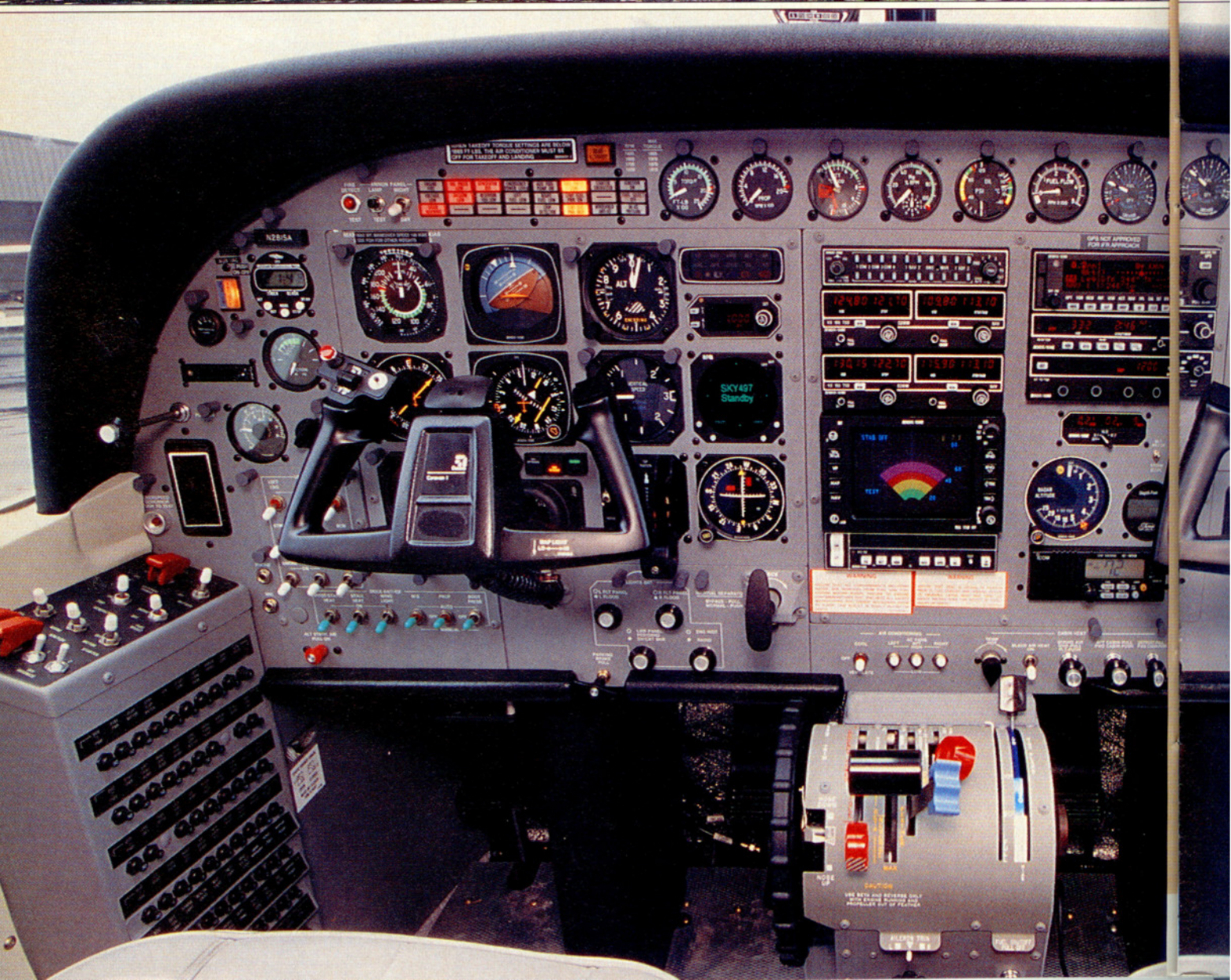
182RG? No, just a run-of-the-mill landing in a 7,800-pound Cessna Caravan on amphibious floats. ■ When you get out and look back at the airplane that you just landed, it's difficult to believe that you were dragging around all of that aluminum and managing 675 shaft horsepower.

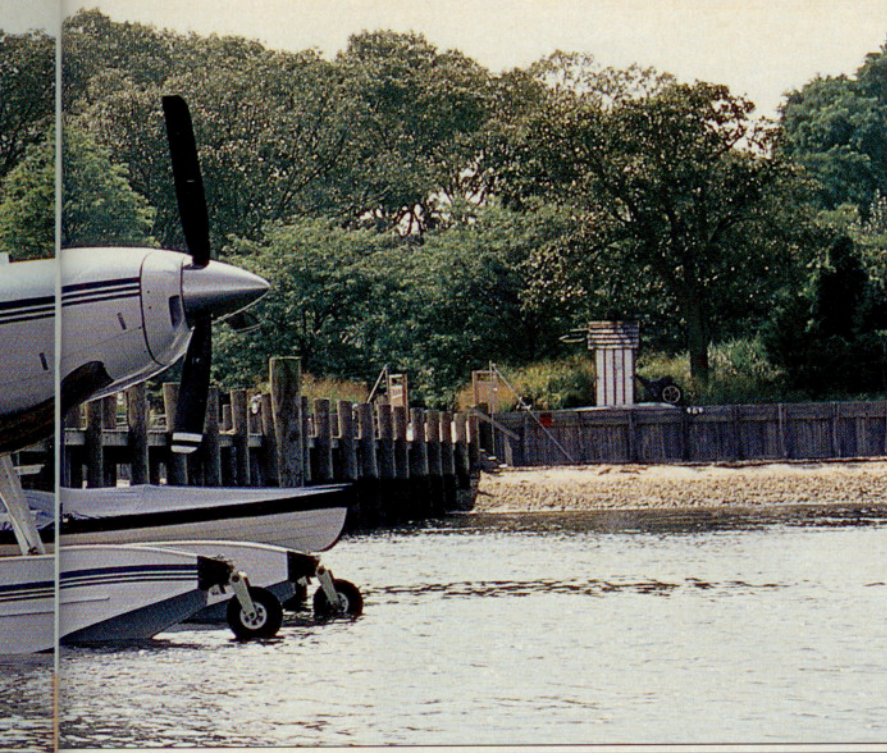
■ Big as it is—and it is big—the Caravan on floats handles more like a Skylane than not. From a rotation at 70 knots and climb at 95 knots to the conventional touchdown, the Caravan endears itself to pilots with its gentle behavior. Sitting on the ramp, though, the big bird with its chest-high floats, 52-foot wingspan, 14-place cabin, and strut-festooned fuselage defines intimidation.

Land or sea, the amphibious Cessna Caravan works well in any setting

BY THOMAS B. HAINES

PHOTOGRAPHY BY MIKE FIZER





But strap into the pilot's seat, which sits more than seven feet above the runway, and almost any pilot quickly feels at home behind the large but familiar Cessna panel.

Even those new to turbine operations won't be overwhelmed by the venerable Pratt & Whitney PT6 turboprop engine. Turn the battery and fuel boost on, hit the Start switch, and slip the fuel condition lever into the Low Idle position when the gas generator (N_G) speed passes through about 15 percent. At 52 percent N_G , turn the starter off and you're set to go.

I had never taxied an airplane on amphibious floats. "You ever taxied a Grumman Tiger?" queried John D. Kelly. "It's the same." Kelly is the owner of Shoreline Aviation, a New Haven, Connecticut, aircraft management and charter company that uses a fleet of seven Caravans to move anxious New Yorkers from the city to their weekend homes throughout New England.

Kelly is right. Despite the awkward-looking floats that sit on six wheels (two on each main gear and a castoring one under the bow of each float), the Caravan steers much like a tricycle-gear airplane with a castoring nosewheel. Tap a brake to start the turn and follow up with the other brake or rudder to stop the turn. Stomp on the brake and rudder and the airplane will spin around in little more than its own wingspan.

For takeoff, move the fuel condition lever to the high setting, advance the thrust lever (being mindful not to over-torque the engine), and fly away. Move the big gear lever up to stow the wheels into the floats, pull up the flaps, and you again seem to be flying a Skylane.

With the pilots' seats forward of the wing leading edge, the crew has an unobstructed view up, down, and forward. Sitting up so high, I was expecting to have problems landing. How can you possibly judge when to flare, when you're used to sitting half as high? Maybe it's that excellent visibility, but the landings turned out to be no problem, both on the runway and on the water. I quickly adapted to the new sight picture, unusual as it might be. Kelly comments that when picking up passengers at New York's La Guardia Airport, the Caravan pilots can look Boeing 737 pilots right in the eyes as they taxi by.

It is the Caravan's ability to be equally at home on the ramp at La Guardia and in that busy airspace as it is settling onto a quiet cove in Long Island Sound that makes it a success for Shoreline Aviation. The company, which has more



than 20 airplanes on charter or under management contracts—everything from Piper Saratogas to a Falcon 50 and a Gulfstream IV-SP—has operated Caravans since shortly after the model was first certified in 1984. Cessna developed the big fixed-gear turbine single as a replacement for the aging de Havilland Beavers and Otters and Douglas DC-3s of the world. Federal Express helped to launch the program with a number of big orders. Eventually owning some 300 Caravans and currently operating about 250, FedEx has made the model the backbone of its overnight package delivery service in smaller cities.

From the start, FedEx wanted more cargo capacity than the original 208 Caravan offered. So Cessna stretched the model and added a cargo pod below the fuselage. Now, Cessna offers four models of the Caravan. The standard Caravan and the model on amphibious floats both use the original-sized cabin,

Flights from Manhattan's 23rd Street Dock to East Hampton seem the perfect use for the amphibious Caravans.

which stretches 12 feet 8 inches behind the pilot seats. The Grand Caravan and the Super Cargomaster have four-foot cabin stretches. The Cargomaster has no windows and is set up purely for freight operations. The other models can be equipped in any number of ways. Some operators want 14 commuter seats, although in the United States only eight seats plus the two pilot seats are permitted, which makes for a luxurious executive configuration. In any case, all or some of the seats can be quickly removed to allow for freight or combination loads. In fact, some operators fly passengers during the day and then quickly pull the seats out for nighttime freight deliveries. With pilot doors on both sides, an airstair on the right side of the cabin, and a huge two-piece cargo door on the left side, access to the cabin is not a problem.

Like many other single-engine airplanes, the Caravan is now eligible to operate IFR in commercial service. Shoreline has two of its Caravans





approved for IFR Part 135 service but seldom flies under those conditions. The rest of its fleet will get the certification later once standby vacuum systems are installed.

Cessna has built 1,000 Caravans in the 14 years since production began. The 1,000th model will be delivered this month at the National Business Aviation Association convention in Las Vegas. However, only about 50 of the airplanes are on floats, according to Cessna. Wipaire, Incorporated, obtained a supplemental type certificate that allowed it to upgrade the short-body Caravan's power from the stock 600 shp to 675 shp and to swap the traditional landing gear for a set of Wipline 8000 series amphibious floats. The Grand Caravan and Super Cargomaster have always used 675-shp engines. Just this year, Cessna upped the horsepower of the stock short-body airplanes to 675 shp as well. So now if you order an amphibious Caravan from Cessna, it will come from the factory with the more powerful engine and then go to Wipaire for the floats. The floats add a \$210,130 premium to the Caravan's \$1.21 million base price. Unlike Cessna's other products, the Caravan's base price includes only the bare necessities: a VFR avionics stack, basic flight and engine instruments, a pilot's seat, and one set of flight controls. Everything else is optional. Equip it as most customers will and your floatplane will come in at about \$1.5 million.

For that price your airplane will look



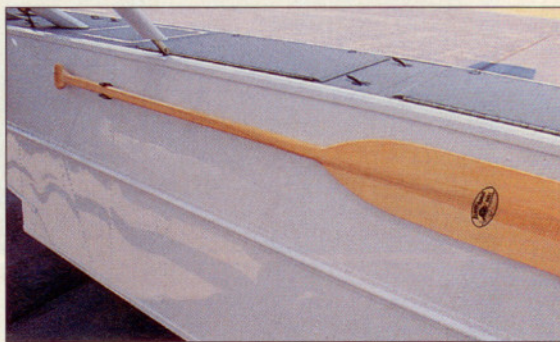


**Strap into
the pilot's seat,
more than seven
feet above the
runway, and
almost any pilot
quickly feels at
home.**

very much like N281SA, Shoreline's airplane that we flew and photographed in August. N281SA is one of the very first 675-shp floatplanes to come from Cessna. Like most of the fleet—wheels or floats—ISA has a complete AlliedSignal Bendix/King IFR avionics package, including an IFR KLN 89B GPS, copilot flight instruments, color weather radar, and deicing boots. On floatplanes, the deicing equipment is not approved for flight into known icing. Put the wheels on and you can launch into ice, if you're so inclined.

Unique to the floatplanes is an aural annunciator that at about 80 knots indicated airspeed announces "Gear down for runway landing" or "Gear up for water landing." The system also flashes a light, in case you miss the verbal wake-up call. In addition, Shoreline has its floatplanes equipped with radar altimeters, depth finders, and marine radios. Several of its Caravans also carry BFGoodrich Skywatch traffic alert systems and Stormscopes. The rest of the fleet will be equipped later. Shoreline pipes the aural gear warning and Skywatch traffic alerts over the ship's speaker system because Kelly believes safety sells. "We want our customers to know that we have safety equipment to back up our pilots. It's mostly a PR thing, but the customers seem to appreciate it, particularly those nervous about getting into a small airplane."

Nervous or not, Shoreline's passengers apparently also appreciate the utility that the Caravans provide. Instead of



the three-hour bumper-to-bumper Friday night drive up the Long Island Expressway toward the Hamptons, the passengers can enjoy a comfortable 45-minute sightseeing ride from Manhattan's 23rd Street Dock on the East River to the East Hampton Airport. Shoreline runs three flights during the summer every Thursday afternoon and evening and four on Fridays. Two flights on Sunday evening and two more on Monday morning return the relaxed passengers to their workaday rat races. The one-way fare is \$229. In addition, Shoreline runs regular flights from the dock to

Fire Island Pines and from La Guardia to East Hampton, Block Island, and other popular locations. If the regular flights don't suit your needs or times, you can charter a Shoreline Caravan for \$1,000 an hour. Shoreline provides the service nine months a year and even during the winter when the weather permits, although the winter months are considerably less busy than the summer. Besides the Caravan service and other management and charter business, Shoreline also operates a Part 141 flight school out of Hartford, Connecticut, and runs a maintenance operation at Bridgeport.

The runs from the 23rd Street Dock seem the perfect use for the amphibious Caravans. Passengers step onto the airplanes from a seaplane dock in the shadow of the Empire State Building and just down the river from the United Nations. Dodge a few barges and high-speed ferries as you maneuver into the middle of the East River, stow the water rudders, pull the yoke into your lap, and advance the thrust lever. As the airplane climbs onto the step, ease the yoke forward a bit and the Caravan soon flies off the water.

At the maximum takeoff weight of 8,000 pounds, the big Cessna requires a water run of 1,920 feet for takeoff; landings can be made in as little as 1,045 feet. After takeoff, turn south and head toward the Statue of Liberty. New York Approach wants you at 1,500 feet before leaving the river area; then they'll clear you right over La Guardia for the trip to the Hamptons. Shoreline usually stays at

1,500 feet for the cruise up the island, partly to give the passengers a good view and partly because little fuel is saved by climbing to high altitude on the short runs. Shoreline's average Caravan stage length is less than 30 minutes. Inside the wide and air-conditioned cabin, passengers shed a week's worth of stress as the Caravan carries them to East Hampton Airport. Those who charter the Caravans can be dropped off at their private docks or even yachtside in the middle of some small bay.

Water landings proved as easy as runway landings. Kelly, a long-time seaplane pilot, knows how to read the water's surface for all sorts of clues about wind and waves. As we're practicing maneuvers over Gardiners Bay near Long Island, he touts the airplane's glide performance, despite all the drag of the floats. To demonstrate the Caravan's engine-out abilities, he suggests that I pull the prop all the way into the feather position at about 2,500 feet and set up for a glide speed of about 90 knots. Under those conditions, the airplane quietly descends at 700 to 800 fpm, giving us



John D. Kelly of Shoreline Aviation, says the Caravan is the most reliable model Cessna has ever built.

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plenty of time to pick a landing lane into the wind. The first 10 degrees of flaps can be deployed at the airplane's V_{MO} of 175 knots. Another 10 degrees can come out at 150 knots; the final 10 degrees at 125. Maintain a shallow descent rate right to the water and haul back on the yoke as the airplane settles in. Reverse thrust is available but provides only marginal assistance on the water; it's a great aid for runway landings, though. Deploy the water rudders and you're in a boat. The inertial separator should be opened on rough seas to keep spray and debris from entering the engine; it's a good practice on rough runways as well.

In flight, the amphibious Caravan likes its rudder. Lead the turns with a bit of rudder—sort of like flying a tailwheel airplane—and the ball will stay centered. During other phases of flight, the rudder trim is an often-used aid. Aileron trim is available but seldom needed except when there is a fuel imbalance. The Caravan carries its 335 gallons of fuel in two tanks, one in each wing. The fuel is controlled by two levers on the overhead. Each tank can



be selected On or Off. In flight, both tanks are normally left in the On position. However, the tanks should be set to the Off position on the ground—and especially on the water, where waves can quickly cause one tank to crossfeed the other, creating an imbalance. A buzzer and annunciator light warn on startup if the tanks are in the Off position. The floatplanes include an inboard filler port that along with steps and handles allows the tanks to be filled from atop the wing. When using the inboard ports, only 240 gallons can be put on board because of the wing's dihedral.

While Shoreline's missions rarely tax the Caravan's abilities, the airplane does have respectable performance numbers when it comes to cruise and endurance. Maximum cruise for the amphib model is 162 knots true at 10,000 feet on about 52 gallons per hour—not bad, considering all that hangs in the breeze. Range at that setting, including climb and descent and with a 45-minute reserve, is 790 nautical miles. A regular Caravan is about 25 knots faster and goes about 140 nm farther. The amphib climbs at 1,100 feet per minute; the landplane bests it by only about 130 fpm. The amphib's service ceiling is 20,000 feet—5,000 less than the regular Caravan. Surprisingly, the floatplane's stall speed is 59 knots, two less than the wheeled version. Shoreline estimates that it spends about 20 to 30 percent more on operating costs for the floatplanes than for its wheeled models, mostly building up a

reserve to refurbish the floats every three to four years. Those who don't operate in salt water may spend less on maintenance.

In the end, there is little penalty to be paid for carrying around the floats and lots to be gained. Whether you're headed for town or the country, the amphib-

ious Caravans provide a plethora of additional landing sites and a whole new flying experience. □

Links to all Web sites referenced in this issue can be found on AOPA Online (www.aopa.org/pilot/links.shtml). E-mail the author at thomas.haines@aopa.org

Cessna 208 Caravan Amphibian

Base price: \$1.42 million
Price as tested: \$1.5 million

Specifications

Powerplant	Pratt & Whitney Canada PT6A-114A, 675 shp at 1,900 rpm
Recommended TBO	3,500 hr
Propeller	McCaughey three-blade, 106-inch diameter
Length	38 ft 11 in
Height	18 ft 2 in
Wingspan	52 ft
Wing area	279.4 sq ft
Wing loading	28.6 lb/sq ft
Power loading	11.85 lb/hp
Seats	10
Cabin length	17 ft 4 in
Cabin width	5 ft 2 in
Cabin height	4 ft 3 in
Empty weight	3,925 lb
Empty weight, as tested	5,000 lb
Max ramp weight	8,035 lb
Max takeoff weight	3,140 lb
Useful load, as tested	3,035 lb
Payload w/full fuel	1,886 lb
Payload w/full fuel, as tested	811 lb
Max takeoff weight	8,000 lb
Max landing weight	7,800 lb
Fuel capacity	335.6 gal (332 gal usable) 2,248 lb (2,224 lb usable)
Oil capacity	14 qt
Cabin capacity	254 cu ft
Float baggage holds	300 lbs/23 cu ft

Performance

Takeoff distance, water	1,919 ft
Takeoff distance over 50-ft obstacle	3,015 ft
Rate of climb, sea level	1,110 fpm
Cruise speed/range w/45-min rsv, std fuel (fuel consumption) @ max cruise, 10,000 ft	162 kt/790 nm (355 pph/53 gph)
Max operating altitude	20,000 ft
Landing distance over 50-ft obstacle	1,935 ft
Landing distance, water	1,045 ft

Limiting and Recommended Airspeeds

V _X (best angle of climb)	90 KIAS
V _Y (best rate of climb)	107 KIAS
V _A (design maneuvering)	150 KIAS
V _{FE} (max flap extended)	175 KIAS
V _{LE} (max gear extended)	175 KIAS
V _{LO} (max gear operating)	
Extend	175 KIAS
Retract	175 KIAS
V _{MO} (max operating)	175 KIAS
V _{SI} (stall, clean)	75 KIAS
V _{SO} (stall, in landing configuration)	59 KIAS

For more information, contact Cessna Aircraft Company, Caravan Marketing, Post Office Box 7704, Wichita, Kansas 67277; telephone 800/4-Cessna or 316/517-6081; fax 316/517-7850; or visit the Web site (www.cessna.textron.com).

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.