

Flying the G550

At the controls, at long last | by Matt Thurber

The Gulfstream G550 proved itself a strong performer and easy to handle with the right training.



After earning a new type rating, most corporate pilots jump right into the cockpit of the airplane on which they just trained and go to work. When I finished the [Gulfstream G550](#) initial course (*AIN*, November, page 46) at FlightSafety International's Long Beach learning center in June, I was doubly excited, not only because it was an opportunity to add the G550 to my pilot certificate but also because Gulfstream invited me to fly a real G550 shortly thereafter. I would finally get to see what it is like for other pilots to transition from training in a simulator, getting the type rating, then flying the real airplane.

Even better, when I arrived at Gulfstream's Savannah, Ga.

headquarters for the flight, I learned that I would experience what the crew for buyers of a new G550 would go through. Senior international captain Ed Faciszewski and international captain Nick Rose said they would take me on a trip as if this were an entry-into-service flight. This is a service that Gulfstream provides new customers and allows the crew to become thoroughly familiar with their new jet while flying with highly experienced pilots and, if desired, completing the first few actual trips for the owner. Of course, there was no owner in this case, just me, Faciszewski and Rose and a gorgeous gently used low-time G550, N531GA.

The morning began with a

summary of the G550's capabilities and a thorough preflight briefing. Certified in 2003, the G550 has enjoyed a tremendous run, with 530 in service and no plan to phase it out of production as the new G500 and G600 enter service; the marketplace will be the ultimate decider on that question.

The Rolls-Royce BR710 C4-11-powered G550 offers long range (6,750 nm at Mach 0.80), direct climb to FL410 on a warm day, sub-6,000-foot balanced field length at maximum takeoff weight and the ability to tanker fuel by flying, with the right winds, from New York to London and back without adding any fuel. Maximum operating speed is Mach 0.885, and

high-speed cruise is Mach 0.85. Cabin altitude at the maximum altitude of 51,000 feet and maximum cabin pressure differential of 10.48 psi is a comfortable 6,000 feet. This performance was attention-grabbing when the GV—which later became the G550—entered service in 1997, but even more so when considering the clean Gulfstream wing, which has no leading-edge devices.

Four seating areas can be fitted in the cabin, or three when buyers opt for a crew rest area. The rear baggage area is accessible in flight, but there is a limitation of five minutes with the internal baggage door open above 40,000 feet. Since the compartment is accessible from

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AIN senior editor Matt Thurber, center, put his newfound knowledge to good use with a flight in a Gulfstream G550 with the company's senior international captain Ed Faciszewski, left, and international captain Nick Rose.

the cabin, the exterior baggage door doubles as a secondary emergency exit.

Gulfstream has developed its own cabin management and entertainment system, with full high-definition video and audio, standard Blu-ray players, HD bulkhead monitors and Airshow 4000. Among the satcom options are Inmarsat SwiftBroadband, ViaSat Ku-band and Iridium plus Gogo Business Aviation air-to-ground connectivity. Next year, Gulfstream will begin equipping the G550 with Honeywell's JetWave system, which delivers the high-speed Ka-band Jet-Connex service.

The cockpit features Gulfstream's Honeywell Primus Epic-based PlaneView flight deck, which is now flying in 1,000 Gulfstream jets. Four 14-inch display units fill the instrument panel, topped by the central guidance panel, which is flanked by two display controllers, one for each

pilot. These controllers are a primary component of the pilot interface and are used to adjust a variety of settings on the avionics. One setting, for example, is selecting synthetic vision to display on the primary flight display (PFD). Synthetic vision is optional on the G550 and, surprisingly, is not purchased by all buyers, probably because regulators still give no operational credit for the technology. The EVS II infrared-based enhanced vision system and HUD II head-up display are both standard, as is Fans, CPDLC and ADS-B OUT (the earlier version required now in Australia and some Asian countries).

Among the other avionics options are Waas LPV, Honeywell's RAAS (Runway Awareness and Advisory System), Sirius XM Weather, the latest version of ADS-B OUT and RNP SAAAR (special aircraft and aircrew authorization required).

Flight Brief

"We're here just to have fun today," said Faciszewski at the start of the briefing, but he reminded me that we had two objectives for the flight. "Number one is to operate safely at all times. The second is we want to provide real-world operational training following the FlightSafety training." For entry-into-service customers that take advantage of flying the first trips with Gulfstream pilots, he added, "We're the bridge between the simulator and the aircraft."

Faciszewski flew F-15s in the Air Force and was a T-37 instructor before joining FlightSafety, flying for some corporate operators then hiring on with American Airlines before returning to business aviation. He has been working for Gulfstream for the past 10 years. Rose graduated from Embry-Riddle's Daytona Beach, Fla. campus and flew for a regional airline for seven years before joining Gulfstream in 2006.

The plan was to fly two legs,

from Savannah to Augusta, Ga., with some airwork on the way, with me flying right seat. At Augusta, we would switch seats and I would be the pilot flying in the left seat for the return leg. Faciszewski outlined the weather, which was just about CAVU, summarized Notams and described the plan for the flight in detail. We discussed possible traffic around Augusta's Daniels Field, which shouldn't affect our flight into Augusta Regional, and the need to watch for turkey vultures that like to circle near the approach to the airport.

The sterile cockpit rule would be observed from brake release until 10,000 feet. As I learned at FlightSafety, when the autopilot is on, the pilot flying "owns" the guidance panel except for the altitude preselect. When the pilot flying is hand flying, the panel is the responsibility of the pilot monitoring and his alone.

We discussed elements of flying the real G550 that were different from the simulator, such as the ability to lean forward and see the wingtip, and the large amount of thrust at idle, meaning that releasing the brakes is usually all that is needed to get the airplane moving on the ground. As it is in the simulator, the tiller nosewheel steering is notably sensitive, and we would use that most of the time except on straightaways because the rudder pedals allow for seven degrees of travel, and it's smoother than using the tiller. Faciszewski explained how he keeps the G550 on centerline during landings, and this was helpful for me as I tend to keep landing slightly to the left. "I always use the center of my body," he explained. "Try to put your nose on the centerline."

Because of the size of the G550's clean wing, "The 550

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has tremendous ground effect,” he said. “At about 100 feet, I start to move [the yoke] back slowly. It’s a subtle flare. Once we touch down, we have ground spoilers come up and that pitches the nose over. You catch the nose. When you land, it wants to go nose down and you have to apply back pressure to catch the nose and fly the nose down. If you don’t do that, the nose comes down pretty hard.”

Faciszewski emphasized that we would “exercise sound judgment and airmanship. I’m looking for smooth control inputs on the ground and in the air and a stable approach and landing.” He would demo the first landing, at Augusta, then I would land back at Savannah. “I’m not going to introduce any abnormalities or emergencies,” he said. On most demo flights I’m usually not handling the radios, but on the first leg of this trip I was the pilot monitoring, and I would handle all the normal duties.

There would be just three of us on board—Faciszewski,

Rose (in the jumpseat) and me—plus 13,500 pounds of fuel. As calculated using Gulfstream’s PlaneBalance app, our takeoff weight would be 61,845.4 pounds, well below the 91,000-pound mtow. We would use 10 degrees of flaps for takeoff, and the trim setting would be 9.0. Fuel burn for the flight should be about 7,500 pounds, illustrating the G550’s flexibility; it can easily handle short, light-load trips as well as long trips carrying a full load of fuel (41,300 pounds) and an 1,800-pound full-fuel payload.

Ready To Fly

Rose did the exterior preflight inspection (which is done with a maintenance technician and a dual sign-off) while Faciszewski and I brought the G550’s cockpit to life. I expected this to go much faster than it did in the simulator, and indeed it did. This was my first try at running one of the more complicated cockpit flows in the real airplane; after the relatively simple APU start flow I did

the before starting engines flow, which has 30 items, and I was pleasantly surprised to see that I remembered almost everything, including the dozen or so functional checks that are part of that checklist. Faciszewski has been doing this for a while, obviously, and was far faster at the subsequent challenge-and-response that is designed to catch any items missed during the flow, and we had the cockpit warmed up and ready in less than half the time it took me and my partner in the simulator. This process included doing items in the airplane that can’t be done in the simulator such as checking all the circuit breaker and electrical panels.

I had asked during the briefing if I could practice inputting the flight plan in the FMS, and here was another experience that felt familiar, as I had done it so many times in the FlightSafety graphical flight-deck and full flight simulators. I did end up making a mistake that required I start all over again, and once again

I wondered why Honeywell couldn’t have put a “back” button on its FMS.

Once ready to taxi, I called for the clearance and was grateful it was fairly simple: as filed to Augusta, maintain 3,000 feet, expect 11,000 ten minutes after departure. We taxied out of the tight confines of the Gulfstream customer and design center ramp, and I was glad Faciszewski was at the controls because there isn’t a lot of room for error.

It was fun to use my copilotting skills as we taxied onto Runway 28, lined up and then I gave the standard callouts as we accelerated—“airspeed alive, power set, 80 knots, V₁, rotate”—and Faciszewski smoothly rotated; then “gear up” and “flaps up” as we climbed out. We were cleared to a block altitude from 11,000 to 13,000 feet. Faciszewski gave me the controls and I hand flew for a few minutes, comparing the feel to the simulator, then flew two 180-degree steep turns, exactly as we did in the simulator. Faciszewski

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took over the controls, and we programmed the FMS with the Rnav 26 approach into Augusta. As we neared the initial approach fix, Faciszewski asked for flaps 10, then, lining up on the inbound course and near the final approach fix, flaps 20 and gear down.

The landing was smooth, and Faciszewski made it look easy, including letting the nose down gently.

We taxied to the ramp and followed a well choreographed routine that had us swap seats, which seemed like a lot of effort but was done with a high degree

of safety awareness. Faciszewski and Rose had clearly game-planned this seat transfer, and they did it in a way that ensured the G550 was always, without question, under positive control while the engines were running. I was impressed by the sharp focus on safety.

My Turn

Now it was my turn in the captain's seat of the G550. I'll admit I was a little nervous, but Faciszewski is an excellent mentor. He did urge me to work on my smoothness, and while taxiing I felt that the only difference

between flying the simulator and the real airplane is when using the tiller. Sure, the tiller is just as sensitive in the simulator, but in the airplane I was trying to precisely manipulate 60,000 pounds of airplane, and it took a really deft touch to avoid jerking the cabin around. "Easy in and out with the tiller," he explained.

I managed to give the pre-takeoff briefing with some confidence and then to taxi to Runway 26 without causing too much discomfort. I lined up on the runway, pushed the power levers forward, clicked on the autothrottles, accelerated and took off. I tried to make sure I brought the nose of the G550 smoothly up on rotation, and to the required 15 degrees. I had gotten into a bad habit flying the simulator, where I wouldn't bring the nose all the way up because I was expecting an engine to fail; if the nose is too high, it's easy to let the nose drift off course if you let the big jet slow down too much.

We stopped briefly at FL230 then continued the climb to FL390 for a minute then climbed to FL470 and leveled off. The entire climb took about 21 minutes, and we had enough energy left to have climbed straight to FL490, Faciszewski said.

Our flight plan took us southeast toward Gainesville, and we just cruised along at Mach 0.84. Faciszewski said this is what flying the G550 is mostly like, and I finally relaxed a bit and enjoyed the feeling of blazing through the skies in an amazing airplane, something there is little or no time to do during simulator training or a typical flight demo.

Soon enough it was time to plan the descent back to Savannah, where we would fly the Rnav approach to Runway 28, something I had done before in the simulator. Faciszewski showed me a neat trick for smooth flying in the Gulfstream: start a descent using vertical speed instead of

FLCH (flight level change) or Vnav (vertical nav). He had me select a low rate, -100 fpm, then -200 fpm at first to get the descent started smoothly, then once that is established, switch to FLCH or Vnav. Another method he had me try was to use the FPA (flight path angle) knob to set up a descent at a steady angle to get the desired speed. This results in a super-smooth descent without the occasional hunting motion while in FLCH mode caused by atmospheric changes, Faciszewski explained.

He also had me try this in the climb, and it works well, but it is important to monitor speed carefully and adjust the FPA to remain at the proper speed. I did use the speedbrakes on the descent, and very carefully too. Pulling the speedbrakes out or retracting them too quickly could cause a sharp bump that might hurt a passenger, Faciszewski said.

During my leg, he pointed out that I was a little rough with the G550's switches and that I could use a little more finesse when pushing a switch. I had gotten used to punching the switches in the graphical flight-deck simulator, which isn't a good habit, and I was grateful for the critique.

As we got ready to start the Rnav 28 approach, I got caught up in the rapidly accelerating demands of managing the autopilot and following ATC instructions. I delayed selecting the Lnav (lateral navigation) switch when we were cleared for the approach and almost flew through the inbound course because I was futzing with the vertical mode. Faciszewski suggested concentrating on the most important element first.

VREF at our weight was just 113 kias, and looking through the HUD combiner, with the G550 stabilized with gear down and full flaps, I clicked off the autopilot and made sure the trim

Gulfstream G550 Specifications and Performance

Price (typically completed and equipped)	\$61.5 million
Engines (2)	Rolls-Royce BR710 C4-11, each 15,385 lbs
Avionics	Gulfstream PlaneView (Honeywell Primus Epic)
Passengers	2 pilots + up to 19 pax
Range (with NBAA reserves, 200-nm alternate)	6,750 nm at Mach 0.80
High-speed cruise	Mach 0.85
Long-range cruise speed	Mach 0.80
Fuel capacity	41,300 lbs
Max payload w/full fuel	1,800 lbs
Ceiling (certified)	51,000 ft
Cabin altitude at ceiling	6,000 ft
Max takeoff weight	91,000 lbs
Balanced field length at mtow (sea level, standard)	5,910 ft
Landing distance	2,770 ft
Length	96.4 ft
Wingspan	93.5 ft
Height	25.8 ft
Cabin	Volume: 1,669 cu ft Width: 7.3 ft Height: 6.2 ft Length (seating area): 43.9 ft
Baggage capacity	170 cu ft/2,500 lbs
FAA certification (basis, date)	FAR Part 25, 08/14/03
Number built (through date)	530 (6/23/16)

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was set while the autothrottles worked their magic and kept us right on speed.

The landing felt pretty good, and I didn't flare too much or too early. It really was a lot like the simulator, but also so much more, with the sights and sounds and feel of the G550 obeying my commands and flying just as I had expected.

We switched seats again, and Rose taxied us back into the design center ramp, and that

was the end of a journey that had begun in February when I learned that I was going to G550 school.

During the post-flight briefing we discussed the flight and what I could do better next time. "Overall, what you need is reps [repetitions]," said Faciszewski, including more time manipulating the guidance panel, programming the FMS, using cockpit flows and making sure to read the

lettering on a knob or switch before selecting it.

I did make some mistakes while I was flying the G550, and I think that more experience would cure those quickly. During the takeoff from Augusta, I made a rookie error, not moving my right hand to the yoke when Faciszewski called "V₁" but he fixed that fast by moving my hand for me.

Another problem occurred as a result of the way I was holding

the tiller while taxiing. I was trying to be super careful not to move the tiller too abruptly, and apparently my wrist tapped the audio panel and switched off the audio for my headset. The G550 cockpit is quiet enough that I could hear everything Faciszewski was saying, but it took me a few minutes to figure out the problem. This never happened in the simulator. I wasn't using good CRM practices, though, as I didn't mention it to Faciszewski right away, and this is one of those two-pilot crew skills that I need to work on. I also need to work on my thrust reverser deployment skills, not that we really needed them to slow down after the landing at Savannah.

The G550 is a fantastic performer with excellent handling and not at all hard to fly after proper training. My introduction to the G550 through training with the talented FlightSafety instructors and flying with two ultra-professional Gulfstream pilots was an awesome way to learn about a new airplane. □



MARK WAGNER

During his flight in the G550 Thurber had the chance to put into practice all that he had learned at FlightSafety, starting with inputting the flight plan into the FMS.

