

Good Eats At FL 400: Passenger Expectations Drive Move To Fine Dining

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Credit: Comlux Airbus ACJ319



There was a time, not all that long ago, when a business aircraft galley was a place for uncorking cabernet, making sandwiches, re-plating the catering and reheating the main dish. It typically featured an ice drawer and the standard appliances consisted of a coffee maker and a microwave barely large enough to accommodate a couple of squabs.

There was also carefully designed storage for English fine bone china, Baccarat crystal and flatware from Italy's Sambonet. But somehow, the cuisine rarely matched the quality of the place settings.

These days, all of that is changing, driven in no small part by passenger expectations of a culinary experience at 40,000 ft. that is the equal of the aged whiskey steak that graced the table the night before at The Beatrice Inn on New York's lower west side. After all, shouldn't dining en route to Paris be no less elegant than the \$60 million private jet that's whisking its passengers across the Atlantic at Mach 0.85?

Perhaps no less responsible for passenger expectations are the demands of a growing legion of self-proclaimed "foodies" who have been inspired by any of the 300 cooking shows crowding the cable channels. After all, if Giada de Laurentiis whipped it up yesterday on the Food Network in just 30 min., why shouldn't it be available in my new ACJ?

The business jet galley is still not the kitchen at Spago, but it has come a long way, thanks also in part to a growing availability of new appliances designed to make cooking in flight easier and more efficient by flight attendants with culinary training as well as by professional chefs.

One example is the launch of an induction cooktop platform from VIP cabin interiors specialist Lufthansa Technik. "Fresh food can be prepared on board quickly, safely, cleanly and economically . . . from the perfect fried egg to a sizzling rib-eye steak," according to the Hamburg outfitter.

The unit includes a power source, exhaust fan and special "smart pot" containment cover to ensure that pots and pans remain in place, even during turbulence. The platform measures 11.6-by-22.4-by-10.5 in., weighs 29.7 lb. "and fits into any aircraft kitchen," according Franziska Voemer, lead project manager for Lufthansa Technik's Original Equipment Innovation product division. It allows the onboard chef or flight attendant to use a pan, toaster or pot to prepare meals, with cooking smells eliminated by the integrated fume hood and odor filtration system.

"We are very confident that the European Technical Standard Order process will be successful and that the product will be ready for installation in early 2018," said Andrew Muirhead, vice president of the division.

Induction Ovens Reach New Heights

Meanwhile, Iacobucci HF Aerospace offers its Gusto induction ovens for business aircraft. The Italian supplier describes the series as a "cooking revolution with induction technology for a five-star food experience on board."

A steam exhaust is used as an "active lid" inserted above the cooking box when frying as a means to filter grease and odors. Vapors are released through filters and small openings in the door of the oven.

In addition, Gusto features a steaming grid insert that offers programs for vegetables, fish, dim sum and sausages, as well as to reheat pre-cooked meals. An egg sheet is a space-saving insert for boiling eggs, and different heat settings allow for soft- or hard-boiled. Another application insert will toast six slices of bread in about 4 min. — light, medium or dark. No meal preparation is foolproof, so it helps to have an oven that can detect and identify automatically the trays inserted and activate the appropriate, pre-selected heating program.



Iacobucci's Gusto induction oven for a business aircraft. Credit: iacobucci

For an equally sophisticated culinary result, Iacobucci offers its flattop induction plate unit cooking station, permitting customers to heat or cook fresh food in restaurant style.

The inevitable result of a fine meal is a stack of dirty dishes, glasses and cutlery. In the past, they remained that way, albeit out of sight, until alighting at an FBO with a dishwasher. But cabin galley design specialists now have a better, more immediate and hygienic solution: inflight dishwashers.

From Jet Aviation comes the "plug-and-play" ADW dishwasher that features a 3-min. wash cycle, using just three liters of water. It includes an integrated drip pan as well as shock and vibration absorption and decompression safety features. Depending on the size selected, the ADW weighs "upward" of 132 lb. In addition to its inflight scrubbing, the dishwasher can double as a storage cabinet, able to accommodate up to 44 lb. of tableware.



Credit: Greenpoint Technologies

The dishwasher was developed to published [European Aviation Safety Agency](#) design and performance standards, as well as to both [Airbus](#) and [Boeing](#) specifications, according to Matthias Mueller, project manager for cabin modifications and upgrades at Jet Aviation Basel.

“Traditional industrial dishwashers have a short wash cycle but tend to use chemicals that are too corrosive for use in aircraft,” he explained. “Our state-of-the-art ADW dishwasher is compatible with an eco-friendly soap that is gentle enough for the most delicate dishes.”

The ADW600 was designed for larger VIP aircraft and the smaller ADW450 for large-cabin business jets such as the [Bombardier](#) Global 6000 and Gulfstream G650.

For its part Lufthansa Technik also views the dirty dish problem as one of weight.

“Why take along mountains of heavy dishes and silverware on long-haul flights and arrive with a mountain of dirty tableware?” one company spokesman asked, rhetorically. His solution? “The new DishwashAIR.”



Credit: Greenpoint Technologies

The washer can be attached to available connections for the aircraft's fresh and waste water or vacuum systems, and a single-fill-up of the two approved cleaning agents is sufficient for as many as 40 wash cycles. In addition, baskets that also fit in any standardized galley can be used for holding dishes and silverware in the unit.

The DishwashAIR was created specifically for inflight use by hs² engineering of Ulm, Germany, in collaboration with a Lufthansa Technik engineering team. According to Oliver Thomaschewski, head of seating and structures, Lufthansa Technik has orders from a number of its VIP aircraft customers, and says airlines are interested in adaptations for their fleets.

As for the trash that accumulates in the galley, especially during long flights, Iacobucci offers a line of compactors, including one full-size compactor, one half-size and a new, smaller 28V unit compatible with galleys on smaller aircraft.

Even — well, especially, perhaps — the venerable coffee pot has been target for a new-tech workover.

Billing itself as the “worldwide leader of espresso machines,” Iacobucci provides single or double espresso and cappuccino makers, using a patented heat exchange system to ensure a cup delivered with no time wasted. Developed in collaboration with Nescafé, Iacobucci's Automatica will make up to six hot beverages in 1 min. It will also allow imbibers to choose among espresso, cappuccino, café au lait or hot milk.

While little has changed with the ubiquitous microwave, much has changed in the method of preparing a wide variety of dishes. Lékué specializes in cookware designed specifically to heighten the culinary level of food prepared in microwave ovens.

Headquartered in Barcelona, Spain, the company offers more than 40 special pieces of microwave cookware, ranging from oatmeal, rice and pasta cookers to a corn-on-the-cob steamer and a fondue maker. It even provides bags to take the guesswork and mess out of poaching eggs.

Induction Cooking 101

The power and precision that's key to induction cooking comes through an electromagnetic field beneath the glass cooktop, which quickly generates heat directly to the cookware. Because the process does not produce a glow, some manufacturers have added virtual flames or other special lighting effects to provide inflight "chefs" with a visual cue.

When no cookware is in place above the induction element, the surface remains cool to the touch. But when cookware is being heated, there may be some heat transfer to a small area of the cooktop.

Induction elements typically heat very quickly, requiring as little as 2 to 4 min. to bring 6 qt. of water to a near boil. Nevertheless, the induction surface remains much cooler than that of a radiant "smooth-top," so spills are unlikely to "cook" into the surface.

The right pots and pans are, however, required to complement the system. Use a magnet to test whether or not a particular piece of cookware is induction friendly. If the magnet sticks firmly to the bottom of the pot or pan, it will work with an induction cooktop. But be aware not all stainless-steel cookware is compatible with induction technology.

An induction cooktop may emit a buzz or hum at higher settings, there may be a barely audible clicking noise of electronic elements at lower settings, and you may hear the hum of a cooling fan.

Induction cooking may be the new thing in inflight meal preparation, but when it comes to testing the temperature of a dish, you'll have to employ an old-fashioned analog thermometer because the accuracy of digital versions is affected by the magnetic field.

Long Endurance Galleys

Efforts to improve the quality of inflight dining is especially evident at VIP aircraft completion centers where galley design and outfitting must take into consideration long-duration flights well in excess of 10, 12 or 14 hr., or more.

Julie Mandrell, senior design coordinator for Associated Air Center in Dallas, said requests for bigger galleys and more sophisticated and better cookware and equipment are becoming a trend. "There is certainly a demand to have the same quality in the air as on the ground," she noted.

Special outfitting features for galleys are frequent. One recent client at Associated asked for additional outlets and storage space for cleaning equipment, another wanted a skillet and an ice cream freezer from Aerolux, a third specified a cooktop and a center island, and a fourth ordered an automated window pass-through bar. With some floor plans, in order to make service by the cabin crew more efficient, clients have asked for as many as four galleys.

Even the ubiquitous microwave on an Airbus ACJ319 was a step above, featuring three-stage programming to defrost at one power level, then cook at another, and finish the dish at the third. "You might call it a 'smart' microwave," said Mandrell.



Credit: Jet Aviation

Highly customized galleys on airliner-sized executive aircraft are pretty much the norm, according to Steve Daschel, senior director of engineering at Greenpoint Technologies in Kirkland, Washington. “Typical VIP galleys are configured to allow fresh, gourmet food to be prepared by professional chefs, plated and served to individual passengers in a timely manner without the use of galley carts,” he said.

Galley equipment and amenities on a VIP jet, he added, may include: convection and warming ovens; refrigerators and freezers; full-size sinks; extensive work areas; and adequate storage capacity for food, cooking utensils, china, cutlery and stemware.

“The desire for unique, certified galley appliances, such as induction cooktops and dishwashers, varies by customer request,” he said. “Among the more elaborate kitchen features are provisions for professional-quality appliances, such as grilling surfaces, infrared heat lamps, commercial equipment electrical outlets and air ventilation systems to eliminate cooking odors.”



Credit: Lufthansa

Airframers as well as completion centers are also aware of expanding customer expectations when it comes to dining at 40,000 ft. For example, [Embraer's](#) Lineage 1000E galley features dual ovens, espresso and coffee makers, a refrigerator, copious storage space and pullout counter surfaces.

In addition, Jay Beever, Embraer Executive Jets' vice president of interior design, says, “We're considering creation of a new galley concept that would incorporate all these new galley innovations, from induction cooktops to ovens and dishwashers.”

The driving force for upgrades is keeping up with emerging consumer product trends,” said Matthieu Noël, director of product strategy and design at Bombardier Business Aircraft.” And he added, “Special attention has been paid to maximizing the usable space.”

On the Global 6000, counter space has been increased with the addition of pullout counters to increase meal preparation space, said Interiors Coordinator Marjorie Arnold.

The same attention has been given to size, location and organization of space in Global 6000 aircraft with the new Premier cabin design. “We optimized the workflow to help get things done — including cooking a full meal,” Arnold said. “The larger surface area in the ergonomic galley helps flight attendants prepare and store meals with ease; new appliances such as the dual-function microwave/convection and steam/convection ovens, and the location of certain appliances, such as coffee makers, at counter level rather than a top shelf, increase flight attendant safety.”

According to Noël, larger ovens are a must on long-haul flights and the size of the ovens, even on the Challenger 650, will allow roasting a complete chicken.

At Gulfstream, the company's designers and engineers work closely with its Customer Advisory Board in creating galleys for its line of business jets. The board includes flight attendants from around the world.

The new G500 and G600 are the latest examples. There was a focus on flexibility in designing the galley, from interchangeable beverage stations and refrigerator placement options, to flexible storage and flooring. Optional tea and coffee makers at beverage stations can be easily replaced with espresso machines, and the refrigerator can be placed above or below the counter. A convection oven is also available.

Among the more interesting preferences discerned by the Savanna, Georgia-based airframer was continued placement of the wine chiller in the cabin credenza, a choice now available on the G650 and G650ER.

The company's cabin integration test facility (ITF) simulated flights with passengers and crew, with flight attendants preparing meals in the galley and serving them in the cabin. The ITF ground runs are being complemented on G500 and G600 production test aircraft as part of their flight-test programs.

Training in the Culinary Arts

While experienced chefs are becoming more common on VIP executive aircraft, flight attendants in growing numbers are getting culinary training at numerous schools.

Acropolis Aviation, one of Europe's leading luxury air charter operators, has taken steps to further improve the quality of its inflight culinary service by enrolling cabin crews in the award-winning Tannery Cookery School in Dungarvan, Ireland. There, according to Rebecca Phillips, head of cabin crew, they undergo two days of intensive training, "to learn the secrets and skills a top restaurant calls on to present delicious meals and how they can be adapted in flight."



Credit: Alex Forsythe/ECS

Phillips said the galley on the Acropolis ACJ319 is comparable to many stationary kitchens and is equipped to meet any dietary request, from beetroot, walnut and goat cheese salad to poached pear and plum crumble — and can serve halal, kosher and Hindi menus.

According to Phillips, the cabin crewmembers are "serious foodies," and even with consistent positive client feedback on the quality of the inflight dining, "we're always looking to improve."

Benjamin Jones, a graduate of the Culinary Institute of America (CIA), has been a private chef aboard corporate jets for almost 10 years. He is now director of cabin service for TAG Prudential Flight Operations, operated by TAG out of Morristown, New Jersey.

"I see more and more culinary professionals getting into this field," said Jones, adding, "We're no longer locked into catered meals, and the cost of cooking on board is about half that of catering."



Credit: Alex Forsythe/ECS

Chef Kendra A. Wilcox is a well-known chef offering garden-to-table, no-GMO cuisine at the five-star Kirkwood Manor in Mountain Village, Colorado, altitude 9,200 ft. The challenge of cooking at that altitude, she says, is not so different from that of preparing a meal in a business jet cabin pressurized to 8,000 ft.

“At sea level, for example, a potato wrapped in foil bakes in 40 to 45 min., but at 8,000 ft. it takes about 2 hr., and wild, brown and white rice requires more water than normal,” she said. Despite those differences, she noted, “An experienced chef can successfully adapt a recipe meant for sea level and create the same high quality meal at high altitude.”

But Wilcox also noted that there are some dishes that simply aren't adaptable to higher altitudes. Among those is a soufflé, a puffy culinary delight that is likely to simply collapse on itself. In its stead she offers a low-cholesterol chocolate torte.



Credit: Alex Forsythe/ECS

A flight attendant might not be a chef, said Wilcox, but when working with advanced technology like Iacobucci's induction oven meal preparation in flight would be easier and more efficient.

Hundreds of flight attendants seeking to improve their galley skills have attended various courses at the prestigious CIA. Most recently the CIA is promoting its Culinary Boot Camp as a place “teaching the hands-on ‘hows’ and all-important ‘whys’ in the same kitchens where our world-famous graduates got their start – ‘learning by doing,’ developing various dishes that are then served as a restaurant meal.”

The Boot Camps range from two to five days in length and are available at the Institute’s main campus in Hyde Park, New York, as well as at its St. Helena, California, and San Antonio locations.



Credit: Alex Forsythe/ECS

The Corporate School of Etiquette in Long Beach, California, offers flight attendant training with chef instructors who conduct onboard cooking classes using a variety of equipment, from convection and microwave ovens to induction cooktop technology. Students become familiar with the use of the latest equipment finding its way into the galley. That exposure is invaluable to freelance flight attendants who can get pop-up assignments to work on aircraft with a wide range of equipment.

They also learn by doing at the school's two other locations in Savannah, Georgia, and Teterboro, New Jersey. Among the more sophisticated dishes served up in this schoolroom is poisson en papillote, which features fish, fresh seasonal vegetables and herbs wrapped in parchment paper and baked in a convection oven. A major benefit of cooking on board an aircraft is that cabin crews may purchase fresh items of known quality, noted Donna Casacchia, the Corporate School of Etiquette's president and founder. This is more than a simple convenience as many of today's extended-range aircraft take crew and passengers to locations where produce and even catering may not meet safety standards, or the items required by passengers to meet religious and/or ethnic demands are not available.

All of Bombardier's demonstration flight attendants have attended the Corporate School of Etiquette in Long Beach for culinary training, and some have attended CIA courses as well.

When the new DaVinci Inflight Training Institute opened recently in Fort Lauderdale, Florida, among the highlights was a class in modern and traditional culinary service and butler duties, taught by Chef Daniel Hulme.

According to founder Paula Kraft, who also owns Tastefully Yours Catering in Atlanta, the school is already gaining momentum with culinary, butler service, etiquette and protocol programs in high demand.

"Today's passengers want a consistent high level of service. They want food served on board to be the same or similar to the five-star dining they enjoy on the ground," said Kraft. "They want health-conscious, allergen-aware, mindful menus they can feel good about consuming, while at the same time their taste buds explode with flavor."

DaVinci's culinary department courses are scheduled monthly, six months in advance. The culinary experience class is offered the first week of each month, followed by numerous one- and two-day classes on specific subjects. These include: breakfast ideas; caviar service; appetizers; pre-boarding sushi and sashimi; special health-related menus; catering to the Middle East and other regions; and holiday theme meals.

The classes also include information for the cabin crew to use when ordering from outside food sources, shopping for ingredients, cooking on board and ordering from an inflight caterer. And with each program, DaVinci has created interactive scenarios to teach students to use their minds creatively to solve problems.

"Whether our students feel they have become stagnant in their ordering or presentation, or stuck repeating the same stale menus," said Kraft, "DaVinci is ready to inspire the hidden creativity within every person who comes through the door.

"The culinary department's goal is to take meal service on board from simple to spectacular, from ordinary to extraordinary, by indulging the senses and engaging the creativity within," she said.

Across the board, dining in flight is changing, and all for the better, thanks to more sophisticated galley equipment and accessories, hands-on training in food preparation and menu planning, and fresher, more wholesome ingredients. When would you like your poisson en papillote served? Bon appétit.

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