



Jets for the Long Haul

How to fly 7,000 miles without stopping to refuel

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THE CHANGING FACE OF GLOBAL COMMERCE IS rerouting flight plans. “Many companies are using large-cabin, long-range business jets to provide nonstop access to overseas markets, especially Brazil, Russia, India, China, and South Africa,” says Ed Bolen, the National Business Aviation Association’s chief executive. “These airplanes can deliver business people to long-distance destinations within hours, greatly increasing the efficiency of travel and optimizing the work schedule.”

One flight-department manager for a company on the East Coast makes the interesting additional point that travel by business jet isn’t just for C-level executives any more. “We often operate our jet [a Dassault 7X] almost like a shuttle, carrying program managers and engineers to numerous locations in South America,” he says. “Some of the places we fly to are not served by airlines.”

Of course, if you want to fly really long distances you must go with larger models that typically cost between \$48 million and \$56 million apiece when new. (We are leaving aside “bizliners,” those massive VIP jets derived from airliners.)

You must then add the long-distance business jet’s running costs, ranging from \$3,932 per hour to \$5,242 per hour, plus annual fixed charges (like crew salaries) swinging between \$855,000 and \$958,000 per year, according to the make and model. Figure on a total operating cost of about

\$2.5 to \$3 million (before interest, taxes, and depreciation) for 400 hours (about 175,000 nautical miles) in the air.

But consider what you get for your money. The jet with the longest legs in this category of long-distance business plane is currently the G550, built by Gulfstream Aerospace of Savannah, Ga., a **General Dynamics** company. This popular model has a full-fuel maximum range of 6,820 nautical miles (7,848 geographical miles) at its long-range cruise speed, according to Conklin & de Decker of Orleans, Mass., a provider of aircraft performance and cost data (see table on facing page).

Three of the five “traditional” business jets with the longest ranges are in fact Gulfstream products, including the out-of-production GV and the in-production G500, which carries 900 gallons less fuel than the G550 and GV. These models will be joined this year—if its Federal Aviation Administration safety certification is successfully concluded—by the \$64.5 million G650, which will best all current business jets with its expected range of 7,000 nautical miles.

Jets built by competitors Bombardier Aerospace, a division of **Bombardier** of Canada, and **Dassault Aviation** of



The Gulfstream G550. With the longest legs in the category, it can make business trips to remote cities in India and South America less of an arduous affair.

France, are no slouches either. Bombardier’s Global 6000 (previously the Global Express XRS) ranks third on the long-range list.

The Montreal-based manufacturer is also developing two new long-range jets, the Global 7000 and 8000. The 8000 (7,900 nautical miles) is expected to enter service in 2013; the 7000 (7,300 nautical miles) is penciled in for 2016.

The Dassault Falcon 7X, the only large-cabin, ultra-long-range business jet with three engines (versus the traditional two) and a digital flight-control system, reaches 5,950 nautical miles, placing it fourth on the long-range list. But it burns less fuel, and has lower maintenance and capital costs than its competitors. Still, the G550, GV, Global 6000, and Falcon 7X can do the mission between most cities equally well.

Aircraft manufacturers’ range numbers need to be

treated with skepticism. It isn't that they are bending the truth; they are simply providing best-case scenarios, without real-world issues like weather and air-traffic control taken into account.

The practical range for any of the current long-range jets is in reality about 12 to 13 flight hours. But that time is exhausting enough for a two-pilot flight crew, and many operators, if not most, will fly with a third pilot on board when en-route flight time exceeds 10 hours.

Take, for example, New York to Tokyo. The flight distance between these cities (5,861 nautical miles) is theoretically within the range of the G550, GV, Global 6000, Falcon 7X, and G500.

In reality, due to such factors as en-route winds, weather, air-traffic routing, distance to suitable alternate airports, outfitting options, and payload, the G550, GV and Global 6000 may be able to make this trip nonstop only about 25% of the time. The rest of the time, the jets must stop for fuel, and on this route Anchorage is the preferred watering hole.

Flying eastbound from Tokyo to New York, meanwhile, the three longest-range jets can make the trip about 75% of the time, because of prevailing winds from the West.

Another consideration is the flight path's "wet footprint," which basically defines how far it is prudent to fly over water while still able to make land during medical emergencies, failure or shutdown of one engine, and the loss of pressurization.

If a crew can't respond safely, best practices dictate that an over-water route should not be flown. Los Angeles to Sydney, Australia, a distance of 6,507 nautical miles, is one such route that's a direct flight no-no for the current crop of long-range business jets, as are most cross-polar routes.

But many cities around the world can be reached directly, and that's sweet, since commercial airlines often don't fly nonstop to destinations in the up-and-coming BRICS countries.

The most popular reasons to use busi-

ness jets with exceptionally long ranges, remain time, security, and quality of life:

Time. Travel by business jet can cut days off a journey. A round-the-world business-jet trip with meetings in five to seven cities can be accomplished in a quarter of

LONG-RANGE BUSINESS JETS <small>The low-down on mileage to price for the best long-range business jets in the air.</small>						
Manufacturer & Model	Max Range (Nautical miles)	LR Cruise Speed (knots)	Max Weight (lbs)	Total Pass. (w/fuel)	Total Cubic Feet	Price (\$mil)
Gulfstream G550	6,820	459	91,000	9	1,669	\$56
Gulfstream GV	6,500	459	90,500	7	1,669	26*
Bombardier Global 6000	6,390	471	99,500	12	2,140	52
Dassault Falcon 7X	5,950	459	69,200	8	1,552	52
Gulfstream G500	5,910	459	85,100	11	1,669	48

LR=Long range. Pass=Passengers. *Price for used aircraft. Note: Maximum range is based on max fuel, two pilots, four passengers, long-range cruise speed, optimum altitude (ISA) and the NBAA IFR alternate fuel-reserve (200 nautical miles) calculation. Source: Conklin & de Decker

ness jets with exceptionally long ranges, remain time, security, and quality of life:

Security. Executive travelers can move in and out of countries with little exposure to the outside world.

Business jets rarely sport company logos these days, and when not resting in a hangar, they are parked in secure areas. On-board security systems monitor every door and access panel as well as the area outside the aircraft.

Quality of life. Business jets allow executives to maintain some semblance of a normal life. Many top executives would refuse to travel as much as they do if they had to fly by commercial airline, because it means considerably more time spent away from home.

A source mentions a fourth reason: Business-jet cabins are office extensions. An executive on a long-range business jet can find a high-speed data system providing WiFi connectivity, a satellite communication system, and sophisticated cabin entertainment systems normally found in a living room. "Even though today's long-range business jets can't fly nonstop as far as the biggest airliners can, with one fuel stop these business jets can take executives to virtually any destination in the world in less than a day," he says.

And that is cost-effective. ■

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