

Super Mid-Size Jets

Growth in this segment is being fuelled by the introduction of new models, both near term and in the later years of the forecast period. Again the OEMs are looking at extending the performance in speed, comfort or range in order to step up the class.

- The Citation X is currently the top-of-the-range Cessna model and the fastest civil aircraft in the world with its cruise speed just below the speed of sound. Transatlantic missions leave others hours behind.
Artist: David Hatchard
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BOMBARDIER CHALLENGER 300



SPECIFICATION

Length	68.63ft	20.92m
Wingspan	63.84ft	19.46m
Height	20.33ft	6.20m
Cabin Length	28.6ft	8.72m
Cabin Width	7.17ft	2.19m
Cabin Height	6.08ft	1.85m
Max Range (8)	3,100nm	5,741km
Max Seating	2 + 9	
Typical Seating	2 + 8	
Powerplant	2x Honeywell HTF7000	6,826lbs/30.4kN each
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	M0.82	470kts/870km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	4,450fpm	1,356 mpm
Take off Distance	4,810ft	1,466m
Landing Distance	2,600ft	792m
MTOW	38,850lb	17,622kg
Max Landing Weight	33,750lb	15,309kg
Useful load	15,350lb	6,962kg
Payload with full fuel	1,350lb	612kg
Price	\$19.2m	€14.98m

Super Mid-Size Jets

INITIALLY christened the "Continental" because of its ability to fly coast-to-coast USA, the Challenger 300 meets Canadian manufacturer Bombardier's belief that it could deliver a large cabin aircraft with lower direct operating costs than anything else in the super-mid-size category.

When launching the programme at Paris in 1999 Bombardier revealed it had taken unprecedented research into operator needs for a jet of this size and when the aircraft first flew in 2001 it showed operating costs of \$770 per hour and the ability for relatively short field performance.

The Continental was renamed the Challenger 300 at NBAA 2002 and received certification in 2003.

Bombardier has delivered more than 100 aircraft since.

Typical cabin arrangement is for eight, with a two seat lounge opposite two facing seats, with club seating for four behind them, or double club seating.

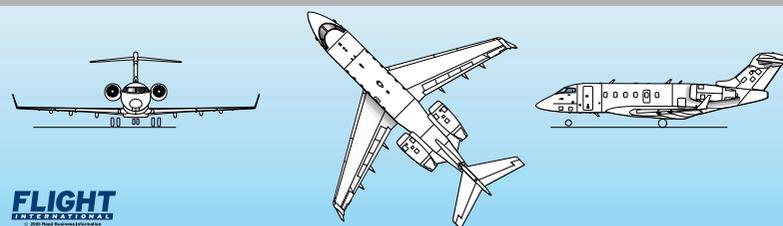
The Challenger 300 Features a forward wardrobe, galley and optional lavatory. A high-density interior for 15 passengers is also available.



HERITAGE

The BD-100 Challenger 300 is the first of this family.

SPOTTER'S GUIDE



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Look for the low swept wing with winglets with the six familiar Bombardier shaped windows starting midway over the wing. There is a swept T-tail with a swept tailplane.

CESSNA CITATION X



SPOTTER'S GUIDE

The sleek shape of the Citation X hints at its near supersonic performance. The wings are swept to 37 degrees and the twin Rolls-Royce engines are mounted high on the sides of the rear fuselage. There is a highly swept T-tail, differentiating this from the Sovereign or XL Citations. There are seven cabin windows on either side.

SPECIFICATION

Length	72' 3.6"	22m
Wingspan	63' 7"	19.4m
Height	19'	5.8m
Cabin Length	23' 11"	7.29m
Cabin Width	5' 6"	1.70m
Cabin Height	5' 7"	1.70m
Max Range (6)	3,070nm	5,689km
Max Seating	2 + 11	
Typical Seating	2 + 8	
Powerplant	2x Rolls-Royce AE3007 C1	6,764lb/30.09kN each
Avionics	Honeywell Primus 2000	
Max Cruise Speed	M0.92	525KTAS/972km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	3,650fpm	1,113mpm
Take off Distance	5,140ft	1,567m
Landing Distance	3,400ft	1,036m
MTOW	36,100lbs	16,510kg
Max Landing Weight	31,800lbs	16,375kg
Useful load	14,300lb	6,486kg
Payload with full fuel	1,362lbs	617kg
Price	\$20.06m	€15.65m

Super Mid-Size Jets



THE Citation X (Roman numeral for 10 rather than the letter) is the fastest civil aircraft flying today, a mantle it acquired once Concorde suspended operations.

Citation X is aerodynamically advanced and as a result, even at high-cruise power settings, its fuel consumption is comparable to other, much slower aircraft in its weight class. The Cessna design team were tasked with creating an aircraft that would beat all others on key missions such as east to west coast USA or transatlantic. Brokers say that it can shave anything from 35 minutes to an hour off these journeys compared to others in this class

A key technical accomplishment is the 70 knot (130 km/h) buffet margin (the difference in speed between the stall buffet and the high-speed buffet). Many transonic airplanes at high altitudes have the stall buffet speed only five knots (9 km/h) below the high-speed buffet. The Citation X's wide

HERITAGE

Cessna announced that it was developing the Citation 750, named the Citation X in October 1990 at that year's NBAA conference. The prototype was publicly rolled out in September 1993 and flew for the first time on December 21 that year. Certification was granted on June 3 1996, with the first customer delivery (to golfer Arnold Palmer) a month later. A Citation X was the 2500th Citation to be delivered, handed over on September 10 1997. The USA's National Aeronautics Association awarded its prestigious Collier Trophy to the Citation X design team in February 1997.

margin allows for steep turns at high altitudes, which can be useful in emergency maneuvering. The wide margin also means that the speed does not have to be maintained at a precise value for safe operation of the airplane.

DASSAULT FALCON 50EX



SPOTTER'S GUIDE

The three engines are the most obvious way of spotting the Falcon. Look too for the low swept and tapered wing. There are seven windows on each side and a tall swept tailfin with a mid mounted tailplane.

SPECIFICATION

Length	60' 9"	18.52m
Wingspan	61' 10"	18.86m
Height	22' 11"	6.98m
Cabin Length	23' 6"	7.16m
Cabin Width	6' 1"	1.86m
Cabin Height	5' 11"	1.80m
Cabin Volume	635 cu.ft	17.98m ³
Max Range (8)	3,075nm	5,692km
Max Seating	2 + 19	
Typical Seating	2 + 9	
Powerplant	3x Honeywell TFE731-40	3,700lbs/16.46kN each
Max Cruise Speed	548ktas	1,015km/h
Max Ceiling	49,000ft	14,936m
Rate of Climb	2,053fpm	626mpm
Take off Distance	4,890ft	1,490m
Landing Distance	2,920ft	890m
MTOW	39,700lbs	18,008kg
Max Landing Weight	35,715lbs	16,200kg
Useful load	17,900lbs	8,119kg
Payload with full fuel	2,380lbs	1,080kg
Price	\$21.15m	€16.5m

Super Mid-Size Jets



THE Power of Three could have been written for Dassault and its Falcon 50EX aircraft. It's trijet engines make it stand out on the ramp – and in performance terms.

The aircraft was originally designed (as the Falcon 50) by the French manufacturer to provide a transatlantic European option in the high end of the business jet market but is now proving to be successful for transcontinental US missions too with its capability of flying eight executives 3,075nm at Mach 0.85 nonstop.

The aircraft has three fuel efficient TFE731-40 turbofans, providing 400nm (740km) greater range (at Mach 0.80) than the original Falcon 50. Added to that is the EFIS flight deck based on the Falcon 2000's with Rockwell Collins Pro Line 4 avionics.

It has good short field performance requiring just 4,890ft (1,490m) at maximum gross take off weight.

HERITAGE

The first flight of the prototype Falcon 50 occurred in November 1976. The aircraft was designed using the Falcon 20 as the base but adding a supercritical wing to the original wing platform. The first reproduction aircraft flew on June 13 1978. FAA certification followed in March 1979 and in July that year customer deliveries began. Falcon 20 components retained include the nose and fuselage cross section. The upgraded Falcon 50EX's maiden flight was on April 10 1996 with French certification in November and FAA the following month. First delivery was to a German customer in January 1997.

GULFSTREAM G200



SPECIFICATION

Length	62' 3"	18.97m
Wingspan	58' 1"	17.70m
Height	21' 5"	6.53m
Cabin Length	24' 5"	7.44m
Cabin Width	7' 2"	2.18m
Cabin Height	6' 3"	1.91m
Max Range (4)	3,400nm (M 0.75)	6,301km
Max Seating	2 + 10	
Typical Seating	2 + 8	
Powerplant	2x P&WC 306A	6,040lb/26.9kN each
Avionics	Rockwell Collins Pro Line 4	
Max Cruise Speed	M 0.80	459KTAS/850km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	3,700fpm	1,128mpm
Take off Distance	6,083ft	1,854m
Landing Distance	3,280ft	1,000m
MTOW	35,450lbs	16,080kg
Max Landing Weight	30,000lbs	13,608kg
Useful load	15,500lbs	7,031kg
Payload with full fuel	650lbs	295kg
Price	\$21.646m	€16.89m

Super Mid-Size Jets

HERITAGE

The G200 has an extensive international heritage. Work on the project began as the IAI-1126 Galaxy (initially called the Astra Galaxy) began in the early 1990s and it was formally launched in September 1993.

A co-production arrangement was made between Galaxy and Yakovlev that would have seen Yakovlev in Russia responsible for the design and manufacture of the fuselage, while IAI would be the main contractor responsible for final assembly, integration and marketing. This was terminated in September 2005. Subsequently SOGERMA of France was selected to manufacture production Galaxy fuselages and tails.

The Galaxy was first expected to fly in 1996 but this was delayed until December 25 1997. A second prototype flew in May 1998 while the first production aircraft first flew in October that year. US FAA and Israeli certification were issued in December 1998. The first customer aircraft was delivered to TTI Industries in January 2000. Gulfstream acquired Galaxy in 2001 and redesignated the aircraft. On Aug. 30, 2004, the 100th green G200 was rolled out and entered service four months later. The European Aviation Safety Agency validated the G200 FAA type certificate in September 2004.

THE Gulfstream G200, like its smaller sibling the G150, is built by Israel Aircraft Industries (IAI) having been originally marketed and supported by IAI subsidiary Galaxy Aerospace until the division was acquired by Gulfstream in May 2001.

Gulfstream introduced considerable improvements and weight reductions to the Galaxy to further improve its reliability and performance and today, the G200 has a dispatch reliability rate in excess of 99 percent, a range of 3,400nm and has shed some 450lbs (205kg) from its first outing.

The G200 offers seating configurations that can accommodate up to 10 passengers. Gulfstream points to its outstanding performance characteristics which include excellent climb, high-cruising altitude, high-speed, long-range and short-landing capabilities. Powered by two Pratt & Whitney Canada PW 306A engines, the G200 can reach speeds up to Mach 0.85, altitudes up to 45,000ft and a range of 3,400nm. With low ambient noise levels, 100 percent fresh air and natural light from generous windows, the cabin provides a comfortable workspace.

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As a direct derivative of the Astra SP – which became the Gulfstream G100 – there are many comparisons with the original Israeli aircraft. The Galaxy/G200 has a much wider cabin and eight windows. It features Pratt & Whitney Canada PW306 engines rather than the Honeywell powerplants on the smaller sister. It has a swept tailfin with a midmounted swept tailplane.



NEW

HAWKER 4000



HERITAGE

The Hawker 4000 was launched as the Hawker Horizon just before NBAA in November 1996. The aircraft was developed as a replacement for the Hawker 1000. The Horizon was due to make its first flight in late 1999, followed by certification and first deliveries in early 2001. Unfortunately the project with its technologically advanced composite fuselage and super critical wings hit delays with being certified to FAA FAR Part 25 requirements. It first flew in August 2001 and production began in 2004. The model received provisional certification on December 23, 2004 - however Raytheon opted to make more enhancements and a final type certificate was not due to be issued until late 2006.

SPECIFICATION

Length	69' 2"	21.08m
Wingspan	61' 9"	18.82m
Height	19' 7"	5.97m
Cabin Length	25'	7.62m
Cabin Width	6' 6"	1.97m
Cabin Height	6'	1.83m
Max Range (4)	3,341nm	6,188km
Max Seating	2 + 14	
Typical Seating	2 + 8	
Powerplant	2x P&WC PW308A	6,900lb/30.69kN each
Avionics	Honeywell Primus EPIC	
Max Cruise Speed	470ktas	870km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	Not given	
Take off Distance	4,509ft	1,374m
Landing Distance	2,916ft	889m
MTOW	37,500lbs	17,010kg
Max Landing Weight	33,500lbs	15,195kg
Useful load	15,225lbs	6,906kg
Payload with full fuel	625lbs	283kg
Price	\$19.55m	€15.25m

Super Mid-Size Jets



GOOD things come to those who wait – The Hawker 4000 (formerly Hawker Horizon) is five years behind schedule but Raytheon is now positioned to deliver the newly certified aircraft.

Like the smaller, Premier IA, the 4000 features an all composite fuselage manufactured using the automated fibre placement technology which saves weight and increases cabin volume. The stand-up cabin with eight passenger seats has a flat floor and plenty of space.

A number of risk partners have been involved in the project - Power is from two Pratt & Whitney Canada PW308A turbofans, avionics integrator Honeywell supplies the Primus Epic avionics suite with five flat panel colour LCDs and the distinctive new metal construction supercritical wing is built by Fuji Heavy Industries of Japan.

A number of new technologies have been introduced and although it is a composite fuselage, in long-range cruise the sound levels are only 69.4dB, it is fuel efficient and it is quick.

SPOTTER'S GUIDE



FLIGHT
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The large cabin stands out above the low 30 degree swept wing. Seven windows on each side and swept T-tail with swept tailplane. The PW308A engines are mounted on the sides of the rear fuselage.