

10

Mid-Size Jets

Traditionally, the Mid-Size segment has been the most hotly contested as it is a popular size for the fractional fleet operators. Honeywell in its market outlook predicts new aircraft deliveries in both the Mid-Size and the Super Mid-Size will rise from 250 in 2006 to average around 300 units annually through 2016. Total deliveries over the 10 year period will be in the region of 3,300 aircraft. Aircraft in the two categories include all-new designs and derivatives of airliner platforms.

- Embraer's Legacy 600 falls in the Mid-Size, Super Mid-Size category but with all the benefits of an airliner airframe that can challenge the much larger jets with its huge cabin volume.
- Artists: Tim Hall and Giuseppe Picarella
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CESSNA CITATION SOVEREIGN



HERITAGE

Although promoted as a “clean sheet design”, the Cessna 680 Sovereign is based on the Excel’s fuselage and shares some common systems. However it does include an all new wing and stretched the Excel fuselage by 4’11” (1.5m) to keep down costs and reduce development time. Cessna claims the Sovereign’s 12 passenger – although more normally eight seat cabin – is the largest in its class with 40% more volume than the Bombardier Learjet 60 and 18% more than Raytheon’s Hawker competitor. Sovereign was announced in 1998, first flew in February 2002 and received FAA type certification in June 2004 with first customer deliveries in September that year to Mexico and Green Bay, USA. It received EASA certification in April 2005.

SPECIFICATION

Length	63' 7"	19.37m
Wingspan	63' 2"	19.24m
Height	20' 5"	6.20m
Cabin Length	25' 3"	7.70m
Cabin Width	5' 10"	1.73m
Cabin Height	5' 9"	1.70m
Max Range (8)	2,603nm	4,821km
Max Seating	2 + 12	
Typical Seating	2 + 8	
Powerplant	2x P&WC PW306C	5,770lbs/25.67kN each
Avionics	Honeywell Epic	
Max Cruise Speed	M 0.80	458KTAS/848km/h
Max Ceiling	47,000ft	14,325m
Rate of Climb	4,016fpm	1224mpm
Take off Distance	3,580ft	1,091m
Landing Distance	2,650ft	808m
MTOW	30,000lbs	13,608kg
Max Landing Weight	27,100lb	12,292kg
Useful load	12,550lb	5,693kg
Payload with full fuel	934lbs	424kg
Price	\$15.48m	€12.08m

Mid-Size Jets



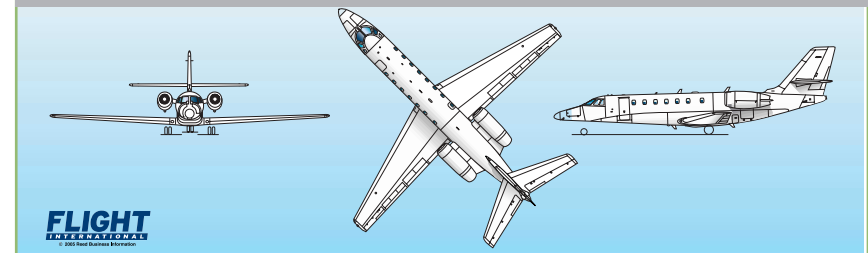
TWELVE passengers can be taken on Cessna’s King of the Mid-Size jets. The Sovereign was designed to meet specific growing market needs for this category of aircraft. Its stand-up cabin is 25’ 3” in length and 5’ 9” in height – the largest of any Citation – with an in-cabin baggage storage compartment that comfortably accommodates a large volume of luggage, briefcases and garment bags. The external baggage area is some 100 cu.ft (or 1,000lbs).

The Sovereign has a 459 knot cruise speed, 2,603nm (4821km) still-air range, 3,580ft (1.091m) take off distance, 2,650ft (808m) landing distance at max landing weight, and 47,000ft (14,325m) ceiling.

This gives the aircraft the potential to operate at many smaller airports.

As well as proving to have good operating costs the aircraft has a good environmental performance and was the recipient of the first-ever EASA type certification data sheet for noise.

SPOTTER’S GUIDE



Eight cabin windows on the right side and seven windows on the left mark the difference between the Citation 680 Sovereign and the 560XL aircraft. Quite clearly the largest of the Citations it also features a mid-set swept tailplane and a low straight wing with a swept back leading edge.

EMBRAER LEGACY 600



HERITAGE

Transformation of the basic ERJ-135 airframe that evolved into the Legacy included the addition of seven-foot winglets for added lift and drag reduction; fuselage reinforcements for underbelly and cargo compartment fuel tanks and a modified fuel-transfer system. The concept of the Legacy was first mooted in 1999 and formally unveiled at the Farnborough Airshow in July 2000. First flight took place the following April. It received type certification from the Brazilian CTA in December 2001, from the European Joint Aviation Authorities (JAA) in July 2002, and from the USA Federal Aviation Administration (FAA) in September 2002. Early concerns about maximum ceiling limitations were dropped when in 2004 Embraer upgraded the aircraft to fly at 41,000ft (12,497m).

SPECIFICATION

Length	86' 5"	26.33m
Wingspan	68' 11"	21.17m
Height	22' 2"	6.76m
Cabin Length	42' 6"	12.94m
Cabin Width	6' 11"	2.1m
Cabin Height	6'	1.83m
Max Range (8)	3,250nm	6,019km
Max Seating	2 + 19	
Typical Seating	2 + 14	
Powerplant	2x Rolls-Royce AE3007A1E 8,100lbs/36.03kN each	
Avionics		
Max Cruise Speed	460ktas	852km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,052fpm	930mpm
Take off Distance	5,453ft	1,662m
Landing Distance	2,685ft	823m
MTOW	49,604lbs	22,500kg
Max Landing Weight	40,786lbs	18,500kg
Useful load	19,451lbs	8,825kg
Payload with full fuel	1,440lbs	653kg
Price	\$23.6m	€18.41m

Mid-Size Jets



THE Legacy marked Brazilian Embraer's introduction in the business aviation market. Based on the successful Embraer 135 and 145 regional jet the airframe has been modified to produce a mid-size aircraft with space to challenge much larger traditional business jets.

It features a remarkable 1,410 cu.ft (40.0m³) cabin area.

Embraer's designers developed a concept of three cabin zones which provides comfort and privacy for the passengers.

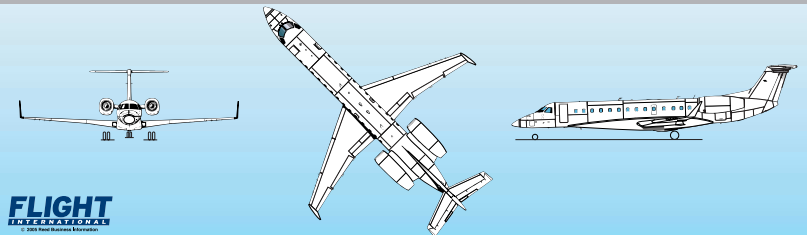
As a regional jet the aircraft has proven high-utilization performance and has many

of the airliner benefits such as trailing link landing gear, which helps make nearly every landing perfect. It features fuel-efficient Rolls-Royce AE 3007 A1E engines and delivers up to 3,250nm of range, giving transatlantic routing.

It is also certified for steep approaches and was for some time the largest business jet able to land at London's City Airport. (The Airbus ACJ seized that mantle in May 2006.)

There are two configurations available, the Legacy Executive with up to 15 seats and the Legacy Corporate Shuttle configured with up to 19 seats.

SPOTTER'S GUIDE



The aircraft has a circular cross-section fuselage, rear-mounted high by-pass ratio Rolls-Royce engines, low-mounted swept wings with blended winglets and a T-tail with swept tailplane. The wings are of two-spar wing design, with a third spar to support the landing gear. The Legacy has integral wing tanks, belly tanks and aft fuel tanks in extended fairings on the underwing.

NEW

GULFSTREAM G150



SPECIFICATION

Length	56' 9"	17.30m
Wingspan	55' 7"	16.94m
Height	19' 1"	5.82m
Cabin Length	17' 8"	5.38m
Cabin Width	5' 9"	1.75m
Cabin Height	5' 9"	1.75m
Max Range (4)	2,950nm (M 0.75)	5,467km
Max Seating	2 + 8	
Typical Seating	2 + 6-8	
Powerplant	2x Honeywell TFE 731-40AR	4,420lb/19.66kN each
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	M 0.80	459KTAS/850km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	3,340fpm	1,018mpm
Take off Distance	5,000ft	1,524m
Landing Distance	2,880ft	878m
MTOW	26,100lbs	11,839kg
Max Landing Weight	21,700lbs	9,843kg
Useful load	11,000lbs	4,990kg
Payload with full fuel	850lbs	386kg
Price	\$13.5m	€10.53m

THE collaborative efforts of Gulfstream and Israeli Aircraft Industries brought the wide-cabin, high-speed G150 business jet into service in August 2006.

This is Gulfstream's first true mid-size business jet and has seen improvements in both cabin comfort and performance from the G100 which it replaces.

Following extensive flight testing, Gulfstream determined the G150's maximum range had proven better than originally projected. Drag reduction efforts resulted in an additional 250 nautical miles and a new maximum range of 2,950 nautical miles with two flight crew members and four passengers onboard. Additionally, the G150's required balanced field length was also better than first projected enabling access to more fields with short take-off lengths.

Gulfstream offers a choice of three cabin configurations of its unique oval cabin cross-section, the aircraft can accommodate six to eight passengers and features ample aisle space and generous legroom and headroom when seated.

HERITAGE

Gulfstream introduced the G150 in September 2002. On May 3, 2005, the G150 completed its first flight, which lasted 4 hours, 13 minutes.

The G150 received its certification from both the Civil Aviation Administration of Israel (CAAI) and the Federal Aviation Administration (FAA) on Nov. 7, 2005, 10 weeks ahead of schedule. This marked the first time that two civil aviation agencies certified the same aircraft on the same day. The G150 is based on the G100 but with an enlarged fuselage.

The G100 was created following Gulfstream's collaboration with IAI. Previously the aircraft was known as the Astra SPX, itself a derivative of the The IAI-1125 Astra which was an upgraded development of the successful IAI-1124 Westwind. The Westwind was derived from the Aero Commander 1121. More than 160 of the type are in service.

The fully-equipped G150 flight deck features Rockwell Collins Pro Line 21 Avionics. Also included is Gulfstream's signature Cursor Control Device (CCD), which is standard equipment on all of Gulfstream's large-cabin aircraft – the G550, G500, G450 and G350.

SPOTTER'S GUIDE



Despite having a larger cabin than the old G100/Astra SPX Gulfstream have reduced the number of windows by one – there are five on the left-hand side and six on the right-hand side. Originally it had six rectangular windows but these have given way to the distinct “oval” Gulfstream look. The low swept wing with winglets and the swept tailfin with low mounted swept tailplane remain very similar to the G100.

HAWKER 850XP



SPOTTER'S GUIDE

The Hawker 800 Series has 6 windows on each side, differentiating it from the Hawker (or BAE 125) 1000 which has eight. The aircraft features a highly swept tailfin with a high mounted swept tailplane rather than a T-tail. The Honeywell TFE-731 engines are mounted on the sides of the rear fuselage. The 850XP has winglets fitted as standard.

SPECIFICATION

Length	51' 2"	15.60m
Wingspan	54' 4"	16.56m
Height	18' 1"	5.51m
Cabin Length	21' 4"	6.50m
Cabin Width	6'	1.83m
Cabin Height	5' 9"	1.75m
Max Range (6)	2,595nm (LRC – 402KTAS)	4,806km
Max Seating	2 + 15	
Typical Seating	2 + 8	
Powerplant	2x Honeywell TFE 731-5BR	4,660lb / 20.7kN
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	447ktas	828km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	2,990fpm	911mpm
Take off Distance	5,032ft	1,534m
Landing Distance		
MTOW	28,000lbs	12,701kg
Max Landing Weight	23,350lbs	10,591kg
Useful load	11,790lbs	5,348kg
Payload with full fuel	1,790lbs	812kg
Price	\$13.78m	€10.75m

Mid-Size Jets



HAWKER'S name and reputation has grown around this aircraft – the world's best-selling business jet and very much the workhorse of flight departments and charterers worldwide.

The flight deck includes the fully-integrated Rockwell Collins Pro Line 21 with the Rockwell Collins IFIS, and the six-foot (1.83m) wide cabin has plenty of room for the nine to 11 seat configurations.

The 850XP saw the introduction of Raytheon's own blended winglets which has improved range and performance in hot and high environments, an eight percent improvement in time-to-climb performance, as well as slightly faster airspeeds and block speeds

The maximum range of 2,710nm (5,019km) makes it suitable for most missions across Europe or North America.

HERITAGE

The Hawker 850XP is a derivative of the world's longest running corporate jet production program and the best selling business jet of all times – the British designed DH-125 (later the HS-125), which first flew in August 1962.

The 125-800 first flew in May 1983 and it introduced a number of improvements over the BAe 125.

BAE Systems sold its corporate aircraft division to Raytheon in 1993 who transferred production to the US in 1997 and also gave the aircraft the Hawker 800 nomenclature.

The aircraft was the first corporate jet to feature an EFIS cockpit.

The 800XP (Extended Performance) was certificated in 1995 with improved engines for better climb and cruise performance. Further improvements in 2005 led to the certification of the 850XP and the aircraft made its debut at EBACE in Geneva.

NEW**BOMBARDIER LEARJET 60 XR****SPECIFICATION**

Length	58' 8.3"	17.89m
Wingspan	43' 9.5"	13.35m
Height	14' 6.7"	4.44m
Cabin Length	17' 8"	5.39m
Cabin Width	5' 11"	1.80m
Cabin Height	5' 8.5"	1.74m
Max Range	2,451nm	4,539km
Max Seating	2 +9	
Typical Seating	2 + 6	
Powerplant	2x P&WC PW305A	4,600lbs / 20.46kN
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	M 0.81	466ktas /863 km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	2,277fpm	694mpm
Take off Distance	5,540ft	1,661m
Landing Distance	3,420ft	1,042m
MTOW	23,500lb	10,659kg
Max Landing Weight	19,500lb	8,845kg
Useful load	8,515lb	3,862kg
Payload with full fuel	855lb	388kg
Price	\$12.9m	€10.06m

Mid-Size Jets

THIS is the latest of the Learjet family with certification in late 2006 and first delivery due in the first quarter of 2007.

Powered by two Pratt & Whitney PW305A turbofan engines the aircraft boasts outstanding climb capabilities and state-of-the-art avionics with the new Rockwell Collins Pro Line 21 suite with four LCD screens as well as all the latest in weather radar, and flight management systems.

Like its predecessor, the Learjet 60 SE (Special Edition), it will cruise at Mach 0.81 (859 kmh) at 51,000 feet.

The original Learjet 60 first flew in October 1990 with two crew. The new XR also features an upgraded interior, which allows for two crew and up to nine passengers. With four passengers the aircraft has a range of 2,451nm (4,539km).

**HERITAGE**

The Learjet 60 entered service in 1993 as a replacement for the Model 55, introduced 12 years earlier as the first Learjet type with a stand up cabin and a full-size lavatory. Bombardier delivered 300 Learjet 60 aircraft before upgrading to the Learjet 60SE which included previous optional extras as standard. The Learjet SE is now superseded by the new Learjet 60 XR.

SPOTTER'S GUIDE

At only one foot longer than the super light Learjet 45, judging by length will not help. However the Learjet 60 is much wider. Look for six windows and the two-angle sweep of the wing.