2007 POCKET GUIDE TO BUSINESS AIRCRAFT

ALAN PEAFORD

SUPPORTED BY

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The Gatehouse
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Foreword

BUSINESS aviation is probably at its most exciting since the day the world woke up to Bill Lear's concept that led to the coining of the phrase "jetsetter." In 2006 some 13 business aircraft received certification or were first delivered to customers – as we enter 2007 there are close to another 20 business aircraft in serious development.

This pocket book was created to bring together all of the aircraft that are regularly used for business and corporate purposes – and to look too at those aircraft in development that should see certification within the next couple of years.

The book wouldn't have been possible without the support of Rockwell Collins Inc. During the research phase of this 2007 edition the name Rockwell Collins kept popping up as manufacturers talked of development and improvement in both cockpit and cabin technologies. The Cedar Rapids' company develops smart communications and aviation electronics solutions and it is clear that its technology and innovation has been put to good work in advancing the goals of business aircraft manufacturers around the world. We are proud that the company wanted to be part of this project.

I would also like to acknowledge the assistance of the marketing and communication professionals at the aircraft manufacturers who have painstakingly dealt with our enquiries to help us ensure the accuracy of the data used in the book.

Producing this pocket guide is a team effort and I would especially like to acknowledge the great effort of Philip Nasskau who broke away from his attempt to start a career as a commercial pilot in order to do a great job as my technical researcher and editorial assistant; and to colleagues from the *Flight International* and *Flight Evening News* teams who contributed so much. I would particularly like to thank the wonderful Kate Sarsfield, Business Aviation editor, *Flight*, for her wise counsel and enthusiastic support; and the talented Giuseppe "Joe" Picarella and Tim Brown for their skills and enthusiasm that produces such masterpieces as the cutaways you will find at the start of each section. The originals – and more – can be found on the www.flightglobal.com website.

We hope you will find this book of use and would welcome your suggestions for additions and revisions for next year's edition.

Safe – and comfortable – landings.

Alan Peaford, NBAA, October 2006.

Front Cover

The cover image shows the exciting Piaggio P180 Avanti II in action as VIP transport with the Italian air force. Here five of the aircraft - fitted with Rockwell Collins Proline 21 avionics – fly in formation.

Contents

PERFORMANCE AND SPECIFICATION DATA

The performance and specification data given in the pocket guide are provided from manufacturers' figures where available and are subject to change.

- **Rate of climb is shown at standard MTOW using all available engines.**
- **Take off distance is shown at Sea Level, ISA, MTOW to clear 50' obstacle.**
- **Landing distance is shown at Sea Level, ISA, MLW, to clear 50' obstacle with nil reverse**
- **Max range is shown as full fuel with an average passenger load . The total number of passengers and crew from the figures is shown in parenthesis.**
- **Weight figures are shown as Standard MTOW.**

1 Outlook

Business Aviation is facing a record year

THE week that a foiled terrorist plot in London brought chaos to the transatlantic commercial air transport world, I was stepping on to a Hawker 800 I had chartered from Club 328 at London's Biggin Hill to join friends and family in Florence, Italy.

Although there was increased security at the executive terminal, the flight took off on time, landed ahead of time and the fast track treatment with the airport's FBO team meant we were where we were supposed to be when we were supposed to be there.

Across the world charter operators reported increased enquiries and bookings – some by as much as 30 percent.

If the terrorists achieved one thing, they have taken down the barrier that led many industrialists and corporations – particularly in Europe – to resist the strong argument to make use of business and corporate aviation services.

Business in the USA has long recognised the advantage of the business aircraft. Now Europe and particularly Russia are buying into that message in a big way.

As we enter 2007, it is against a backdrop of excitement and optimism in the business aircraft industry.

Honeywell whose market forecast has set the scene for the industry planning for the past 15 years is describing 2007 as a banner year. 2006 was already a record year but the Phoenix-headquartered company is projecting 1,000 new aircraft to be delivered in 2007 and 12,000 business jets over the next ten years, generating industry sales of US$195 billion at today's prices.

Honeywell's Business Aviation Outlook tracks purchase expectations for business jets with gross take-off weight (GTOW) of less than 100,000lbs down to the entry level jets. At this point the forecast does not take into account the new revolutionary Very Light Jets (VLJ) that could be set to do what Henry Ford did for the automobile industry.

There is still a disconnect between many in the industry and those revolutionaries such as Eclipse Aviation's Vern Raeburn who believe that affordable, mass-produced, small business jets will do more for SMEs than the traditional business jets have done for the larger corporations.

Some manufacturers are adopting a "wait and see" approach. One industry analyst told me that this smacks of the same approach that the American automobile industry had when it ignored the entry of Japanese cars to its market. But behind the scenes the industry is working at creating greater differentiation between the categories or class of business aircraft travel.

Business aviation will never be insulated from economic cycles, but it's clear that manufacturers help stimulate demand with new models incorporating advances in aviation technology. Improved engines, safety systems, cockpit avionics and cabin information and comfort improvements along with advances in aerodynamic design can deliver compelling gains in value to fleet operators, pilots and passengers.

Honeywell's forecast found that like the 2005 survey findings, European operators reported a particularly strong increase in expectations to purchase additional versus replacement aircraft for their fleets, an indication of overall confidence among operators in the region.

The Asia/Africa/Middle East region once again ranks as the area with the highest purchase expectations which grew for the fourth consecutive year to a record level exceeding 50 percent – the highest reading in the history of the survey. Confidence in Asian economic growth is also boosting interest in longer-range aircraft with state of the art avionics.

North America is expected to account for about 61 percent of business jet deliveries over the next five years,

But it is the issue over the VLJ nomenclature that will lead the fighting ground. The VLJ sector will stratify into two, or possibly three, segments that reflect not only the size of the aircraft, but also their price, performance and target market. The divisions are becoming evident as the order books for these new small jets begin to build.

In this book I have segmented them into Personal Jets – a real entry-level jet, if not an entry-level business jet where we shall see companies such as Cirrus following the lead of Diamond in offering an aircraft that is a natural step up from the turboprop recreational owner-pilot who may still fly for business purposes. Honeywell argues that there is a cut-off between the classic very-light and the ultra-light jets (such as the Eclipse 500 and the Adam 700) which is around the $2-2.5 million mark. Honeywell's survey indicates a potential 10-year demand from corporate flight departments for up to 1,000 ultra light jets, but this is dwarfed by the 4000 aircraft expected to be delivered to owner-pilots over the same period.

The total excludes any demand from fractional-ownership or air-taxi operators.

Embraer's forecast of 2,515 VLJ deliveries between 2006 and 2016 covers aircraft ranging from the D-Jet to the Phenom 100, and so is not directly comparable with Honeywell's. The total also excludes the air-taxi market, which the Brazilian manufacturer tentatively estimates at 2,500-3,000 aircraft over the 10-year period.

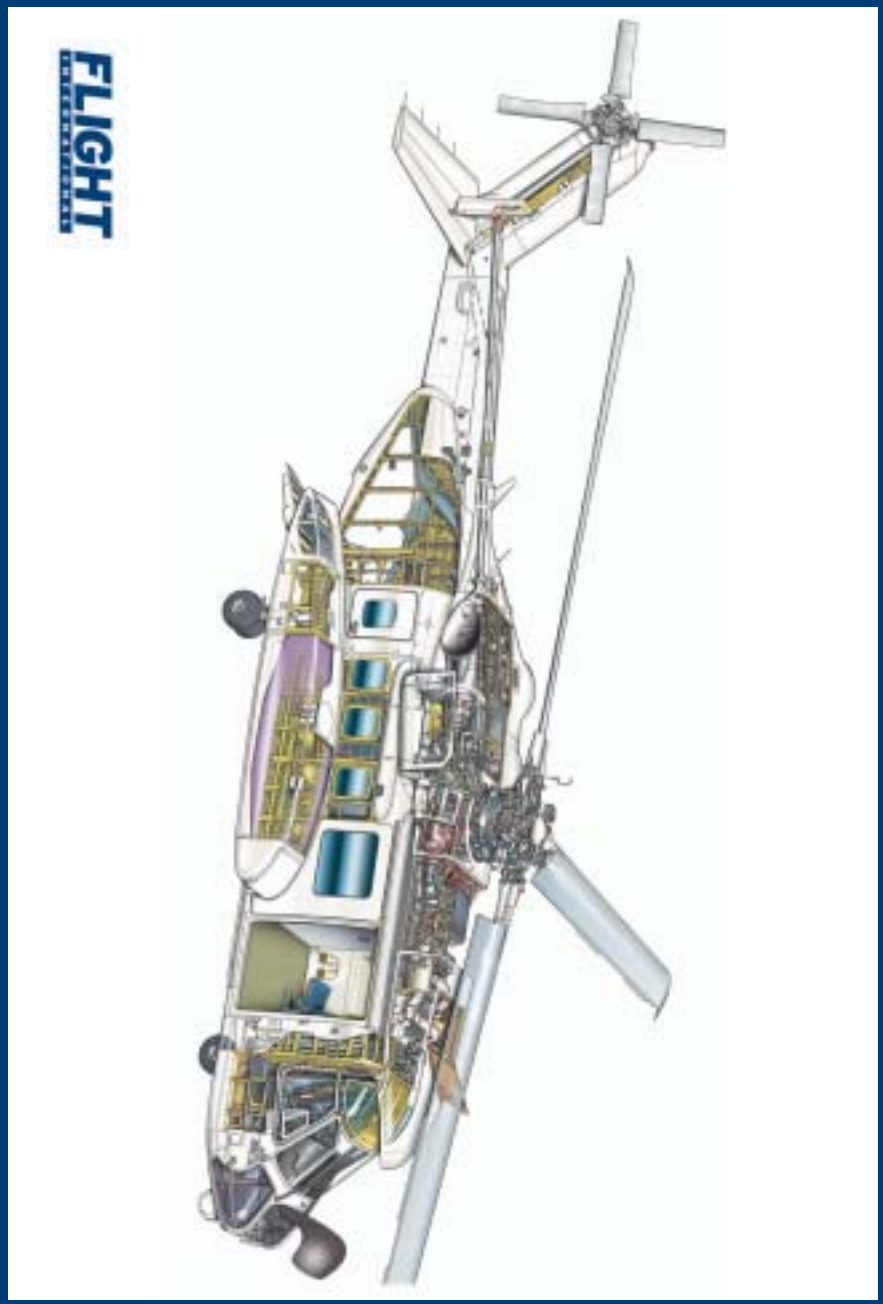
Canadian manufacturer Bombardier also published its market forecast predicting at least 600 aircraft a year for the industry excluding air taxis and fractional operators. Bombardier suggests that the entry into the market of aircraft such as the Eclipse, the Mustang and others could grow the traditional market. Bombardier's James Hoblyn said "It should bring more people into wanting jets and there is natural progression. More than eighty percent of business jet buyers are existing owners; the growth comes from new demand which can be in other countries or as people move from chartering into owning aircraft."

> ***BEHIND THE SCENES THE INDUSTRY IS WORKING AT CREATING GREATER DIFFERENTIATION BETWEEN THE CATEGORIES OR CLASS OF BUSINESS AIRCRAFT TRAVEL.***

Bombardier sees increasing demand from new international markets such as China and Russia. "We are now at the position where half our business is from North America and the other half from the rest of the world. The industry generally has 60% of sales in North America. We believe that the emerging economies will be creating a new call of potential buyers."

Whatever way you look at it from the humblest of piston engined aircraft, through powerful turboprops, to large corporate helicopters, personal air taxis, business jets and immaculate air palaces inside the frame of a converted airliner, Business Aviation in 2007 will thrive.

ALAN PEAFORD



2

Rotorcraft

Helicopter manufacturers have long realised that the business and corporate market is worth investing time and effort in. The top-of-the range rotorcraft are fitted with cabins built to the same quality and comfort as the best of the business jets. More and more charterers are looking at combining the rotorcraft with fixed wing in their offering.
This chapter looks at the whole range of corporate helicopters on the market.

■ Sikorsky's S92 is one of those top of the range helicopters that offer everything for a head-of-state aircraft.
Artist Tim Hall.

AGUSTAWESTLAND A109 POWER/GRAND

SPECIFICATION

Length	37' 7" (fuselage) 42' 9" (rotors running)	11.45m / 13.04m
Main Rotor Diameter	36' 1"	11m
Height	11' 6"	3.50m
Cabin Length	6' 10"	2.10m
Cabin Width	5' 3"	1.61m
Cabin Height	4' 2"	1.28m
Max Range	512nm	948km
Max Seating	1 + 7	
Typical Seating	1 + 5	
Powerplant	2x P&W PW206C or	640SHP/477kW each (Take off Power)
	2x Turbomeca Arrius 2K-1	670SHP/500kW each (Take off power)
Max Cruise Speed	154ktas	285km/h
Max Ceiling	19,600ft	5,974m
Rate of Climb	1,930fpm	588mpm
Take off Distance	0	
Landing Distance	0	
MTOW	6,283lbs	2,850kg
Max Landing Weight	6,283lbs	2,850kg
Useful load	2,822lbs	1,280kg
Payload with full fuel	1,281lbs	581kg
Price		

THE Power is a lightweight twin engine multipurpose helicopter capable of single pilot IFR operation.

The A109 has always been a fast helicopter and the Power is no exception, able to cruise at 154ktas (285km/h) it features retractable landing gear and two engine choices.

Two Pratt & Whitney PW206C provide 640shp (477kW) each at take-off, or alternatively two Turbomeca Arrius 2K-1 providing 670shp (500kW) each can be fitted.

The Grand, designated the A109S Grand, is a stretched Power – offering an extra 8" (20cm) in cabin length. The aircraft's MTOW has also been boosted by 717lbs (325kg) and its useful load from 2,822lbs (1,280kg) to 3,373lbs (1,530kg).

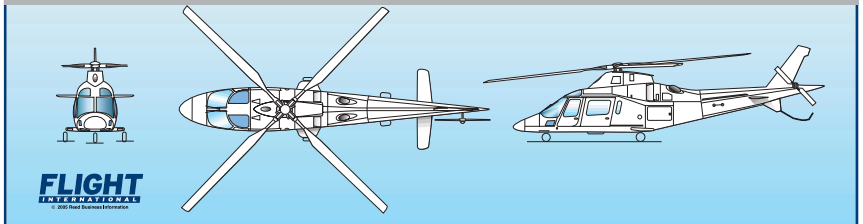
The Grand is powered by two Pratt & Whitney PW207C providing 735shp (548kW) each, and able to cruise at 155ktas (288km/h).

However the increased payloads and more powerful engines only allow it to fly a range of 480nm (890km) compared to the 512nm (948km) of the Power.

HERITAGE

The first A109 flew in August 1971 powered by two Allison 250-C20 turbines and since then has been upgraded for many mission specific roles - the latest A109 is the A109E Power. The Power first flew in February 1995 and was certified in August 1996, based on the A-109K-2, which was developed as a civilian police, search and rescue version, for high altitude and high temperature operations. It also features strengthened landing gear and improved main rotor.

SPOTTER'S GUIDE



The A109 Power is very sleek, has a four blade main rotor with a single large cabin door and window each side and looks nearly identical to the Grand. However, it is shorter than the A109 Grand but both have a curved scimitar look tail fin. An A109 can be recognised by the main gear – the gear retracts into a pod which is mounted on the side of the fuselage and has a panel covering the main strut. The Grand has two windows on each side set in the cabin doors.

AGUSTAWESTLAND A119 KOALA

SPECIFICATION

Length	38.48ft (fuselage) 42.68ft (rotors running)	11.73m/13.01m
Main Rotor Diameter	35' 6"	10.83m
Height	12' 4"	3.77m
Cabin Length	6' 10"	2.10m
Cabin Width	5' 6"	1.67m
Cabin Height	4' 2"	1.28m
Max Range	535nm	991km
Max Seating	1 + 7	
Typical Seating	1 + 6	
Powerplant	1x P&W PT6B-37A	1,002SHP / 747kW
Max Cruise Speed	139KTAS	257km/h
Max Ceiling	>20,000ft	>6,096m
Rate of Climb		
Take off Distance	X	
Landing Distance	X	
MTOW	5,997lbs	2,720kg
Max Landing Weight	5,997lb	2,720kg
Useful load	2,845lbs	1,293kg
Payoad with full fuel	1,304lb	591kg
Price		

THE A119 Koala is an eight seat single turbine helicopter designed to provide high productivity and performance with one of the largest cabin widths in its class – 5' 6" (1.67m).

Powered by the ultra reliable Pratt & Whitney PT6B-37A with 1,002shp (747kW) the Koala will lift 1,304lbs (591kg) with full fuel and has a range of 535nm (991km).

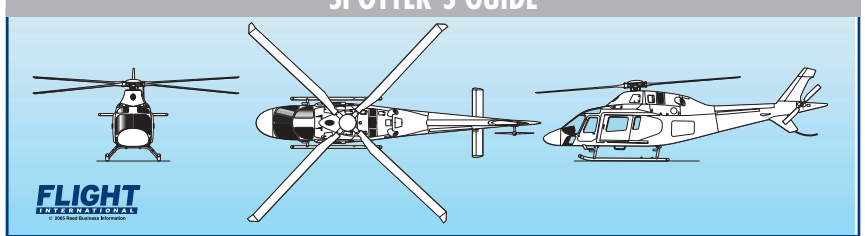
The Koala is capable of performing many roles other than that of corporate transport. It can be fitted with a double EMS stretcher interior, is also in service with various police forces, and fire attack systems are available.

It is also possible to have emergency pop out floats fitted to the skids for any prolonged flights over water.

HERITAGE

More than 90 Koala's have been ordered worldwide. The Koala made its first flight in 1995 powered by a Turbomeca Arriel 1, but was subsequently replaced. Certification was awarded in 1998 and the first customer delivery occurred in September 2000.

SPOTTER'S GUIDE



The Koala has a large rectangular window on the cabin doors with a small oblong porthole behind, mounted on skids and features a four blade main rotor with the sleek lines found the A109 – and like the A109 features a curved scimitar look tail fin.

AGUSTAWESTLAND AW139

HERITAGE

Originally developed as a joint venture with Bell under the designation of AB139, but in November 2005 Bell withdrew leaving the Anglo-Italian manufacturer to market the aircraft alone. AW139 first flew in February 2001 was certified in Italy in June 2003 and FAA certification was awarded in December 2004. AgustaWestland has orders for 190 helicopters of which 30 have been delivered at the time of going to press.

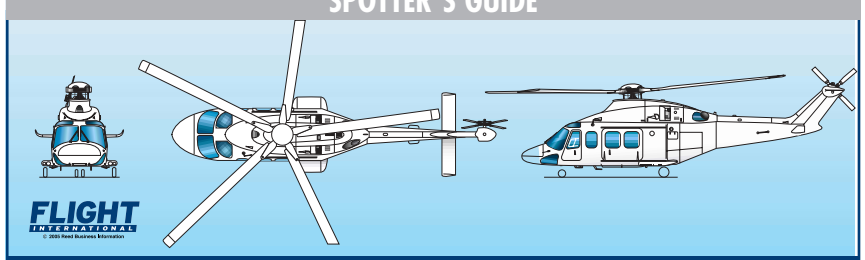
SPECIFICATION

Length	54' 8" (rotors running)	16.66m
Main Rotor Diameter	45' 3"	13.8m
Height	16' 3"	4.95m
Cabin Length	8' 10"	2.70m
Cabin Width	6' 10"	2.10m
Cabin Height	4' 8"	1.42m
Max Range	306nm	568km
Max Seating	2 + 15	
Typical Seating	1 + 6	
Powerplant	2x P&W PT6C-67C	1,679SHP/1,252kW each
Avionics	Honeywell Primus Epic	
Max Cruise Speed	167ktas	310km/h
Max Ceiling	19,460ft	5,931m
Rate of Climb	2,140fpm	654mpm
Take off Distance	X	
Landing Distance	X	
MTOW	14,112lbs	6,400kg
Max Landing Weight	14,112lbs	6,400kg
Useful load	6,124lbs	2,778kg
Payload with full fuel	3,357lbs	1,522kg
Price		

THE AW139 is a 15 seat medium twin engine helicopter featuring a fully articulated five blade main rotor and retractable undercarriage. Powered by two Pratt & Whitney PT6C-67C, 1,679shp (1,252kW) each, is able to cruise at 167ktas (310km/h) and lift 3,357lbs (1,522kg) – which equates to 210lbs (95kg) of payload for each passenger in high density configuration – at full fuel for a range of 306nm (568km).

The AW139 has the Honeywell Primus Epic fitted as standard and is certified for IFR operations, a 4-axis autopilot is an option over the standard 3-axis.

SPOTTER'S GUIDE



AW139 has a five blade main rotor, a four blade canted tail rotor and features three cabin windows each side, of which two are on the large sliding cabin doors. The retractable undercarriage is pod mounted on the fuselage, and the rear tailplane has winglets.

AGUSTAWESTLAND EH101 MERLIN

SPECIFICATION

Length	64' (fuselage) 74' 10" (rotors running)	19.53m/22.80m
Main Rotor Diameter	61'	18.60m
Height	21' 9"	6.62m
Cabin Length	21' 4"	6.50m
Cabin Width	8' 2"	2.49m
Cabin Height	6'	1.83m
Max Range	540nm	1,000km
Max Seating	2 + 30	
Typical Seating	2 + 14	
Powerplant	3x GE CT7-8E	2,527SHP/1,884kW each
Max Cruise Speed	150KTAS	278km/h
Max Ceiling		
Rate of Climb	2,788fpm	852mpm
Take off Distance	x	
Landing Distance	x	
MTOW	34,392lbs	15,600kg
Max Landing Weight		
Useful load	11,905lbs	5,600kg
Payload with full fuel		
Price		

THE EH101 Merlin was primarily designed as a military helicopter but following certification by the FAA for civil use AgustaWestland is offering the aircraft for VIP or business shuttle operations. The aircraft – under the designation US101 has been selected as the US Presidential helicopter.

This is a heavy three engine helicopter able to seat 30 passengers in a high density configuration while a corporate interior is custom designed upon purchase with a typical installation seating fourteen passengers.

The Merlin is powered by three General Electric CT7-8Es producing 2,527SHP (1,884kW) each and allow a maximum take-off weight of 34,392lbs (15,600kg) with a useful load of 11,905lbs (5,600kg).

The EH101 has retractable tricycle undercarriage – the main gear stows in pods mounted externally on the fuselage, with a five blade composite main rotor it is capable of a maximum cruise speed of 150ktas (278km/h).

HERITAGE

The EH101 was a new design and a joint venture from Agusta and Westland before they merged – originally the company was called Elicottero Helicopter Industries and the EH101 designation was apparently a typographical error from EHI-01.
The first civil configured EH101 first flew in September 1988, whilst the first production aircraft – destined for Britain's Royal Navy - first flew in December 1995. Presently over 100 have been delivered.

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The EH101 can be recognised from the three engines which are mounted on top of the fuselage – the exhausts of the left and right engines angle down and outwards, whilst the central exhaust is straight. The main rotor has five blades and the tips are swept with anhedral. It has a four blade tail rotor mounted on the left hand side of the tail.

BELL 206B-3 JETRANGER

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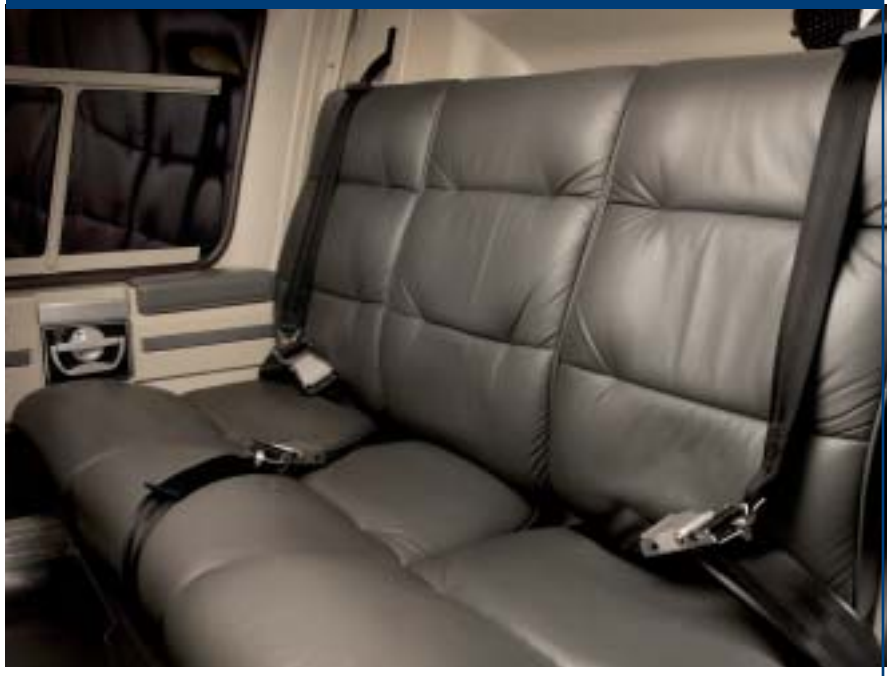
The JetRanger has a two bladed main and tail rotor. The main rotor is mounted on a prominent mast. The skid landing gear can be of low or high step design. The engine has two exhausts which are mounted vertically behind the main rotor mast with a 90º bend to face the rear. It has a large window each side on the cabin doors and a horizontal stabiliser is mid-mounted halfway along the tailboom.

SPECIFICATION

Length	32' 5" (fuselage) 39' 2" (running)	9.88m / 11.95m
Main Rotor Diameter	33' 5"	10.18m
Height	8' 4"	2.53m
Cabin Length	3' 3"	0.99m
Cabin Width	3' 11"	1.2m
Cabin Height	4' 3"	1.30m
Max Range	374nm	693k/mh
Max Seating	1 + 4	
Typical Seating	1 + 4	
Powerplant	1x Rolls-Royce 250-C20J	420shp/313kW
Max Cruise Speed	115ktas	213km/h
Max Ceiling	13,200ft	4,023m
Rate of Climb	1,350fpm	411mpm
Take off Distance	X	
Landing Distance	X	
MTOW	3,200lbs	1,451kg
Max Landing Weight	3,200lbs	1,451kg
Useful load	1,487lbs	674kg
Payload with full fuel	877lbs	398kg
Price		



THE Bell JetRanger is one of the best selling and successful helicopters in the world. As well as being a ubiquitous charter helicopter, the JetRanger has been widely recognised as the key entry level single engine turbine helicopter.

It is a five seat aircraft with a three seat bench in the rear passenger cabin and seating for a pilot and co-pilot/passenger in the cockpit.

Powered by a single Rolls-Royce 250-C20J 420shp (313kW) the JetRanger has a useful load of 1,487lbs (674kg) and is able to cruise at a maximum speed of 115ktas (213km/h) for 374nm (693km).

HERITAGE

The 206 design originated in the mid-1960s as an entry in a United States Army competition for a light observation (scout) helicopter.
This first Model 206 made its first flight on December 8 1962. The civil variant the 206A, powered by a 317shp (235kW) Allison C18A, first flew in January 1966.
Although Bell lost the contract, the Model 206A JetRanger entered the civilian market in 1966. The Model 206 has been updated several times, with the 206B "JetRanger II" arriving in 1971 and the 206B-3 "JetRanger III" with modified tail rotor and more powerful engine coming in 1977. The basic shape and fundamental design remain unchanged since 1966.
Over 7,700 military and civil JetRangers have been built and have logged in excess of 38million flight hours.

BELL 206L4 LONGRANGER

SPECIFICATION

Length	34' 7" (fuselage) 42' 5" (rotor running)	10.55m / 12.92m
Main Rotor Diameter	39'	11.89m
Height	10'	3.04m
Cabin Length	5'	1.5m
Cabin Width	3' 11'	1.2m
Cabin Height	3' 11'	1.2m
Max Range	357nm	661km
Max Seating	1 + 6	
Typical Seating	1 + 4	
Powerplant	1x Rolls-Royce 250-C30P	726shp/541kW
Max Cruise Speed	112ktas	207km/h
Max Ceiling	10,000ft	3,048m +
Rate of Climb		
Take off Distance	X	
Landing Distance	X	
MTOW	4,450lbs	2,018kg
Max Landing Weight	4,450lbs	2.018kg
Useful load	2,141lbs	971kg
Payload with full fuel	1,388lbs	629kg
Price		

THE stretched cabin of the Bell LongRanger can seat five passengers, a pilot and co-pilot/passenger, and is increasingly popular with helicopter charter companies.

Powered by a single Rolls-Royce 250-C30P providing 726shp (541kW) it is effectively a stretched JetRanger offering two extra seats. It has a useful load of 2,141lbs (971kg) and a range of 357nm (661km) and a maximum cruise speed of 112ktas (207km/h).

It offers a longer cabin than the JetRanger – 8' 6" (2.59m) with club seating for five.

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The LongRanger is a stretched JetRanger but is noticeably different by the engine exhaust – a large oval single exhaust replaces the two smaller of the JetRanger, and its increased length. The added length allows for two windows either side. It has vertical fins of winglet type style on the mid mounted horizontal stabilisers.

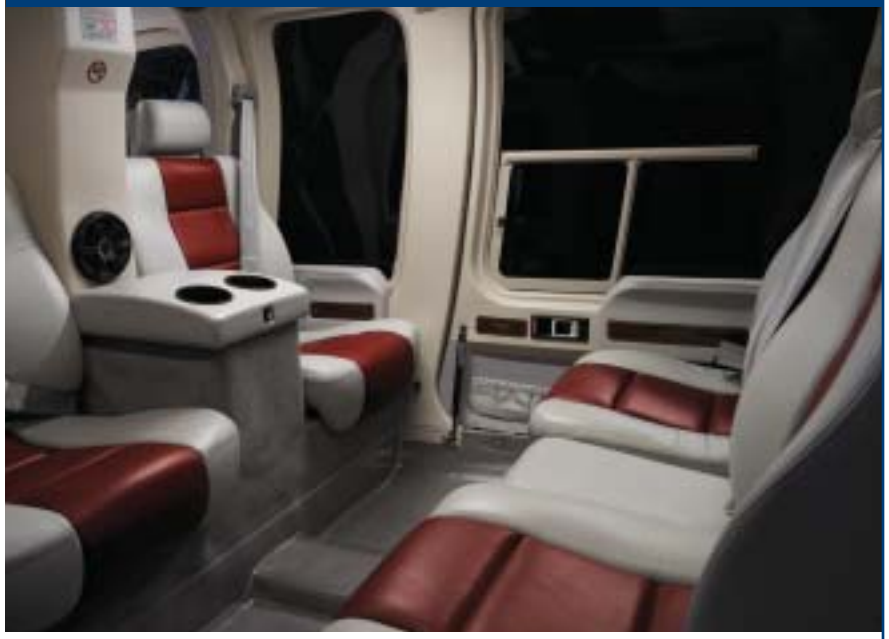
HERITAGE

The 206L was developed from the 5 seat JetRanger. The first 206L flew in September 1974, and production began in early 1975. The LongRanger introduced a more powerful engine and a transmission suspension system for greater passenger comfort.

BELL 407

SPECIFICATION

Length	34' 8" (fuselage) 41' 5"(rotor running)	10.57m/12.61m
Main Rotor Diameter	35'	10.66m
Height	10' 2"	3.10m
Cabin Length	5'	1.5m
Cabin Width	3' 11'	1.2m
Cabin Height	3' 11'	1.2m
Max Range	330nm	612km
Max Seating	1 + 6	
Typical Seating	1 + 4	
Powerplant	1x Rolls-Royce 250-C47B	813shp/606kW
Max Cruise Speed	133ktas	246km/h
Max Ceiling	17,600ft	5,364m
Rate of Climb		
Take off Distance	X	
Landing Distance	X	
MTOW	5,000lbs	2,268kg
Max Landing Weight	5,000lbs	2,268kg
Useful Load	2,347lbs	1,065kg
Payload with full fuel	1,784lbs	810kg
Price	$1.52m	€1.18m



THE 407 is a light single turbine engine helicopter capable of seating seven passengers.

Powered by a FADEC equipped Rolls-Royce 250-C47B producing 813shp (606kW) it can cruise at a maximum speed of 133ktas (246km/h).

The Bell 407 can lift a useful load of 2,347lbs (1,065kg) – even with full fuel the remaining payload (1,784lbs – 810kg) would allow all seven seats to be filled and give a 254lb (115kg) allowance per seat.

The Bell 407 is able to cover 330nm (612km) and transport the occupants in a 5' (1.5m) long and 3' 11" (1.2m) wide cabin in club configuration – this represents an extra 1' 9" (0.51m) in cabin length over the JetRanger.

Typically it would carry the pilot and four or five passengers.

HERITAGE

The 407 is an evolutionary development of the 206 LongRanger – it first flew in 1995. The 407 concept demonstrator mated the LongRanger's fuselage with the tail boom and the dynamic systems of the OH58D Kiowa (military 206 which has been extensively modified) – primarily because of the composite four blade main rotor system which provides a smoother ride and generates more lift efficiently.
A successor, The Bell 417, is currently under development in the USA. Featuring a Chelton glass cockpit the new derivative is due certification early in 2008.

SPOTTER'S GUIDE

Very similar to the JetRanger and LongRanger aircraft but the most recognisable differences are the four bladed main rotor blades and the swept vertical fins on the horizontal stabilisers.

BELL 412EP

SPECIFICATION

Length	43' 4" (fuselage) 56' 2" (rotors running)	12.91m/17.13m
Main Rotor Diameter	46'	14.02m
Height	14' 11"	4.54m
Cabin Length	11' 4"	3.45m
Cabin Width	8'	2.44m
Cabin Height	4' 1"	1.25m
Max Range	356nm	659km
Max Seating	1 + 14	
Typical Seating	1 + 7	
Powerplant	1x P&W PT6T-3D Twin Pac	1,800SHP/1,342kW
Max Cruise Speed	122ktas	226km/h
Max Ceiling		
Rate of Climb		
Take off Distance	X	
Landing Distance	X	
MTOW	11,900lbs	5,398kg
Max Landing Weight	11,900lbs	
Useful Load	5,055lbs	2,293kg
Payload with full fuel	2,807lbs	1,276kg
Price		

RENOWNED for working in extreme conditions, the Bell 412EP has enjoyed business success in the high altitude of the Himalayas and the searing sand swept heat of the Arabian Gulf. The Bell 412 is a medium twin engine helicopter, fitted with a single Pratt & Whitney PT6T-3D Twin Pac – essentially two PT6 engines combined - and is driven through a single gearbox, but still maintains the added safety of the two engines being able to operate independently.

This Twin Pac produces 1,800shp (1,342kW) and give a maximum cruise speed of 122ktas (226km/h). The four blade rotor is smaller in diameter than its two bladed predecessor, providing more efficiency and a reduction in noise.

The 412 is able to seat thirteen passengers in the standard configuration - however a typical corporate interior may seat seven. A useful load of 5,055lbs (2,293kg) does allow all passenger seats to be filled and it is still able to fly its maximum range of 356nm (659km).

HERITAGE

The 412 is a development of the 212 and began in the late 1970s. The 212 was a development from the venerable UH-1 Huey/205. The first 412 flew in August 1979, and the 412 was awarded VFR certification in January 1981. That same month the first delivery occurred. Subsequent developments and upgrades led to the 412SP, Special Performance, the 412HP, High Performance and to the currently produced 412EP, Enhanced Performance.

SPOTTER'S GUIDE

The 412 is a four bladed upgrade of the classic Huey, with the engines mounted on top of the fuselage. The cabin has three windows either side with the large sliding doors featuring two each, the tail rotor is mounted on the right hand side of the tail and is two bladed.

BELL 427

SPECIFICATION

Length	42' 7" (rotors running) 36' 6" (fuselage)	12.98m / 11.13m
Main Rotor Diameter	37'	11.28,
Height	10' 6"	3.2m
Cabin Length	5.2'	1.57m
Cabin Width	4'	1.23m
Cabin Height	4' 3'	1.3m
Max Range	390nm	722km
Max Seating	2 + 6	
Typical Seating	1 + 4	
Powerplant	2x P&W PW207D	550shp/410kW each
Max Cruise Speed	138ktas	256km/h
Max Ceiling	10,000ft	3,048m
Rate of Climb		
Take off Distance	X	
Landing Distance	X	
MTOW	6,350lbs	2,880kg
Max Landing Weight	6,350lbs	2,880kg
Useful load	2,469lbs	1,120kg
Payload with full fuel	1,085lbs	492kg
Price	$2.49m	€1.74

THE Bell 427 is an eight place twin engine light helicopter designed as a replacement for the 206 LT TwinRanger. Powered by twin FADEC Pratt & Whitney PW207Ds producing 550shp (410kW) each, enables it to cruise at a maximum speed of 138ktas (256km/h).

It features the same composite hub and rotor system used on the Bell 407 and the OH-58D Kiowa - the main rotors are four bladed and constructed from fibreglass and nomex honeycomb composite with a stainless steel leading edge abrasion strip, the tail rotor uses a fibreglass composite and also has a stainless steel leading edge abrasion strip.

The airframe makes high use of composites throughout the structure in particular the fairings found on top of the fuselage housing the engines. It is able to fly a range of 390nm (722km) with four passengers and full fuel under VFR conditions and has a useful load of 2,469lbs (1,120kg).

SPOTTER'S GUIDE

The 427 has a four bladed main rotor and a two bladed tail rotor. The tail rotor is mounted to the port side of the aircraft.
The engines are mounted on top of the fuselage in an aerodynamically friendly fairing with two large straight exhausts exiting the rear.
It can be equipped with either high or low skids.
The main cabin windows are rectangular and are slightly shorter in length than the door, with the rearmost window almost being triangular.

HERITAGE

Bell had originally planned to develop a twin engine version of the 407, however this was scrubbed due to payload/range issues and with the 427 an all new design was created. It is the first Bell designed civil helicopter using only CAD (Computer Aided Design) and was developed through a collaborative agreement with Samsung Aerospace Industries of South Korea. First flight was on December 11, 1997 and Canadian certification was awarded on November 19, 1999. First customer deliveries followed US certification in January 2000. US FAA dual pilot IFR certification was awarded in May 2000.

IN DEVELOPMENT

BELL 429 GLOBALRANGER

SPOTTER'S GUIDE

The Bell 429 Corporate features retractable undercarriage and has two cabin windows each side. The main rotor has four blades and it features an X-type tail rotor. The engines are mounted above the passenger cabin in an aerodynamic fairing.

SPECIFICATION

Length	39' 11" (fuselage)	12.17m
Main Rotor Diameter		
Height	13' 3"	4.04m
Cabin Length		
Cabin Width		
Cabin Height		
Max Range	312nm	577km
Max Seating	1 + 6	
Typical Seating	1 + 6	
Powerplant	2x P&W PW207D	710shp/529kW each
Max Cruise Speed	142ktas	264km/h
Max Ceiling		
Rate of Climb		
Take off Distance		
Landing Distance		
MTOW	7,000lbs	3,175kg
Max Landing Weight		
Useful load	2,700lbs	1,225kg
Payload with full fuel	1,260lbs	572kg
Price	$3.95m	€3.08m

THIS is the first Bell helicopter to take advantage of the company's future "modular affordable product line" (MAPL). It incorporates 10 of the 13 technologies that are being developed under the MAPL initiative, which includes the 'MAPL Cabin' which will seat seven in the 429 but can be 'deplugged' to reduce seating.

The MAPL initiative aims to reduce cost and increase productivity by retaining high levels of commonality and will include both single and twin engine helicopters.

The 429 will also introduce a new type of tail rotor, an X-type which is made up of two 407 two blade rotors with swept tips, by increasing the blade count the tail rotor can turn at a reduced rpm, thereby reducing noise.

It will also feature a new four blade composite main rotor with new aerodynamics and a two piece supercritical tail rotor driveshaft which will eliminate the need for hanger bearings.

The 429 essentially comes in two variants, a corporate version which includes retractable undercarriage and an EMS (Emergency Medical Service) version on skids.

It is able to lift a useful load of 2,700lbs (1,225kg) and cruise at 142ktas (264km/h).

HERITAGE

First flight for this hybrid of the 427 with the MAPL technologies was imminent as this book went to press, with Canadian and US certification expected in the second half of 2007. European certification is set to follow within twelve months. First deliveries are scheduled for late 2007 and at present 195 are on order.

SPECIFICATION*

Length	44' (fuselage) 50.3' (rotors running)	13.42m/15.34m
Main Rotor Diameter	42'	12.80m
Height	13.3'	4.04m
Cabin Length	8' 1"	2.46m
Cabin Width	4' 6"	1.37m
Cabin Height	4' 3"	1.3m
Max Range	353nm	654km
Max Seating	2 + 8	
Typical Seating	2 + 4-6	
Powerplant	2x Rolls-Royce 250-C40B	747shp/557Kw each
Max Cruise Speed	139ktas	258km/h
Max Ceiling	16,180ft	4,932m
Rate of Climb		
Take off Distance	X	
Landing Distance	X	
MTOW	9,300lbs	4,218kg
Max Landing Weight		
Useful load	3,964lbs	1,800kg
Payload with full fuel	2,359lbs	1,072kg
Price	$4.89m	€3.82

* with skids

DISTANCE is no object for Bell's medium twin engine 430 having achieved notoriety some 10 years ago when it broke the helicopter record for a round-the-world flight. The aircraft is also very effective in its business or corporate role.

The 430 has seats for up to eight passengers. It is available with skids (standard) or retractable gear – both have advantages and disadvantages. On skids the 430 is capable of 353nm (654km) at a maximum cruise speed of 139ktas (258km/h) – with wheels it is able to cruise 4kts (7km/h) faster at 143ktas (265km/h) for a range of 275nm (510km).

The 430 is powered by two FADEC equipped Rolls-Royce 250-C40Bs producing 747shp (557kW) each for take off and rated for the same power should there be an engine failure.

The 430 can carry eight passengers in the standard high density configuration with a useful load 3,964lbs (1,800kgs). When fully fuelled it can still lift 2,359lbs (1,072kg) which does allow all ten seats to be filled with a touch under 254lbs (115kg) payload per seat.

HERITAGE

The 430 was developed from the 230 and formally launched in February 1992. It first flew in October 1994, the 230 was based on the 222 but incorporated more powerful engines. The 430 was created by stretching the fuselage to allow an extra seating row, upgrading to even more powerful engines, installing a four bladed main rotor and skids as standard with an optional wheel kit. The first 430 production aircraft was completed in 1995, while Canadian certification was awarded on February 23 1996, allowing first deliveries from mid that year. Meanwhile 230 production wound up in August 1995, making way for the 430. The original 222 was made famous by its use as the fictional Airwolf in the 1980s TV series.

SPOTTER'S GUIDE

Retaining the same shape and lines of the 222, both the models with skids and with wheels have the signature pods mounted on the fuselage, with straight exhausts and three passenger windows each side. When fitted with wheels, the fuselage pods act as the housing for retraction. It has a four bladed main rotor, with the two bladed tail rotor mounted on the left side of the tail.

IN DEVELOPMENT

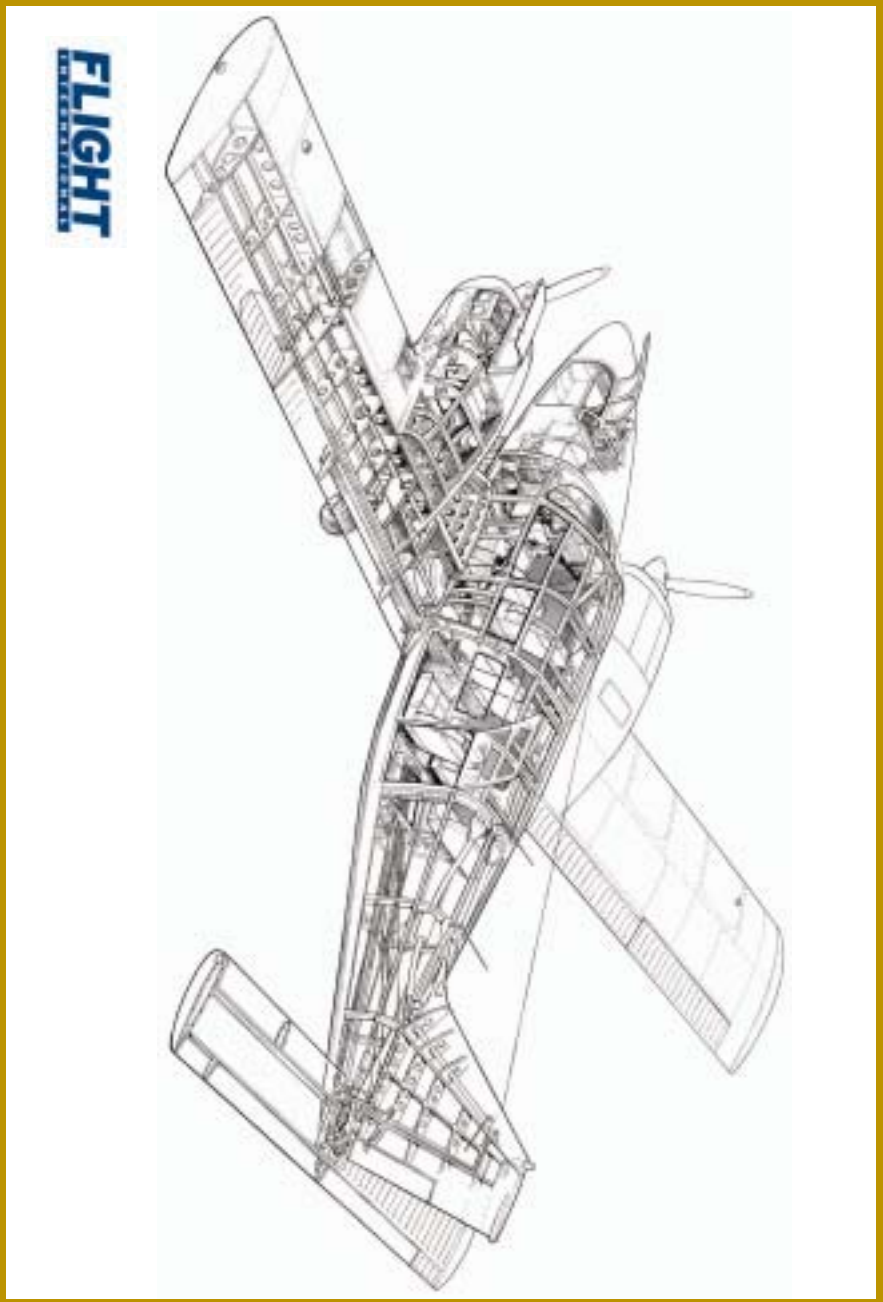
BELL/AGUSTA BA609

SPOTTER'S GUIDE

With engines on the wingtips connected to large 3 blade rotors and a T-tail the BA609 is a unique give-away.

SPECIFICATION

Length	44'	13.31m
Wingspan/Rotor Diameter	26'	7.93m
Height	15'	4.50m
Cabin Length		
Cabin Width		
Cabin Height		
Max Range	750nm	1,389km
Max Seating	2 + 9	
Typical Seating	1 + 6	
Powerplant	2x P&W PT6C-67A	1,679SHP/1,252kW each
Max Cruise Speed	275 KTAS	509 km/h
Max Ceiling	25,000ft	7,550m
Rate of Climb		
Take off Distance		
Landing Distance		
MTOW	16,800lbs	7,631kg
Max Landing Weight		
Useful load	5,512lbs	2,500kg
Payload with full fuel		
Price		



3

Pistons

While there are literally hundreds of twin piston engine aircraft types in operation there are few that really work as business aircraft that are still in production today. Adam Aircraft's A500, newly certified in 2006 is a six-place, pressurized, center-line thrust, carbon composite aircraft bringing the newest technology to this segment of the market. At the same time Beechcraft is continually improving on its best-selling Baron, 45 years after the aircraft was first launched.

■ The Piper Seneca is a mainstay in early "air taxi" businesses and can be seen at business airfields all around the world.
ARTIST: Ira Epton

NEW

ADAM AIRCRAFT A500

SPECIFICATION

Length	36' 7"	11.19m
Wingspan	44'	13.41m
Height	9' 6"	2.89m
Cabin Length*	13' 7"	4.14m
Cabin Width	4' 6"	1.37m
Cabin Height	4' 4"	1.31m
Max Range (3)	1,130nm	2,130km
Max Seating	1 + 5	
Typical Seating	1 + 5	
Powerplant	2x Continental TSIO-550	350BHP/261kW each
Avionics	3 panel Avidyne EFIS with Garmin GNS430	
Max Cruise Speed	230KTAS	426km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	1,368fpm	417mpm
Take off Distance	2,471ft	753m
Landing Distance	2,471ft	753m
MTOW	7,000lb	3,175kg
Max Landing Weight	N/A	
Useful load	1,890lb	857kg
Payload with full fuel	600lb	272kg
Price	$1.2m	€0.94m

* includes cockpit

ADAM Aircraft delivered the first customer A500 in November 2005 and through 2006 has been delivering one aircraft a quarter –with plans to step up to six per month.

The all-composite, centreline-thrust piston twin is the first all-new corporate piston aircraft since the Piper Mojave ceased production in the 1980s.

In 2006 the company introduced some design changes from the original provisional certification of May 2005 including Night, IFR, Pressurization, and other cabin features

The A500 was originally scheduled for certification in mid-2003, but despite the delay Adam says it holds 80 firm orders for the aircraft.

The aircraft's inline engine configuration breaks with tradition and sets the A500 apart from the vast majority of other piston engine types.

SPOTTER'S GUIDE

There can be no mistaking the outline of the Adam A500 with its straight low wings with a slight dihedral on the outboard panels. The push-pull engines and the distinctive twin boom tail with swept fins connected by a high-set tailplane.

HERITAGE

The aircraft is the first corporate piston twin to be certified in 20 years. The design by Bert Rutan (V-Jet, Defiant and round-the-world Voyager) follows a tradition set by the experimental, WWII German Dornier 335 fighter, and the semi-successful family of Cessna model 336/337 Skymasters but is the first aircraft from the Adam stable which itself was only formed in 1998.

SPOTTER'S GUIDE

The twin-engines with three-blade propellers sit on the low, straight tapered wing. There are four windows on each side and a swept tailfin with low-set tailplane and retractable tricycle landing gear.

SPECIFICATION

Length	29' 10"	9.09m
Wingspan	37' 10"	11.53m
Height	9' 9"	2.97m
Cabin Length	12' 7"	3.84m
Cabin Width	3' 6"	1.07m
Cabin Height	4' 2"	1.27m
Max Range		
Max Seating	1 + 5	
Typical Seating	1 + 4	
Powerplant	2x Teledyne Continental IO-550-C	300HP/223kW each
Avionics	Garmin G1000	
Max Cruise Speed	202ktas	374km/h
Max Ceiling	20,688ft	6,305m
Rate of Climb	1,700fpm	518mpm
Take off Distance	2,300ft	701m
Landing Distance	1,300ft	396m
MTOW	5,500lbs	2,495kg
Max Landing Weight	5,400lbs	2,449kg
Useful load	1,578lbs	716kg
Payload with full fuel	414lbs	188kg
Price	$1.22m	€0.95m

BEECHRAFT'S twin-engined Baron has been described as "the ultimate piston-powered aircraft" with its 200ktas (370kmh) cruise speed and range exceeding 1500nm.

The Baron – built by Raytheon Aircraft Company in Wichita, Kansas – now features the Garmin G1000 avionics suite very firmly putting the businessman owner-pilot on the first rung of business aircraft ownership or operation.

The six-seater aircraft has a passenger cabin with four facing club seats and a double door which gives easy access to the cabin. With a choice of leather seats, mahogany tables and fashionable fabrics it becomes clear how the Baron has outlasted the competitor twins over the past 45 years.

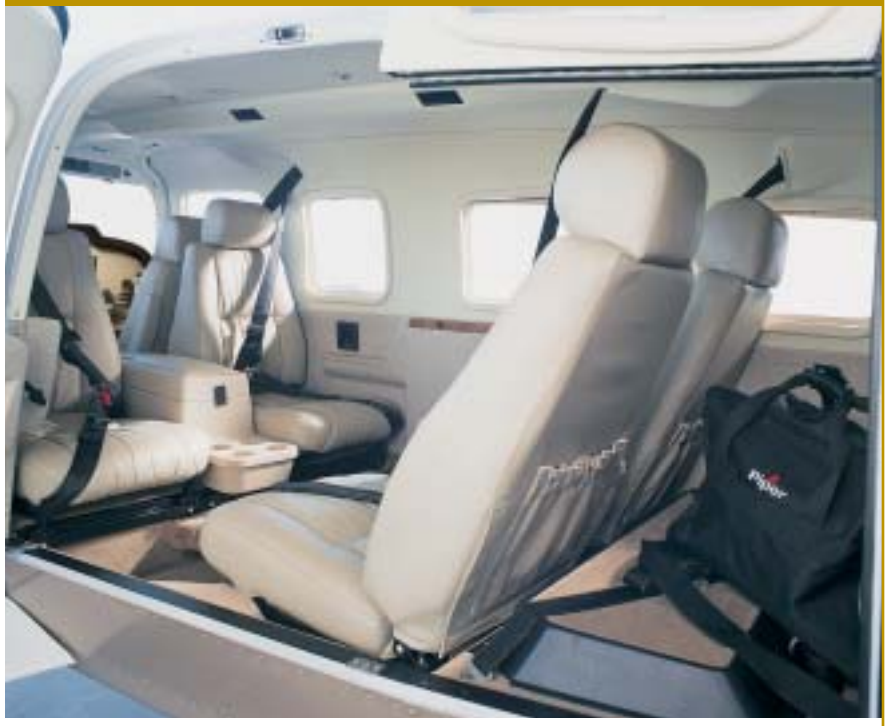
HERITAGE

More than 6,000 Beechcraft Barons and 18,000 of the single engine sibling Bonanzas have been built and delivered since the line began production in 1947. The current G58 Baron can trace its roots back to the B95 Travel Air (Beech's first light twin, which first flew in August 1956). The Baron made its first flight on February 29 1960 and began deliveries the following year.

PIPER SENECA V

SPECIFICATION

Length	28' 7"	8.7m
Wingspan	39' 11"	11.9m
Height	9' 11"	3.0m
Cabin Length*	10' 4"	3.15m
Cabin Width	4' 1"	1.23m
Cabin Height	3' 6"	1.06m
Max Range	828nm	1,533km
Max Seating	2 + 4	
Typical Seating	2 + 4	
Powerplant	2x TeledyneContinental L/TSIO-360-RB 220HP/164kW	
Max Cruise Speed	182ktas	337km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb		
Take off Distance	1,707ft	520m
Landing Distance	2,180ft	664m
MTOW	4,750lbs	2,155kg
Max Landing Weight	4,513lbs	2,047kg
Useful load	1,367lbs	620kg
Payload with full fuel	627lbs	285kg
Price	$0.735m	€0.573m



CHARTER operators the world over, operating in small fields with basic air taxi or small transport operations, have relied for many years on the Seneca.

This is the most successful six place light twin since its introduction as a twin engine development of the Cherokee Six.

The aircraft has six places and typically flies single pilot with up to four passengers in the twin facing club seats.

The current PA-34-220T Seneca V was introduced in January 1997.

It features intercooled turbocharged L/TSIO-360-RB engines which power the aircraft to 25,000 ft and a range in excess of 800nm.

HERITAGE

The Seneca is a derivative of the Cherokee Six first flown in October 1969 with fuel injected 200hp (150kW) IO-360s. Production deliveries of the initial PA-34-200 Seneca began in late 1971. The aircraft has been built under license around the world. The current Seneca V has an upgraded interior and the turbocharged Teledyne Continental engines.

SPOTTER'S GUIDE

Easily recognised by its solid low straight wings with leading edge rubber icing boots. It has a swept tailfin and low set tailplane with four windows on the side.

4

Turboprops

Offering reduced fuel costs but with cabins to match the business jets there has been a resurgence of interest in the turboprop category. These aircraft range from the workhorses of any charter fleet such as the King Air C90 GT or the Cessna Caravan where there is a requirement to operate passengers or cargo to remote or difficult environments through to the top-of-the range models such as the Piaggio Avanti and the Pilatus PC-12

■ The single engine Pilatus PC-12 can operate as a small airliner, a corporate aircraft or a combi passenger-freighter - it is highly versatile and can operate on unprepared strips.
Artists: Tim Hall and David Hatchard

BEECHCRAFT 1900D

SPOTTER'S GUIDE

The most obvious change from the King Air 200 to the 1900D is the substantially stretched fuselage (17.63m/57ft 10in compared to 13.34m/43ft 9in). Other things to look at are the modified swept fin and tailplane with the addition of tailets, and stabilons on each side of the lower rear fuselage. There are eight windows on each side.

SPECIFICATION

Length	57' 10"	17.62m
Wingspan	57' 11"	17.64m
Height	15' 6"	4.72m
Cabin Length	25' 3"	7.69m
Cabin Width	4' 6"	1.37m
Cabin Height	5' 11"	1.80m
Max Range (19)	527nm	975km
Max Seating	2 + 19	
Typical Seating	2 + 12	
Powerplant	2x P&WC PT6A-67D	1,279SHP/953kW each
Avionics	4-Tube Collins EFIS 84 & Pro Line II radio	
Max Cruise Speed	280ktas	518km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	2,615fpm	797mpm
Take off Distance	3,813ft	1,162m
Landing Distance	2,790ft	850m
MTOW	17,120lbs	7,766kg
Max Landing Weight	16,765lbs	7,605kg
Useful load	6,440lbs	2,921kg
Payload with full fuel	1,982lbs	899kg
Price (1999)	$3.4m	€2.65

HERITAGE

The Beechcraft 1900D was developed from the Beech 99 commuter airliner, itself a derivative of the King Air 200 turboprop. Cockpit controls and operations are similar to the King Air. Development of the 1900 began in 1979, with first flight occurring on September 3 1982. US FAA certification was awarded in November 1983, prior to the 1900C's entry into service in February the following year. The first ExecLiner corporate transport version was delivered in mid 1985. Production ended in 2004 with final delivery in 2005.

LOW cost corporate shuttle requirements have seen resurgence of interest in the Beechcraft 1900D.

The 19-seater regional airliner – a product of the 1980s – has included a corporate version named the "ExecLiner".

Although no longer in production, Raytheon Aircraft Company have brought the 1900D to air shows to stimulate demand. In its airliner configuration the interior features single forward facing seats separated by a narrow aisle, but in corporate shuttle it can reduce to 12 seats in blocks of club seating.

The Beechcraft 1900D has a range just short of 1500nm and cruises at 283ktas (525 km/h)

BEECHCRAFT KING AIR B200

SPOTTER'S GUIDE

The B200 has a low straight wing P&WC PT6-A engines mounted on them to power the two four blade propellers. The aircraft has five main windows on each side with a small window to the rear by the swept T-tail with dorsal fin and swept tailplane.

SPECIFICATION

Length	43' 10"	13.36m
Wingspan	54' 6"	16.61m
Height	14' 10"	4.52m
Cabin Length	16' 8"	5.08m
Cabin Width	4' 6"	1.37m
Cabin Height	4' 9"	1.45m
Max Range (4)	1,407nm	2,606km
Max Seating	1 + 15	
Typical Seating	1 + 7	
Powerplant	2x P&WC PT6A-42	850SHP/634kWeach
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	289ktas	535km/h
Max Ceiling	35,000ft	10,668m
Rate of Climb	2,460fpm	750mpm
Take off Distance	2,600ft	792mpm
Landing Distance	2,845ft	867mpm
MTOW	12,500lbs	5,670kg
Max Landing Weight	12,500lbs	5,670kg
Useful load	4,060lbs	1,842kg
Payload with full fuel	415lbs	188kg
Price	$5.08m	€3.96m

ABILITY to handle difficult conditions as well as being a "pilot's dream to fly" the King Air B200 has found favour as a business aircraft and for military applications or training purposes. B200's routinely fly from unimproved airstrips that are off-limits to many other aircraft. High-flotation landing gear allows operators to fly with confidence, even into unimproved airstrips.

It delivers 289ktas (535km/h) cruise speed at 25,000ft and has a range of 1,825nm (3,380km). The aircraft has a landing run of just 1,759ft (536m) and take off run of 1,860ft (567m), which adds to that access to small remote airfields.

For the passengers, the B200 features a comfortable and roomy "squared-oval" pressurized and air-conditioned cabin. It can be configured with seven or nine seats. The rear cabin door is equipped with airstairs. Up front The King Air B200 is roomier than most business jets and is now being offered with the Rockwell Collins Pro Line 21 avionics suite as standard equipment.

HERITAGE

The Super King Air 200 aircraft was launched in October 1970 and first flew in 1972. The design of the Super King Air B200 derivative began in 1980 with first delivery in March 2001. The "Super" was dropped from the name in 1996 and the aircraft became known as the King Air B200. Since first entering service in 1981 almost 3,000 King Air B200 aircraft have been delivered.

BEECHCRAFT KING AIR C90GT

SPOTTER'S GUIDE

The King Air 90 series differs from its larger siblings through a conventional and low set tail (the larger King Airs have T-tails).
There are four main cabin windows on each side. The P&WC engines, with four-blade propellers are mounted on the wings.

SPECIFICATION

Length	35' 6"	10.82m
Wingspan	50' 3"	15.32m
Height	14' 3"	4.34m
Cabin Length	12' 7"	3.84m
Cabin Width	4' 6"	1.37m
Cabin Height	4' 9"	1.45m
Max Range (4)	831nm	1,539km
Max Seating	1 + 12	
Typical Seating	1 + 5	
Powerplant	2x P&WC PT6A-135A	2x 550SHP/410kW each
Avionics	Collins EFIS displays Pro Line II radios	
Max Cruise Speed	270ktas	500km/h
Max Ceiling	30,000ft	9,144m
Rate of Climb	1,953fpm	595mpm
Take off Distance	2,392ft	729m
Landing Distance	2,355ft	717m
MTOW	10,100lbs	4,581kg
Max Landing Weight	9,600lbs	4,354kg
Useful load	3,010lbs	1,365kg
Payload with full fuel	437lbs	198kg
Price	$2.95m	€2.30m

LIKE its closest competitor – the Piaggio Avanti – the King Air series built now by Raytheon Aircraft Company (RAC) is built for business rather than private usage.

Conscious of the potential demand from the Ultra light jets (ULJ) and Very Light jets (VLJ), RAC responded with this new "baby" King Air as a direct derivative of the original King Air 90 launched more than 40 years ago.

The C90GT features enhanced "GT" performance from the Pratt & Whitney Canada PT6A-135 and is designed to attack the ULJ market through its offer of a larger cabin than most of the small jets and performance that would complete a typical mission just minutes behind a jet.

The C90GT airframe is the same basic size as the original King Air with four to five passenger seats and the roomy squared-oval cabin shape although it can be configured for up to seven passengers.

It has a heated and pressurized baggage storage area which is easily accessed during flight.

There is also a fully enclosed lavatory.

HERITAGE

King Airs have been built since 1964 when the first King Air 90 – a derivative of the Beechcraft "Queen Air" – first flew. The new King Air C90GT certified in December 2005 features a 26ktas increase in max cruise speed, a 50-percent time-to-climb reduction and shorter take off distances at all field elevations compared to the King Air C90B that it replaces. It also needs just 22 minutes to reach its FL300 ceiling.

BEECHCRAFT KING AIR 350

HERITAGE

The King Air 350 is a stretch of the 300 series which first flew in October 1982 – itself an improved derivative of the B200. The 350 first flew in September 1988 and was certified in March 1990.

SPECIFICATION

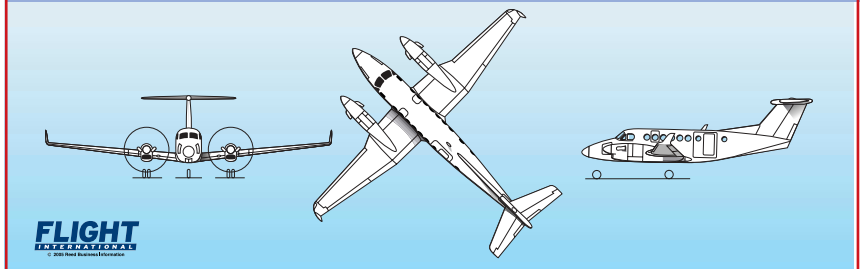
Length	46' 8"	14.22m
Wingspan	14' 4"	4.37m
Height	57' 11"	17.65m
Cabin Length	19' 6"	5.94m
Cabin Width	4' 6"	1.37m
Cabin Height	4' 9"	1.45m
Max Range (4)	1,545nm	2,861km
Max Seating	1 + 15	
Typical Seating	1 + 9	
Powerplant	2x P&WC PT6A-60	1,050SHP/783kW each
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	312ktas	578km/h
Max Ceiling	35,000ft	10,668m
Rate of Climb	2,731fpm	832mpm
Take off Distance	3,300ft	1,006m
Landing Distance	2,692ft	821m
MTOW	15,000lbs	6,804kg
Max Landing Weight	15,000lbs	6,804kg
Useful load	5,400lbs	2,449kg
Payload with full fuel	1,789lbs	811kg
Price	$5.97m	€4.65m

WITH nine seats in its business configuration, the stretched King Air 350 can still be flown single pilot for private work. The aircraft has also been certified for commuter or corporate shuttle work with up to 11 passengers and two crew.

With the addition of the advanced Collins ProLine 21 avionics there is a high level of flight management. Again, this turboprop can compete in performance with many of the jets but has proven very cost effective for the many operators using this aircraft worldwide.

The aircraft cruises at 312ktas (578 km/h) with a ceiling of 35,000ft.

SPOTTER'S GUIDE

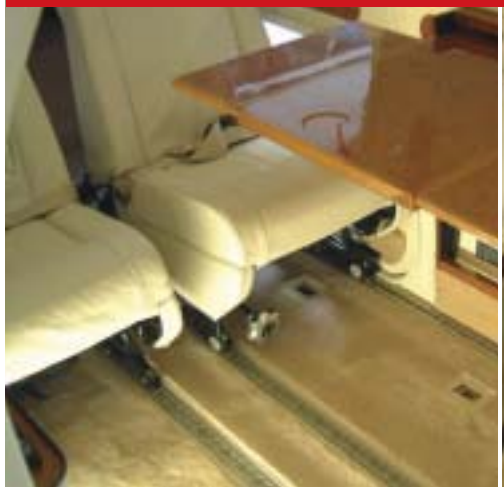


The most marked difference between the King Air 350 and its predecessor the 300 , is a stretched fuselage lengthened by 86cm (2ft 10in) and the addition of winglets. The winglets also separate the 350 from the B200. There are seven cabin windows plus a window on a cargo door and the King Air trademark window aft. Like the B200 there is a swept T-tail with dorsal fin and swept tailplane.

BN-2T ISLANDER

SPECIFICATION

Length	35' 8"	10.9m
Wingspan	49'	14.9m
Height	14' 6"	4.4m
Cabin Length	15' 2"	4.6m
Cabin Width	3' 6"	1.1m
Cabin Height	4' 2"	1.3m
Max Range	590nm	1,093km
Max Seating	2 + 8	
Typical Seating	1 + 4	
Powerplant	2x Rolls-Royce Allison 250-B17C 320SHP/238kW each	
Max Cruise Speed	170ktas	315km/h
Max Ceiling	25,000ft	7,622m
Rate of Climb	1,050fpm	318mpm
Take off Distance	1,250ft	381m
Landing Distance	1,110ft	338m
MTOW	7,000lb	3,175kg
Max Landing Weight	6,800lb	3,084kg
Useful load	2,960lb	1,343kg
Payload with full fuel	1,520lb	689kg
Price	$1.65m	€1.29m



ACCORDING to Britten Norman CEO William Hynett, the BN2T Islander is the next best thing to having a helicopter when you need short field operations in windy conditions.

Adaptable, versatile and durable, it has an unsurpassed record of solving transportation problems simply and economically in some of the world's harshest environments. It also works well in the more benign environments such as the Caribbean islands, the South Pacific and Scottish Highlands.

In conjunction with the Australian interior manufacturer Aero Plastics & Interiors, Britten-Norman is now able to offer a range of customised interiors for the Islander.

Options include additional windows, trim to match the interior colour scheme and the new executive interior with club seating arrangement and an executive table.

In addition to the twin Rolls-Royce (Allison) 250 B17C series Turboprop there are a 300HP and a 260HP Lycoming version of the Islander available.

Exceptional low-speed and single-engine handling, fixed undercarriage and High ground clearance for propeller minimises damage from debris and makes this an aircraft you can take virtually anywhere.

HERITAGE

Design of the Islander started in 1963 and the first prototype BN-2 first flew on 13 June 1965,. The first production Islander first flew on 24 April 1967. More than 1250 of the type have been delivered over the 40 years of production with the ownership of the manufacturer changing hands a number of times. The aircraft are built in the UK on the Isle of Wight.

SPOTTER'S GUIDE

The Islander has a straight high wing with a flared wingtip. The Rolls-Royce Allison turboprop engines are mounted below each wing. There is a swept tail fin and a low set straight tailplane. It features non-retractable landing gear with the main leg mounted aft of the rear wing spar. There are three large windows on either side with the middle window having a diagonal cut to the rear.

CESSNA CARAVAN 675

HERITAGE

The Caravan 675 (short fuselage) combines the airframe of the 208 with the fully rated engines of the 208B announced at NBAA in September 1997. FAA certification was achieved April 1998 with first delivery that month as an amphibian, to Riversville Aviation Company of New York. The 100th Caravan equipped with Wipaire Wipline 8000 amphibious floats was delivered in May 2000.

SPECIFICATION

Length	37' 7"	11.46m
Wingspan	52' 1"	15.88m
Height	14' 10"	4.51m
Cabin Length	12' 8"	3.7m
Cabin Width	5' 2"	1.6m
Cabin Height	4' 4"	1.3m
Max Range (8/1500lb payload)	957nm	1772km
Max Seating	2 + 12	
Typical Seating	1 + 4	
Powerplant	P&WC PT6A-114A	675SHP/503kW
Max Cruise Speed	186kts	344km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	1,234fpm	376mpm
Take off Distance	2,053ft	626m
Landing Distance	1,655ft	504m
MTOW	8,000lb	3,629kg
Max Landing Weight	7,000lb	3,538kg
Useful load	4,062lbs	1,842kg
Payload with full fuel	1,838lbs	834kg
Price	$1.713m	€1.34m

NOTHING matches the versatility and cost-effectiveness of the Caravan 675 - a shorter version of the Grand model, by about four feet. This aircraft also is available in several configurations, including a six-seat executive variant.

It boasts better climb and cruise performance than the Grand Caravan, and is a true 200mph aircraft. Like the Grand model, the hourly operating cost is claimed to be unmatched by any other aircraft in its class.

The beauty of the 675 is that is can also operate on water. The 675 wheeled floatplane version is the largest single engined floatplane manufactured today. In its promotional literature Cessna says, "load it with a generous amount of baggage and/or passengers. Pack extra gear into the floats. Lift off and fly at speeds in excess of 185mph for more than 500 statute miles at max payload."

The luxury Oasis interior can be fitted into the shorter fuselaged Caravan 675 and 675 amphibian. These will feature six executive seats – two forward facing seats and an aft four-place club setting. It can be equipped with a toilet facility with privacy curtains. The seats are finished in plush top-grain leather, and customers have the choice of decorative lower sidewall fabrics and traditional sidewall trim with a veneer accent.

SPOTTER'S GUIDE

In its amphibian configuration it is hard to miss. Still based on the Caravan 1 it bears great resemblance to its bigger brother the 208 Grand Caravan and Cargomaster. However it only has five windows on either side.

CESSNA GRAND CARAVAN

HERITAGE

The Caravan was first introduced in 1985, and was originally designed to provide commercial operators such as Federal Express with a more efficient way to transport cargo. First flight of a prototype occurred on December 9 1982 and certification was granted in October 1984. When production began the following year it became the first all new single engine turboprop powered aircraft to achieve production status. The Caravan fleet operates in 68 countries, logs over 70,000 hours per month, and has exceeded 8 million flight hours. The 208-B Grand Caravan is a stretched derivative of the original Caravan and first flew in 1990.

SPECIFICATION

Length	41' 7"	12.7m
Wingspan	52' 1"	15.9m
Height	15' 6"	4.7m
Cabin Length	16' 8"	5.1,
Cabin Width	5' 2"	1.6m
Cabin Height	4" 3"	1.3m
Max Range	907nm	1,679km
Max Seating	2 + 12	
Typical Seating	1 + 6	
Powerplant	1x PT6A-114A	1,262SHP/941kW
Max Cruise Speed		341km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	975fpm	297mpm
Take off Distance	2,420ft	738m
Landing Distance	1,795ft	547m
MTOW	8,750lb	3,985kg
Max Landing Weight	8,500lbs	3,855kg
Useful load	4,500lb	2,041kg
Payload with full fuel	1,361lbs	617kg
Price	$1.82m	€ 1.42m

WHEN a business trip means dropping into a grass strip in an inhospitable area, then the Cessna Grand Caravan is the ideal transportation tool. And if you are flying from small regional airports too, it proves its value with its remarkable short field performance.

The spacious cabin can be fitted with a luxurious leather interior through Yingling Aviation in Wichita which gives the Caravan all of the comforts a business jet – with significantly more space.

The Caravan's Oasis interior provides seating configurations for up to 10 people with two forward facing seats behind the crew, a four-place club seating area with executive side tables, and aft divan seating for two incorporating a standard flushing toilet approved for occupancy during take off and landing. The veneer or laminate wood cabinetry features two standard forward cabinets, one providing a convenient refreshment centre, while the other is available for pilot materials and general storage applications.

Electronic equipment including the latest high-tech entertainment systems, telecommunications, and flight data displays are also available as options.

With its large cargo door and underbelly cargo pod, the aircraft is versatile and is often used as a cargo/passenger mix.

SPOTTER'S GUIDE

The distinctive Cessna high straight wing with a brace, a single engine and fixed tricycle undercarriage along with a three blade propeller for the Pratt & Whitney Canada P&WC PT6-A engine make this an easy one to spot. The aircraft has seven square windows on either side – there are only five on the smaller Caravan 675. Many of the Grand Caravans are fitted with large underbelly cargo pod.

dE HAVILLAND TWIN OTTER 400

SPOTTER'S GUIDE

The DHC-6 Twin Otter is a highly manoeuvrable, high winged un-pressurised twin-engined aircraft. The Pratt & Whitney Canada PT6A-35 engines are mounted below the braced, straight high wings with three-bladed propellers, a swept tailfin and low-set tailplane. Specialist large windows are fitted on some existing models for sightseeing operators. The original -100 Twin Otters are recognizable by a much shorter nose.

SPECIFICATION

Length	51'9"	15.77m
Wingspan	65'	19.8m
Height	9' 8"	2.95m
Cabin Length	18' 5"	5.61m
Cabin Width		
Cabin Height	4' 11"	1.5m
Max Range	980nm	1,815km
Max Seating	2 + 20	
Typical Seating	2 + 17	
Powerplant	2x P&WC PT6A-34	
Max Cruise Speed	182ktas	338km/h
Max Ceiling	26,700ft	8,138m
Rate of Climb	1,600 ft/m	
Take off Distance	1,200 ft	366m
Landing Distance		
MTOW	12,500lbs	5,670kg
Max Landing Weight	12,300lbs	5,579kg
Useful load	4,535lbs	
Payload with full fuel		
Price	TBC	

FROM Asian jungles to the Antarctic ice caps, one aircraft that is as capable at minus 60 degrees as it is at plus 60 is the Twin Otter.

Viking Air of British Columbia announced at Farnborough in July 2006 that it was planning to restart production of the 19-seat Twin Otter, to be designated the Twin Otter Series 400.

Viking Air, which has been specialising in de Havilland Canada products for more than 30 years, acquired Type Certificates for seven de Havilland heritage aircraft, including the DHC-2 Beaver, DHC-3 Otter and the DHC-6 Twin Otter.

Versions have appeared with larger windows and reduced seating configuration for charter and sightseeing missions from land, water (or in the case of the South Pole, ice) – the Twin Otter's fixed undercarriage can be fitted with skis, wheels or floats.

The aircraft is an ideal corporate transport for short-field operations.

HERITAGE

The Viking HS Twin Otter 400 will be the latest in this long line of STOL turboprop aircraft. It was first seen in January 1964 with first flight in May 1965 and first customer delivery in July 1966. Canada's leading aerospace business Bombardier bought the de Havilland company and ceased production of the Twin Otter in 1988. Viking bought the rights and is planning to use the latest production technologies to bring a new – but effectively unchanged – Twin Otter 400 to the market again.

The Twin Otter is a derivative of de Havilland's successful DHC-3 Otter.

Many of the design characteristics of the Otter were left intact in the Twin.

The double-slotted flap system that marked the Otter stayed, but the wingspan grew longer, as did the ailerons.

The wing-struts moved inwards toward the engine nacelles, and the tailwheel was replaced by a steerable nosewheel. 20 passengers could fly in the Twin, as compared to only nine in the single Otter.

NEW

EADS SOCATA TBM-850

SPECIFICATION

Length	34' 11"	10.65m
Wingspan	41' 7"	12.68m
Height	14' 3"	4.35m
Cabin Length	13' 3"	4.05m
Cabin Width	4'	1.21m
Cabin Height	4'	1.22m
Max Range (3)	1,520nm	2,815km
Max Seating	2 + 4	
Typical Seating	1 + 4	
Powerplant	1x P&WC PT6A-66D	850shp/633kW
Avionics	EFIS, dual GNS530 GPS/COM/NAV systems plus KMD 850 MFD	
Max Cruise Speed	320ktas	593km/h
Max Ceiling	31,000ft	9,449m
Rate of Climb	2,005fpm	611mpm
Take off Distance	2,840ft	865m
Landing Distance	2,430ft	740m
MTOW	7,394lbs	3,354kg
Max Landing Weight	7,024lbs	3,186kg
Useful load	2,632lbs	1,194kg
Payload with full fuel	849lbs	385kg
Price	$2.79m	€2.18m

AN upgrade of the TBM-700, the single-turboprop TBM-850 is powered by an uprated Pratt & Whitney Canada PT6A-66D, which has single-crystal turbine blades enabling higher operating temperatures and, combined with a new compressor first stage, delivering enhanced high-altitude performance.

Currently the TBM-850 doesn't have a fully integrated flight deck – however it is believed that this could feature in the next upgrade. The company increased production during 2006 to accommodate a record order backlog of more than 50 aircraft. The company delivered 42 aircraft in 2006 and has 32 orders already in hand for 2007.

The main feature of the new six-seater is its speed–320 knots (590 km/h) at FL260 in ISA conditions. It is certified up to 31,000ft (9,449m) and will carry three passengers 1,520nm. Socata says that flying a "typical" (unspecified but thought to be the Cessna Citation Mustang) VLJ will save only seven minutes on a 500-nm trip. "But the direct operating costs will increase by 50 percent."

SPOTTER'S GUIDE

Although the TBM looks very similar to its rival the Piper Meridian, the TBM is distinguishable on the ramp because the weather radar radome is mounted into the leading edge of the port wing and the tailplane has visible dihedral to produce a 'V' upswept design. There are four windows each side on the passenger cabin.

HERITAGE

The TBM-850 has evolved from the TBM-700, originally a joint venture between Socata and Mooney, however Mooney pulled out shortly after the 700A was certified in 1991. Upgrades in 1999 and 2003 - 700B and 700C2. In December 2005 the 850 was announced as the successor to the C2 and entered service in February 2006.

EPIC AIRCRAFT EPICLT

IN DEVELOPMENT

SPOTTER'S GUIDE

The EpicLT has a sleek smooth design and can be confused easily with the Farnborough Aircraft's Kestrel. The LT has four round windows either side and the cabin door is aft of the wing and features the third window. The wing has a very slight sweep with a blended winglet and the horizontal stabiliser is mounted in line with the cabin windows. The tail fin is smooth and shark-like.

SPECIFICATION

Length	35' 10"	10.91m
Wingspan	43'	13.11m
Height	12' 6"	3.81m
Cabin Length	15' **	4.57m
Cabin Width	4' 7"	1.41m
Cabin Height	4' 11"	1.49m
Max Range	1,394nm	2,582km
Max Seating	1 + 5	
Typical Seating	1 + 5	
Powerplant	1x P&WC PT6A-67A	1,200shp / 894kW
Max Cruise Speed	350ktas	648km/h
Max Ceiling	31,000ft	9,449m
Rate of Climb	2,545fpm	776mpm
Take off Distance	1,800ft	549m
Landing Distance	1,800ft	549m
MTOW	7,700lbs	3,493kg
Max Landing Weight	7,700lbs	3,493kg
Useful load	3,400lbs	1,542kg
Payload with full fuel	1,541lbs	699kg
Price*	$1.25m	€0.97m

* In kit form **Front bulkhead to rear bulkhead

THE EpicLT is currently only available in kit form, but the factory will help build 49 percent of the aircraft – presently FAA legislation states that for an amateur built kit plane the owner must build a minimum of 51 percent.

The Pratt & Whitney PT6A-67A delivers 1,200shp (894kW) and can propel the LT to a maximum cruise speed of 350ktas (648km/h).

The LT offers a useful load of 3,400lbs (1,542kg) and a maximum range of 1,394nm (2,582km). It is able to seat four in the passenger cabin and needs only one pilot. With full fuel the aircraft is still able to offer 1,541lbs (699kg) of payload.

Although the take off and landing distances have not been confirmed, it is expected that to clear a 50' (15m) obstacle at both maximum take off and maximum landing weight will be less than 1,800ft (548m) for take off and landing.

HERITAGE

The LT is an all new composite design from Epic Aircraft, funded by Aircraft Investors Resource. Presently only available in kit form, the certification application process has begun with Transport Canada and approval is set for the third quarter of 2007. The kit version currently utilises a refurbished Pratt & Whitney PT6A-67A, whilst the certified version is due to have a PT6A-68.

EXTRA EA-500

SPOTTER'S GUIDE

The EA-500 features a high cantilever straight wing and a highly swept T-tail. The aircraft features three windows on each side. At the front is the single Rolls-Royce 450hp engine with a five-blade propeller.

SPECIFICATION

Length	33' 2"	10.12m
Wingspan	38' 3"	11.67m
Height	11' 1"	3.38m
Cabin Length	13' 6"*	4.14m
Cabin Width	4' 7"	1.4m
Cabin Height	4' 1"	1.2m
Max Range	1,673nm	3,100km
Max Seating	1 + 5	
Typical Seating	1 + 5	
Powerplant	1x Rolls-Royce 250-B17F/2	451SHP/336kW
Avionics	Honeywell	
Max Cruise Speed	230ktas	426km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	1,335fpm	406mpm
Take off Distance	2,050ft	625m
Landing Distance	1,991ft	607m
MTOW	4,696lbs	2,130kg
Max Landing Weight	4,409lbs	2,100kg
Useful load	1,610lbs	730kg
Payload with full fuel	390lbs	176kg
Price	$1.345m	€1.05m

*Cockpit to aft bulkhead

OWNER-flown business aircraft are attracting a lot of interest these days and the Extra EA-500 is one of the available aircraft that deserves more than a second look.

It utilises the successful EA-400 airframe, and is powered by the Rolls Royce 450shp model 250-B17F/2 engine and the MT Propeller five-bladed, reversible composite prop.

It also includes a state-of-the-art Honeywell avionics system, which is the standard avionics package for the aircraft.

The EA-500 has an all-carbon fibre composite airframe that is both lighter and stronger than traditional metal structures. The aircraft's high-wing design allows for stability in flight and superior air flow over the wing and fuselage.

Priced at $1.345 million it is the lowest cost certified single-engine turboprop on the market. It has a service ceiling of 25,000ft, however it cruises at lower altitudes without sacrificing fuel consumption and is certified for all-weather operations, including Flight Into Known Icing conditions, and is approved for landing on grass strips..

Without a floor wing spar, the EA-500's passenger compartment is similar in size to a King Air C90B with four club-style facing seats.

HERITAGE

The aircraft was designed by Walter Extra better known for his work with aerobatic aircraft. The German manufacturer went into liquidation but was bought by US investors in August 2003 and now has corporate offices in Pennsylvania. The EA500 was developed from the airframe of the EA-400. The six-cylinder piston aircraft seats a pilot and five passengers. The turboprop version received EASA certification in July 2004. FAA certification is due early 2007.

IN DEVELOPMENT

FARNBOROUGH AIRCRAFT F1 KESTREL

SPOTTER'S GUIDE

The Kestrel has a sleek design with a single turboprop PT6 and features three passenger windows on the left, with the cabin door at the rear.
On the right there are four passenger windows.
The wing has a very slight blended winglet with traditional mid-fuselage mounted horizontal stabilisers.

SPECIFICATION

Length	37' 5"	11.4m
Wingspan	43'	13.1m
Height	12' 7"	3.84m
Cabin Length	17' 7"*	5.36m
Cabin Width	5'	1.52m
Cabin Height	4' 7"	1.40m
Max Range (4)	1,712nm	3,170km
Max Seating	1 + 7	
Typical Seating	1 + 5	
Powerplant	1x P&W PT6A-67B	1,000shp / 746kW
Max Cruise Speed	352ktas	653km/h
Max Ceiling	31,000ft	9,449m
Rate of Climb	3,140fpm	957m
Take off Distance	1,795ft	547m
Landing Distance	1,822ft	555m
MTOW	7,000lbs	3,175kg
Max Landing Weight	6,650lbs	3,016kg
Useful load	2,993lbs	1,358kg
Payload with full fuel	1,093lbs	496kg
Price	$2.5m	€1.95m

*includes cockpit

FARNBOROUGH Aircraft Corporation's F1 Kestrel has been developed to utilise the smaller airports of the world to allow greater access and versatility for the operator. This single engine turboprop can seat up to eight and currently a single flying prototype has been built and is based at Farnborough airport, UK, although major assemblies could be built by GAMCO in Abu Dhabi following investment from the UAE. The certification flying will take place in the UK and it is expected to certify in early 2009. The Kestrel will be able to transport four passengers 1,712nm (3,170km) at 31,000ft (9,449m). Power is provided by a single Pratt & Whitney PT6A-67B with 1,000shp (746kW) and a maximum cruise speed of 352ktas (653km/h). The PT6 power enables the Kestrel to lift a useful load of 2,993lbs (1,358kg).

It offers good short field performance and will clear a 50' (15m) obstacle at its maximum take off weight of 7,000lbs (3,175kg) in as little as 1,795ft (547m). At maximum landing weight of 6,650lbs (3,016kg) it can be down and stopped, without using reverse pitch on the propeller, from 50' (15m) in 1,822ft (555m).

Coupled with a climb rate of 3,140fpm at sea level the Kestrel compares favourably with some ultra light and very light jets.

The preliminary specifications suggest that it may well become the benchmark for single engine turboprops of the future – with speeds similar to some ultra light and very light jets and a respectable IFR range.

HERITAGE

The Kestrel is a development of UK-based Farnborough Aircraft. It is an all new eight-seat composite pressurised turboprop and originally was brainchild of Richard Noble – more prominently known for developing the Thrust Supersonic Car.
The company has been embroiled in successful legal action against Aircraft Investor Resources with regard to the use of the Kestrel's wing design in the US company's Epic Jet which it is developing with Tblisi-based TAM.

IN DEVELOPMENT

GROB G160 RANGER

SPECIFICATION

Length	37 '8"	11.5m
Wingspan	46' 11"	14.3m
Height	11' 2"	3.4m
Cabin Length	16' 5"	5m
Cabin Width	5'	1.52m
Cabin Height	4' 8"	1.42m
Max Range (4)	1,800nm	3,300km
Max Seating	1 + 7	
Typical Seating	1 + 4	
Powerplant	1x P&WC PT6A-42A	850shp/634kW
Max Cruise Speed	270ktas	500km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	1,850fpm	564mpm
Take off Distance	2,415ft	736m
Landing Distance	2,130ft	650m
MTOW	7,937lbs	3,600kg
Max Landing Weight	7,275lbs	3,300kg
Useful load		
Payload with full fuel		
Price	$3m	€2.3m

CERTIFICATION of the all composite Ranger has been delayed primarily because Grob's priority has been switched to the SPn Light Jet, however the Ranger will probably be brought back to life after the SPn development is complete.

It will have a ceiling of 25,000ft (7,620m) and transport four passengers 1,800nm (3,300km). Powered by a single nose mounted Pratt & Whitney PT6A-42A with 850shp (643kW) it can cruise at a maximum of 270ktas (500km/h).

The cabin will feature a four place club with either an additional seat in the rear and lavatory, or simply two extra seats. It offers good short field performance and can clear a 50' (15m) obstacle at maximum take off weight (7,937lbs / 3,600kg) in as little as 2,415ft (736m). Coming back in to land without using reverse pitch it will land from 50' (15m) in 2,130ft (650m) at its maximum landing weight of 7,275lbs (3,300kg).

SPOTTER'S GUIDE

The engine is nose mounted making the nose look long and features a five bladed propeller. There are four passenger windows, and the rearmost on the left is fitted to the cabin door. The wing features a prominent winglet and has a traditional tail with mid-fuselage mounted horizontal stabilisers.

HERITAGE

It made its first public debut at the Paris Air Show in June 2003 however it was officially launched in April 2003 and made its maiden flight on 29 March 2004 at Tussenhausen-Mattsies, Germany. However certification has been put on hold whilst the SPn jet is being developed and brought to market by Grob and ExecuJet.

PIAGGIO P180 AVANTI II

HERITAGE

The Avanti was first launched in 1986 with first delivery in 1990 but its unusual design was a stumbling block and fewer than 100 aircraft were sold in 20 years. There is little exterior difference between the Avanti II and the original model.

SPECIFICATION

Length	47' 3.24"	14.41m
Wingspan	46' 0.48"	14.03m
Height	13' 0.90"	3.98m
Cabin length	14'11"	4.55m
Cabin width	6' 1"	1.85m
Cabin Height	5' 9"	1.75m
Max range (5)	1,509nm	2,795km
Max seating	9 + 2 crew	
Typical seating	6 + 1 crew	
Powerplant	2x P&WC PT6A-66B	850SHP/6.34Kw each
Max Cruise speed	398 KTAS	737km/h
Max ceiling	41,000ft	12,500m
Rate of climb	2,950 fpm	899 mpm
Take off Distance	2,850ft	869m
Landing Distance	2,860ft	872m
MTOW	12,100lbs	5,489kg
Max Landing	11,500lbs	4,965kg
Useful load	3,800lbs	5,216kg
Payload with full fuel	1,548lbs	703kg
Price:	$6.2m	€5.85

THE P180 Avanti II was launched in November 2004 at NBAA and certified by the FAA early in 2006.

The upgrade to the original Avanti was in response to pressure from the emerging range of very light jets and the revamped single-engined turboprops.

New features include Rockwell Collins Pro Line 21 avionics, uprated P&WC PT6A-66B turboprops, an increase in maximum take off weight from 11,960lbs (5,245kg) to 12,100lbs (5,489kg), a higher useful load, and a faster long-range cruise.

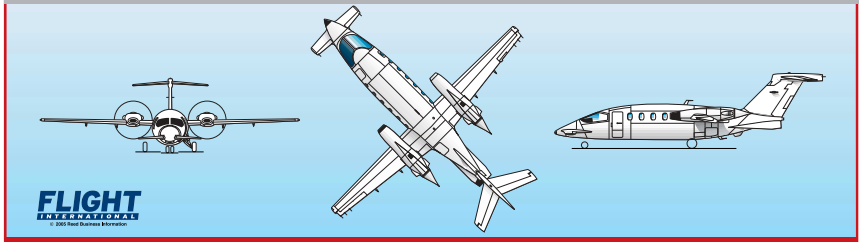
Standard on the Avanti II is a new lavatory designed by cabin interior company Stevens Aviation in the US. Piaggio completes its own aircraft in Europe.

The cabin will provide an extra 14" (10cm) in width, a reduction in weight of around 30lbs (14kg), and more storage space.

The popularity of the Avanti is manifested in the strong sales of the aircraft, notably from North American fractional ownership companies where some 60% of the world fleet is based. New York-based Avantair is the largest user of the type.

The high performance and reduced noise from the twin-pusher turboprop power plants give the feel and sound of business jet but the Italian manufacturers claim a 30 percent saving in fuel costs.

SPOTTER'S GUIDE



The Avanti has been dubbed the "Catfish" because of its unusual fixed forward wing (not a canard) which provides positive lift reducing the trim drag from the horizontal tail.

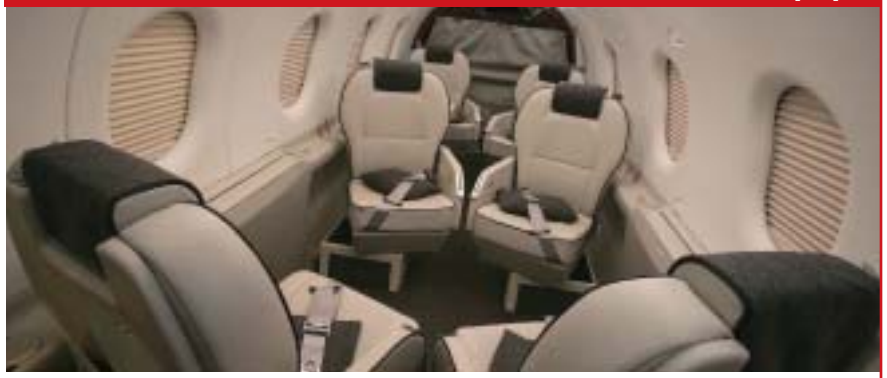
PILATUS PC-12

HERITAGE

The PC-12 was an all new design for Pilatus in their range of single engine PT6 powered aircraft. It was announced at NBAA in October 1989 and flew for the first time in May 1991. Certification was planned for mid 1993 – however Swiss and FAA certification were awarded in March and July of 1994 respectively. The main setback for the delay was a redesign of the wings to include winglets thereby ensuring that performance guarantees would be met.

SPECIFICATION

Length	47' 3"	14.40m
Wingspan	53' 4"	16.27m
Height	14'	4.26m
Cabin Length	16' 11"	5.16m
Cabin Width	5'	1.53m
Cabin Height	4' 9"	1.45m
Max Range (6)	1,106nm	2,050km
Max Seating	2 + 9	
Typical Seating	2 + 6	
Powerplant	P&WC PT6A-67B	1,200SHP/895kW
Max Cruise Speed	270ktas	500km/h
Max Ceiling	30,000ft	9,150m
Rate of Climb	1,600fpm	488mpm
Take off Distance	2,650ft	808m
Landing Distance	2,160ft	660m
MTOW	10,495lbs	4,740kg
Max Landing Weight	9,920lbs	4,500kg
Useful load	4,310lbs	1,955kg
Payload with full fuel	691lbs	313kg
Price	$2.875m	€2.24m

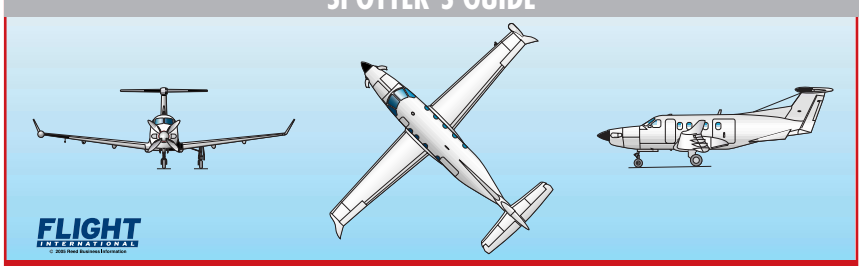


VERSATILITY with Swiss efficiency – that's the Pilatus PC-12. More than 600 of these workhorse aircraft are in operation. It is powered by a single Pratt & Whitney PT6A-67B producing 1,200shp (895kW) and can be configured with three different passenger interior styles – nine seat airliner, six seat corporate or a four seat/freighter combination. The majority of the sold aircraft are fitted with a corporate interior. The cabin is 16' 11" (5.16m) long, 5' (1.53m) wide and 4' 9" (1.45m) high.

It is certified for SPIFR (Single Pilot Instrument Flight Rules) operation and will fly six executives 1,106nm (2,050km) – there need not be a tarmac runway at the other end, the PC-12 is able to land on unprepared strips and is able to take-off and clear a 50' (15m) obstacle at gross weight in 2,650ft (808m), on landing with use of reverse thrust it can be down and stopped from 50' (15m) at maximum landing weight in just 1,830ft (557m).

The PC-12 is a capable aircraft in its class since 2006 it has offered an increased maximum take-off weight, 10,495lbs (4,740kg) and in 1998 a smaller winglet was introduced. It is has a useful load of 4,310lbs (1,955kg) and can cruise at 270ktas (500km/h) and a ceiling of 30,000ft (9,150m).

SPOTTER'S GUIDE



The PC-12 has a nose mounted engine with a four blade propeller. There are five cabin windows on the right-hand side and four on the left-hand side. It has a T-tail with an enlarged dorsal fin. When fitted with a weather radar this is fitted to the starboard wing close to the winglets.

PIPER MERIDIAN

SPECIFICATION

Length	29' 7"	9.02m
Wingspan	43'	13.11m
Height	11' 4"	3.44m
Cabin Length*	12' 4"	3.75m
Cabin Width	4' 1"	1.25m
Cabin Height	3' 11"	1.19m
Max Range	1,000+nm	1,885+km
Max Seating	2 + 4	
Typical Seating	1 + 4	
Powerplant	1x P&WC PT6A-42A	500SHP/373kW take off power
Avionics	Avidyne FlightMax Entegra	
Max Cruise Speed	260ktas	481km/h
Max Ceiling	30,000ft	9,144m
Rate of Climb	1,556fpm	474mpm
Take off Distance	2,438ft	743m
Landing Distance	2,110ft	643m
MTOW	5,092 lbs	2,310 kg
Max Landing Weight	4,850lbs	2,200kg
Useful load	1,720 lbs	780 kg
Payload with full fuel	564lbs	256kg
Price	$1.895m	€1.48m

*Instrument Panel to Rear Bulkhead

PIPER has been building airplanes for 70 years and the PA-46 Meridian is very much among the best ever.

The aircraft is a light six-seat pressurised business turboprop powered by a single Pratt & Whitney PT6A-42A with 500 SHP (373kW). Typically flown with a single pilot and four passengers the aircraft is able to cover 1,000+nm. With a take-off ground roll of 1,650ft (503m) it is also able to utilise smaller airfields and bring passengers close to their planned destinations.

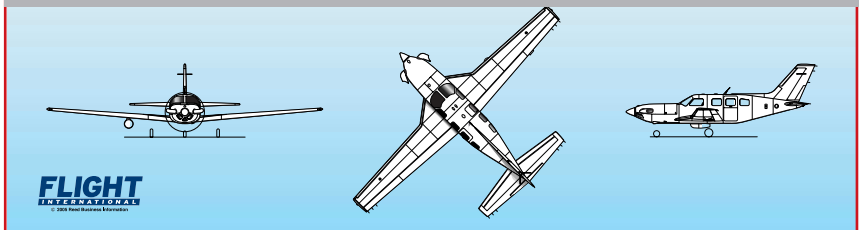
A pressurised cabin allows the aircraft to fly at 30,000ft. It is fitted with the Avidyne FlightMax Entegra and features three 10.4" displays - two Primary Flight Displays (PFDs), one for the pilot and another for a copilot, and the third, centrally mounted, Multi-Function Display (MFD).

HERITAGE

The present day Meridian is the evolution of the Piper PA-46 Malibu which had its first flight in November 1979. The type was announced in November 1982 and was powered by a 310hp (230kW) Continental TSIO-520 piston engine – 404 were built.

The Malibu was among the first aircraft to feature cabin pressurisation, a feature not included on the prototype. Subsequently the Malibu was upgraded in 1988, the changes incorporated a 350hp (260kW) Textron Lycoming TIO-540-AE2A and the new designation PA-46-350P Malibu Mirage, although it is now commonly known simply as the Piper Mirage, this model is still in production. In 1997 Piper announced its plans to develop a turboprop version fitted with the venerable and reliable Pratt & Whitney PT6, certification followed in September 2000 with the designation PA-46-500TP Malibu Meridian, again more commonly known as the Piper Meridian.

SPOTTER'S GUIDE



Although the Meridian looks very similar to the Socata TBM-850, the Meridian is distinguishable on the ramp because of the weather radar radome mounted on a pylon under the starboard wing. The tailplane is mounted horizontally and there are three rectangular windows each side on the passenger cabin.

IN DEVELOPMENT

QUEST KODIAK

SPOTTER'S GUIDE

The Kodiak is a high wing single engine turboprop featuring fixed tricycle undercarriage, however it is available with floats or as an amphibian. It has struts from the wings to the fuselage which join in front of the main landing gear. There are four passenger cabin windows on each side and a traditionally mid mounted horizontal stabiliser.

SPECIFICATION

Length	33' 4"	10.16m
Wingspan	45'	13.72m
Height	15' 4"	4.67m
Cabin Length	15' 6"	4.72m
Cabin Width	4' 6"	1.37m
Cabin Height	4' 9"	1.44m
Max Range	1,075nm	1,991km
Max Seating	2 + 8	
Typical Seating	2 + 6	
Powerplant	1x P&W PT6A-34	750SHP/559kW
Avionics	Garmin G1000	
Max Cruise Speed	190ktas	351km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	1,700fpm	518mpm
Take off Distance	1,200ft	366m
Landing Distance	1,660ft	505m
MTOW	6,750lbs	3,062kg
Max Landing Weight	6,750lbs	3,062kg
Useful load	3,450lbs	1,565kg
Payload with full fuel	1,306lbs	592kg
Price	$1.295m	€1.01m

BACKWOODS business? Outback, rough terrain or lakeland work? Then this aircraft under development is just right. The simple rugged design and versatility of the undercarriage – be it wheels, floats or an amphibian combination – means the Kodiak can get in and out of almost anywhere. Combine the ruggedness with a propeller clearance of 19 inches and it's certain to be able to handle the bumps and lumps 'off piste'.

At its maximum take off weight of 6,750lbs (3,062kg) it has a ground roll of 700ft (213m) and will clear a 50ft (15m) obstacle in 1,200ft (366m). The wing also makes use of discontinuous leading edge it creates a vortex that keeps airflow moving where you need it most. The result is that at speeds closer to stalling speeds, full aileron control can be maintained and thereby reduce approach speeds.

The Pratt & Whitney PT6-34 produces 750shp (559kW) and will lift a useful load of 3,450lbs (1,565kg). It has a range of 1,075nm (1,991km) and can cruise at a maximum of 190ktas (351km/h).

Up front it features a Garmin G1000 integrated avionics suite consisting of three displays and has VIP seating for six in the cabin. Although the cabin is not pressurised it does feature oxygen systems to allow the maximum cruise altitude of 25,000ft (7,620m) to be attained.

Having an un-pressurised cabin means the airframe is not limited in life by cycles but rather on condition.

HERITAGE

The Kodiak is the first offering form Quest Aircraft which started in 2001. The Kodiak is currently approaching the end of certification testing – having accumulated nearly 500 flight hours. The Kodiak was designed to be STOL (Short Take Off and Landing) with rugged construction. There needn't be tarmac at the other end. It is due to be certified to FAR Part 23 for day/night and VFR/IFR operation.

5

Personal Jets

This is a brand-new sector of the Very Light Jet market with aircraft specifically designed for the owner-pilots who want to go about their business at speed. All of the aircraft in this sector are still emerging from the drawing board into pre-certification testing. Others are expected to join during 2007 with Cirrus among the likely contenders. The size of the market is still undetermined.

■ The Javelin epitomises the "big boy's toys" concept – a personal business jet that doubles as a fighter aircraft trainer.
Artist: Tekura Maeva

IN DEVELOPMENT

ATG JAVELIN

SPOTTER'S GUIDE

The Javelin is a personal jet with fighter jet styling. It features twin tails and with short stubby wings bears a resemblance to a shrunk hybrid F/A18 Hornet and the F-5 Freedom Fighter. The air intakes for the two engines are mounted at and just in front of the wing root. The cockpit has one large aft hinged canopy.

SPECIFICATION

Length	37'	11.28m
Wingspan	25' 1"	7.65m
Height	10' 6"	3.20m
Cabin Length	10' 8"	3.26m
Cabin Width	2' 11"	0.89m
Cabin Height	4' 6"	1.38m
Max Range (2)	1,000nm	2,223km
Max Seating	1 + 1	
Typical Seating	1 + 1	
Powerplant	2x Williams FJ33-4A-18M	1,800lb / 8.01kN each
Avionics	Op Technologies	
Max Cruise Speed	M 0.87	500ktas/926km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	9,000fpm	2,743mpm
Take off Distance	3,200ft	975m
Landing Distance	4,000ft	1,219m
MTOW	6,900lbs	3,130kg
Max Landing Weight	6,900lbs	2,812kg
Useful load	2,245lbs	1,018kg
Payload with full fuel	370lbs	167kg
Price	$2.795-2.995m	€2.18-2.34m

THE Javelin is an all new type of personal jet which is scheduled to certify in 2008. It seats two in a tandem configuration and features a three screen 5 x 7 inch avionics package from Op Technologies. Recently the cockpit underwent some changes to incorporate a centre stick over the original side stick and the canopy sills have been lowered by 4" (10cm) to increase pilot look-down visibility.

It is powered by dual Williams FJ33-4A-18M turbofans with 1,800lbs (8.01kN) of thrust each and capable of cruising at a maximum of 500ktas (926km/h).

Although it is a small aircraft it is still capable of a 1,000nm IFR range and a ceiling of 45,000ft.

The Javelin certainly redefines the term 'Personal Jet' and is superbly suited to the inner child of every civil pilot and the boyish dreams of recreating Top Gun – yet it is still able to operate as a two seat transport.

Production models will feature pressurization, thereby no need for the G-suit or the bone dome!

HERITAGE

The Javelin is an all new design from Aviation Technology Group and will be available as the Mk 10 civil version and the Mk 20 military trainer. The military version is being developed in collaboration with Israel Aircraft Industries. The Javelin first flew on 30 September 2005.

IN DEVELOPMENT

DIAMOND AIRCRAFT D-JET

SPOTTER'S GUIDE

The D-Jet has straight wings with angular winglets. Distinctive by the air inlets for the single Williams F33 engine at the root of the wing beneath the three cabin windows on each side. There is a tall swept tail with a high mounted tail fin.

SPECIFICATION

Length	35' 1"	10.70m
Wingspan	37' 6"	11.43m
Height	11' 7"	3.53m
Cabin Length		
Cabin Width	4' 7"	1.42m
Cabin Height	4' 8"	1.44m
Max Range	1,351nm	2,502km
Max Seating	2 + 3	
Typical Seating	2 + 3	
Powerplant	1x Williams FJ33-4A	1,570lb
Max Cruise Speed	315ktas	583km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb		
Take off Distance	2,034ft	620m
Landing Distance		
MTOW	5,071lbs	2,300kg
Max Landing Weight		
Useful load	2,245lbs	1,018kg
Payload with full fuel	505lbs	229kg
Price	$1.38m	€1.08m

AUSTRIAN manufacturer Diamond Aircraft is developing a personal jet aimed at the businessman or high net worth individual who wants to be pilot as well as passenger.

D-JET has been optimised for flight at lower altitudes. The seating configuration is 2 + 3, with an internal baggage compartment aft of the three seat bench. A fairly spacious of the cabin allows the use of control yokes that offer lower control forces than unboosted sidestick control systems and allows equally convenient operation, from either pilot seat.

The D-JET is powered by the Williams FJ-33 fanjet engine. This fully certified engine is a scaled derivative of the popular and proven FJ44 that is in most modern light business jets. It features the FJ44's FADEC (Full Authority Digital Engine Control) which offers improved operation, reliability, efficiency, and maintenance.

Additional baggage can be carried in the forward and aft unpressurised baggage compartments, including full size golf bags.

Preliminary specifications of the D-Jet, which comes standard with a three-screen Garmin G1000 avionics system, include a 5,071-pound mtow, 315-knot max cruise speed, 25,000-foot ceiling and a 1,351-nm range. Diamond claims orders for some 125 of the aircraft which they are pricing at $1.35 million.

HERITAGE

The Diamond D-Jet (S/N 001) single-engine very light jet flew has its first flight on April 18 in Ontario, Canada, home of Diamond's North American division. The aircraft was then shown at Oshkosh in July. Certification is due late in 2007

The company plans to deliver 50 aircraft before the end of 2008, ramping up to a production rate of 1 aircraft per day by late 2009. Diamond has successfully produced single and twin-engine propeller aircraft for many years with leading edge technology using proven composite airframe materials.

IN DEVELOPMENT

EXCEL-JET SPORT-JET

HERITAGE

The Sport-Jet is an all new single engine personal jet. It flew on 11 May 2006 for the first time and FAR 23 certification with the FAA is targeted for May 2008. It is primarily an owner/operator jet.

SPECIFICATION

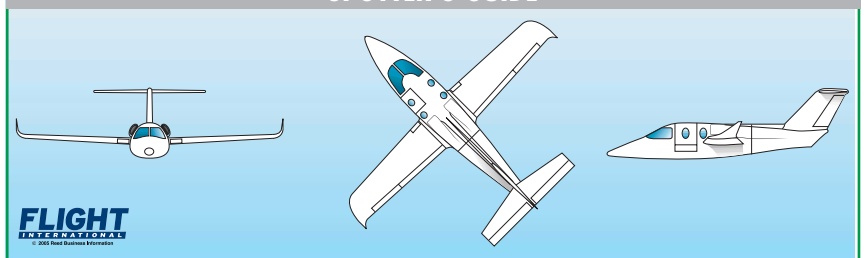
Length	30'	9.14m
Wingspan	33' 2"	10.12m
Height	8' 2"	2.50m
Cabin Length	7' 11"	2.41m
Cabin Width	4' 11"	1.49m
Cabin Height	3' 11"	1.19m
Cabin Volume	113 cu.ft	3.2m3
Max Range	1,000nm	1,852km
Max Seating	1 + 4	
Typical Seating	1 + 4	
Powerplant	1x Williams FJ33-4A	1,570lb/6.98kN
Max Cruise Speed	375ktas	694km/h
Max Ceiling	25,000ft	7,620m
Rate of Climb	2,500fpm	762mpm
Take off Distance	2,300ft	701m
Landing Distance	1,800ft	548m
MTOW	4,900lbs	2,222kg
Max Landing Weight	4,400lbs	1,995kg
Useful load	2,100lbs	952kg
Payload with full fuel	693lbs	314kg
Price	$1.1m TBD	€0.86m

HAVING completed its first flight earlier this year the program was in doubt after the proof-of-concept prototype crashed after take off in June – Excel-Jet believes wake turbulence was to blame. This did not upset the development progress and this was restarted in July. Excel-Jet stated the proof-of-concept had completed 95% of the envelope testing that it was planned to do. There were no fatal injuries, Excel-Jet say this is because of the carbon fibre roll cage built into the fuselage.

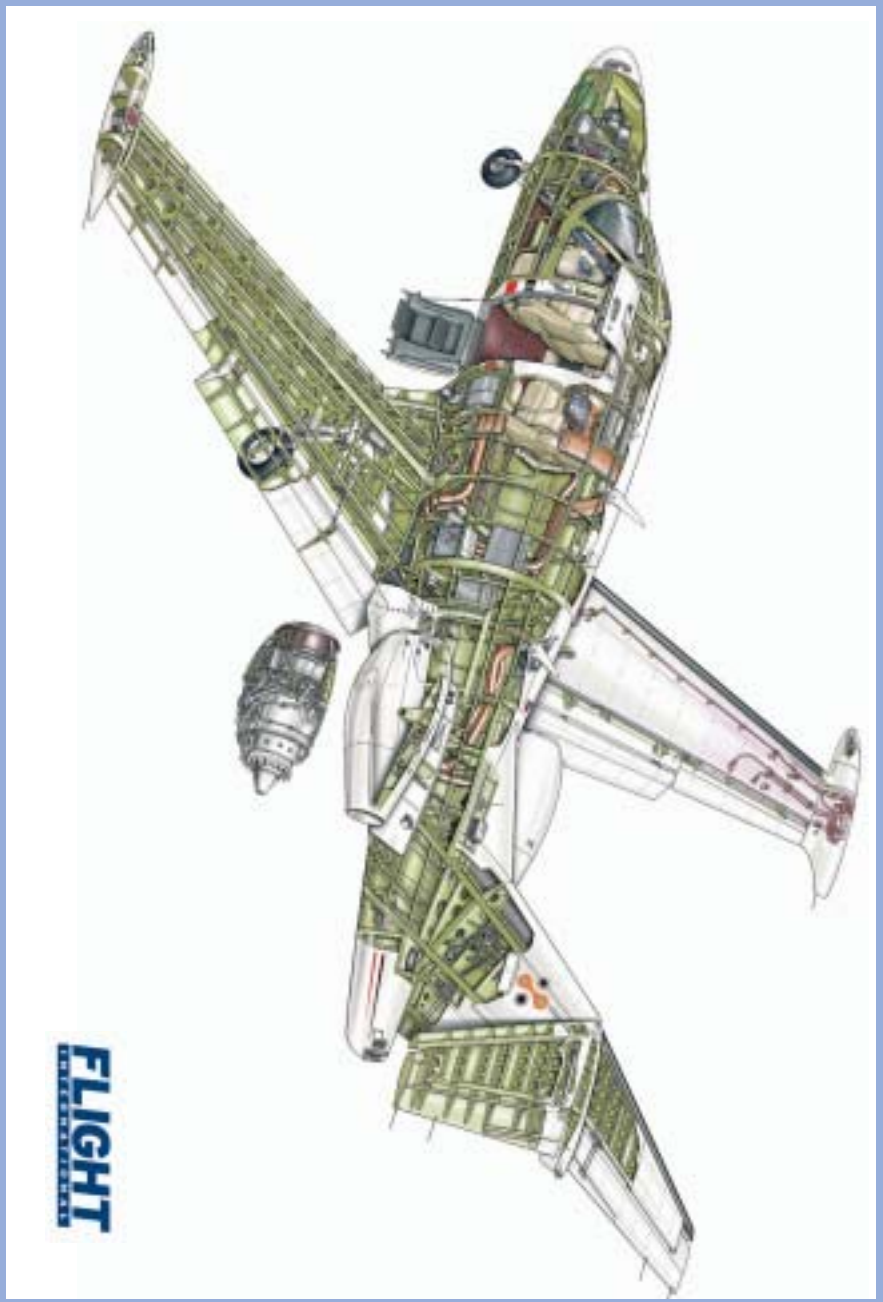
A single fuselage mounted Williams FJ33-4A with 1,570lbs (6.98kN) will power the Sport-Jet to a maximum cruise speed of 375ktas (694km/h). Excel-Jet from the onset have collaborated with insurance companies to try and ensure that the Sport-Jet can be used by general aviation users too, and such have limited the ceiling to 25,000ft (7,620m).

The Sport-Jet will be able to lift a useful load of 2,100lbs (952kg) and have an IFR range of 1,000nm (1,852km). It will seat a maximum of four passengers and will operate with a single pilot and for $1.1m (€0.86m) has a relatively spacious cabin.

SPOTTER'S GUIDE



The Sport-Jet has a single engine mounted in the back of the fuselage and features two air intakes on the fuselage which start behind the passenger cabin. The main gear retracts into the wing which is mid-mounted. It is has two passenger windows each side and a T-tail.



6

Ultra Light Jets

The Ultra Light section of the VLJ category is the most controversial – and the most sensational. The two competing aircraft, the Adam A700 and the Eclipse 500 are bringing a low-cost new-generation aircraft that is aimed at both the owner-operator and the air taxi markets. Honeywell expects orders for 5000 aircraft over the next 10 years in this segment – the manufacturers argue this figure is well short of their plans.

■ The Eclipse 500 will be the first of the new-generation low cost Very Light Jets to deliver to customers. The aircraft - and its champion - have been likened to doing for business aviation what Henry Ford and the T-model did for automobiles.
Artist Tim Hall.

IN DEVELOPMENT

ADAM AIRCRAFT A700

SPECIFICATION

Length	40' 9"	12.42m
Wingspan	44'	13.41m
Height	9' 6"	2.92m
Cabin length*	16'	4.88m
Cabin width	4' 6"	1.37m
Cabin Height	4' 3.6"	1.31m
Max range	1,100nm	2,037km
Max seating	2 + 6	
Typical seating	1 + 7	
Powerplant	2x Williams FJ-33	1,350lbs/6.0kN each
Avionics:	Avidyne FlightMax Entegra	
Max Cruise speed	340 KTAS	630km
Max ceiling	41,000ft	12,497m
Rate of climb	2,550fpm	777mpm
Take off Distance	2,950ft	899m
Landing Distance	2,520ft	768m
MTOW	8,5l00bs	3,856kg
Max Landing	t8,300lbs	3,765kg
Useful load	2,950lbs	1,338kg
Payload with full fuel	725bs	329kg
Price:	$2.25m	€1.76m

*includes cockpit

THE Adam A700 was announced on 21 October 2002. At the time of the programme announcement, Adam anticipated the first flight of the A700 in the second half of 2003 with first customer deliveries in late 2004.

However, setbacks to the company's A500 programme have contributed to a further slow-down of progress on its stretched jet-powered derivative.

The Williams International FJ33-powered conforming aircraft is nonetheless progressing with certification.

The design configuration is based on the A500 push-pull twin with some 80 per cent parts commonality, including the re-use of the wing and twin-boom tail as well as parts of the fuselage, which is lengthened 30 inches to accommodate a toilet.

The proof-of-concept aircraft flew in July 2003 and in April 2006 aircraft S/N002 flew to 41,000ft and achieved an airspeed of 340ktas. Static tests were complete in June 2006.

The company had more than 340 orders in June 2006 and were reporting significant interest from operators for the seven seater.

SPOTTER'S GUIDE

The A700 shares the same outline as the Adam A500 featuring straight low wings with a slight dihedral on the outboard panels. The push-pull engines of the A500 are replaced with the Williams FJ-33 engines aft beneath the distinctive twin boom tail with swept fins connected by a high-set tailplane.

HERITAGE

The A700 is a jet-powered version of the A500 (see Piston Aircraft) it is the first jet from the Colorado based company.

NEW

ECLIPSE 500

HERITAGE

The first test Eclipse 500 aircraft made its maiden flight in August 2002 with Williams EJ22 engines. In November 2002, Eclipse Aviation decided to replace the engines and aircraft are now fitted with Pratt & Whitney Canada engines. First flight with the new engines was in December 2004. The aircraft received provisional type certification from the FAA on July 27, 2006, shortly before the aircraft's PW610F engine was certified by the Canadian authorities. Full type certification and production certification was imminent as this book went to press. Eclipse is testing an improved wingtip fuel tank made from aluminium rather than composite to meet FAA lightning strike criteria and larger wingtip tanks are planned to add range. However it is being flown using IFR (instrument flight rules) with a single pilot throughout its operating envelope. Deliveries to customers will begin following full certification.

SPECIFICATION

Length	33' 8"	10.3m
Wingspan	37' 11"	11.6m
Height	11'	3.4m
Cabin Length**	12' 4"	3.76m
Cabin Width	4' 8"	1.42m
Cabin Height	4' 2"	1.27m
Max Range (4)	1,125nm	2,084km
Max Seating	1 + 5	
Typical Seating	1 + 4	
Powerplant	2x P&WC PW610F	900lbs / 4.0kN each
Avionics	Avio	
Max Cruise Speed	370ktas	685km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,314ft	1010mpm
Take off Distance	2,297ft	700m
Landing Distance	2,155ft	657m
MTOW	5,920lbs	2,685kg
Max Landing Weight	5,520lbs	2,504kg
Useful load	2,400lbs	1,089kg
Payload with full fuel	714lbs	324kg
Price	$1.52m	€1.16m

*typical landing weight **includes cockpit

REVOLUTION not evolution!

The Eclipse 500, brainchild of 6,500-hour private pilot and former Microsoft high-flyer Vern Raburn who, in the late 1990s, persuaded investors to back his vision of a twin-engine, glass-cockpit, single-pilot corporate jet – selling at the price of a piston – to the tune of almost half a billion dollars.

The innovation that gave birth to the Eclipse 500, and sparked today's wave of VLJs, was the idea of designing a jet aircraft with operating costs so low it would compete directly with the car. Raburn predicted the breakthrough would regenerate general aviation, make it a viable alternative to road transport and therefore enable massive business opportunities to be tapped in ways that were impossible or impractical before. And now it is here.

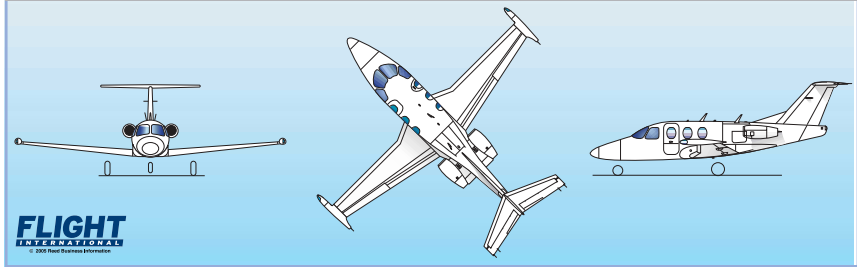
The four-seat cabin itself has the look and feel of a luxury car interior and was developed for maximum crash survivability. The 0.45 cubic metre baggage area is pressurised, heated, and accessible in flight.

The twin Pratt & Whitney Canada PW610F turbofan jet engines provide maximum altitude of 41,000ft (12,497m) which avoids most severe weather systems and provides a cruise speed of 370 knots (685 km/h) for a 1,125nm (2,084km) range with four occupants.

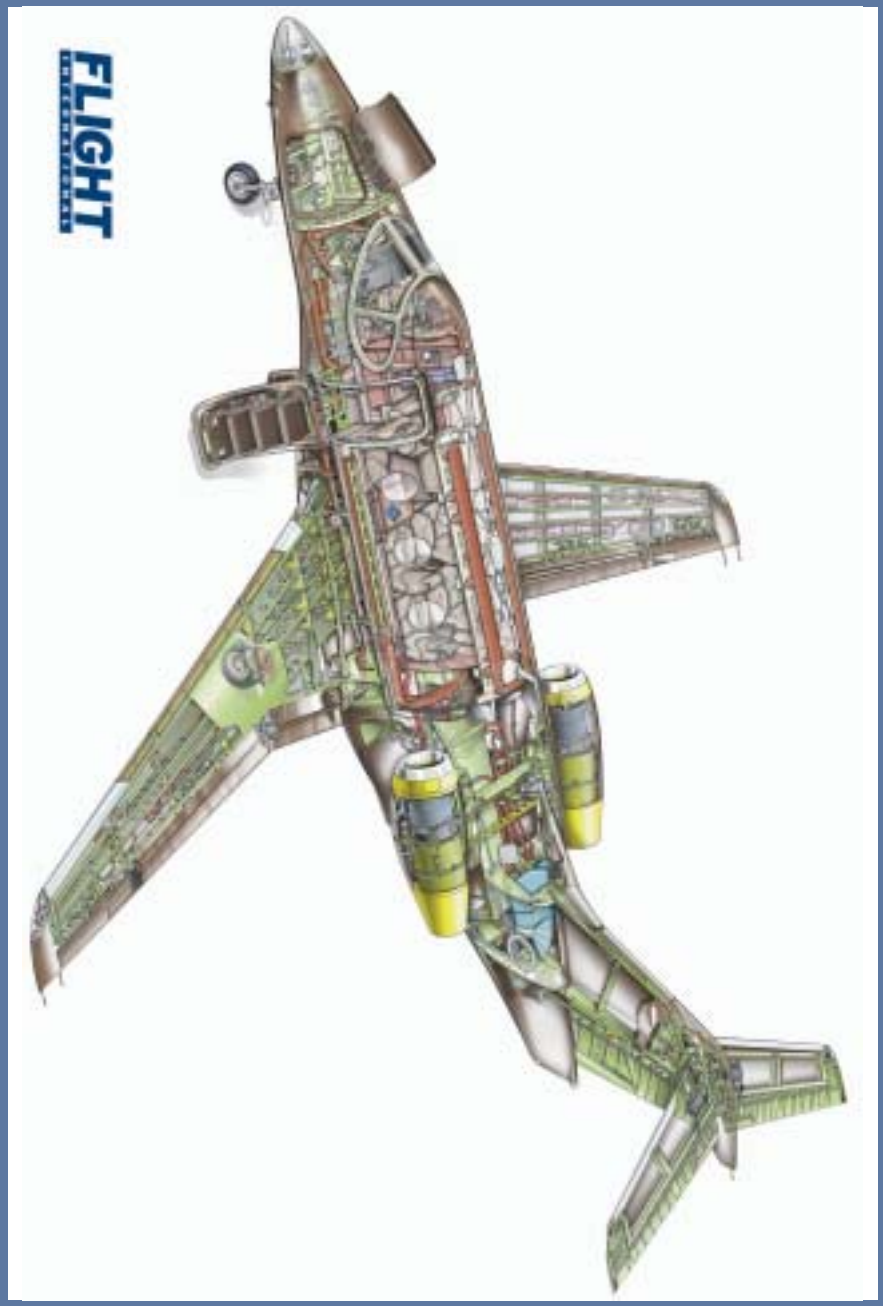
The Eclipse 500 is fitted with an all-glass cockpit with two primary flight displays and one multifunction display, which provide system control and clearly show the flight parameters, engine and system performance data.

The potentially massive air taxi market led by biggest customer Dayjet of Florida, is queuing up to prove the concept and are rejoicing in the aircraft's ability to operate from paved, grass or dirt runways. The take-off run is a mere 2,297ft (700m).

SPOTTER'S GUIDE



The all-metal airframe features straight wings with distinctive wingtip fuel tanks. It has a T-tail with dorsal fin and highly swept tailplane. There are three windows on each side – one on the door.



7

Very Light Jets

These aircraft are determined as Very Light Jets because of their weight or useful load factors but prefer to be described by most of the OEMs as Entry Level jets. They certainly feature everything expected of a business jet by corporate flight departments. Deliveries of business jets in this segment are poised to accelerate rapidly off a base of around 100 units in 2006 averaging just under 250 aircraft per year over the next 10 years, reflecting the introduction of new VLJs, such as the Embraer Phenom 100 and Cessna Citation Mustang, both of which already enjoy a strong order backlogs.

■ Raytheon's Beechcraft Premier IA is one of the aircraft already bringing in the orders for the VLJ sector. The aircraft was the first all-composite fuselage business jet to enter service.
Artists: Giussepe Picarella and David Hatchard

BEECHCRAFT PREMIER IA

SPOTTER'S GUIDE

The low swept wing is mounted below the fuselage. There are three cabin windows a swept T-tail and swept tailplane. The Williams engines are rear mounted on either side of the mid fuselage.

SPECIFICATION

Length	46'	14.02m
Wingspan	44' 6"	13.56m
Height	5' 5"	4.69m
Cabin Length	13' 6"	4.17m
Cabin Width	5' 6"	1.68m
Cabin Height	5' 5"	1.65m
Max Range (4)	1,314nm	2,434km
Max Seating	2 + 6	
Typical Seating	1 + 4	
Powerplant	2x Williams FJ44-2A	2,300lb/10.23kN each
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	456ktas	845km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,800fpm	1,158mpm
Take off Distance	3,792ft	1,156m
Landing Distance	3,170ft	966m
MTOW	12,500lbs	5,670kg
Max Landing Weight	11,600lbs	5,262kg
Useful load	4,160lbs	1,887kg
Payload with full fuel	490lbs	222kg
Price	$6.06m	€4.73m

THE six-passenger Premier IA is the first composite-fuselage business jet. This state-of-the-art construction method, combined with a metal swept wing, provides faster cruise speed, better altitude performance, superior handling and a cabin size that is seven inches taller and eight inches wider than competitive entry-level business jets.

The performance figures for the aircraft are outstanding with a maximum speed of 451ktas (835 km/h). With full fuel, one pilot and three passengers, the Premier I has a 1,450nm range.

Operating for charter companies in Europe such as the UK's Club 328, the Premier IA has cabin comfort more in line with a mid-size jet and features include improved temperature control and table storage with 110 VAC outlets and provisioning for the optional Satcom flight phone.

As well as an integrated Rockwell Collins cabin entertainment system with CD/DVD and Airshow capability.

Up front the Premier IA has Rockwell Collins Integrated Flight Information Systems (IFIS) as part of its ProLine 21 avionics suite. This advanced upgrade offers Premier IA pilots a wide range of safety and situational enhancing information to include map overlays (airways, airspace, geopolitical) as standard features.

The Premier IA is powered by two Williams/Rolls FJ44-2A engines.

HERITAGE

The Beech 390 series began as a concept in the early 1990s and was launched at NBAA in September 1995 as the Raytheon Premier 1 – the first to only feature the Raytheon name. It first flew in December 1998 and entered service in March 2001. The following year it reverted to the Beechcraft name. At EBACE in Geneva in May 2005, Raytheon unveiled the upgraded 1A and it was certified in October that year.

NEW

CESSNA CITATION CJ1+

HERITAGE

The CJ series evolved from the Citation 525 prototype that spawned the CitationJet which Cessna launched at NBAA in 1989. First flight occurred on April 29 1991, FAA certification was awarded on October 16 1992 and the first delivery was on March 30 1993. At 1998 NBAA convention Cessna announced development of an improved CJ1 to replace the CitationJet – the latest improvements to make CJ1+ happened in 2006. EASA certification was awarded in July.

SPECIFICATION

Length	42' 7"	12.98m
Wingspan	46' 11"	14.30m
Height	13' 9"	4.19m
Cabin Length	11'	3.35m
Cabin Width	4' 10"	1.47m
Cabin Height	4' 9"	1.45m
Max Range	1,300nm (full fuel MTOW)	2,408km
Max Seating	2 + 7	
Typical Seating	1 + 4	
Powerplant	2x Williams FJ44-1AP	1,960lb/8.72kN each
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	389KTAS	720km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,290fpm	1,003mpm
Take off Distance	3,250ft	994m
Landing Distance	2,590ft	789m
MTOW	10,700lb	4,853kg
Max Landing Weight	9,900lb	4,490kg
Useful load	3,835lb	1,740kg
Payload with full fuel	615lb	279kg
Price	$4.24m	€3.31m

UNTIL the certification of the Citation Mustang, the Citation CJ1 was the first step up the ladder of Citations, now with the "plus" suffix, signifying improvements to the avionics and the engines, this is very much a powerful contender in the burgeoning VLJ/entry-level business jet market

The "plus" improvements have been quite significant with the derivative able to climb and cruise faster than the original but weighs less.

It is also able to operate on shorter runways in hot and high conditions.

The CJ1+ includes the Rockwell Collins ProLine 21 along with the Collins Flight Management System (FMS) replacing the Honeywell Bendix/King radios and Universal FMS found in the CJ1 and CJ2.

Even more important for the subsequent weight changes was the introduction of FADEC.

Not only did this simplify the workload for the pilots it also meant Cessna could remove the thrust attenuators thereby reducing weight and easing thrust control for pilots.

The CJ1+ has new advanced engines, featuring a pair of Williams FJ44-1AP turbofans providing 1,960lbs (8.72kN) of thrust.

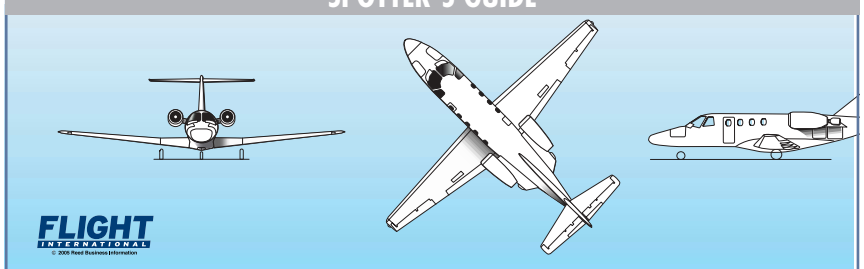
The enhanced Rockwell Collins avionics package gives both light jets the feel of a much bigger aircraft.

Standard equipment includes:

- three 10" x 8" (240mm x 192mm) LCD screens featuring dual digital flight guidance computers;
- dual solid-state attitude heading reference systems, dual RVSM compliant digital air data computers;
- a single, three-axis autopilot;
- dual sets of the Pro Line 21 comm, navigation and surveillance radios;
- a multi-sensor FMS 3000 with 12-channel GPS receiver;
- weather radar and XM radio data link weather receiver as well as the L-3 Communications' Skywatch HP TCAS-1, Landmark TAWS;
- and an integrated standby instrument system.

Cessna's whole CJ series is certified for single pilot operation.

SPOTTER'S GUIDE



A CitationJet forward fuselage is mounted to a T-tail configured tailplane and a new supercritical laminar flow wing. The Williams FJ44 turbofans (with paddle thrust reversers) are mounted aft. A useful differentiator against other Citations is that CJ1 and CJ1+ have four windows.

CESSNA CITATION CJ2+

SPOTTER'S GUIDE

The extra three feet of cabin (leading to an almost 48' fuselage) is shown by the two additional windows over the CJ1+ . A longer tail cone area is used for baggage.
The Williams engines are mounted aft, mid fuselage. Like the CJ1+ it has straight low wings and a T-tail.

SPECIFICATION

Length	47' 8"	14.53m
Wingspan	49' 10"	15.19m
Height	14'	4.27m
Cabin Length	13' 7"	4.14m
Cabin Width	4' 10"	1.47m
Cabin Height	4' 9"	1.45m
Max Range	1,613nm (full fuel MTOW)	2,987km
Max Seating	2 + 6	
Typical Seating	1 + 6	
Powerplant	2x Williams FJ44-3A-24	2,490lb/11.08kN
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	418KTAS	774km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	4,120fpm	1,256mpm
Take off Distance	3,360ft	1,024m
Landing Distance	2,980ft	908m
MTOW	12,500lb	5,669kg
Max Landing Weight	11,525lb	5,227kg
Useful load	4,700lb	2,132kg
Payload with full fuel	770lb	349kg
Price	$5.75m	€4.49m

CHARTER operators are finding the CJ2+ is giving them just that little extra bit of aircraft.

A cabin that is three feet longer than its sister aircraft, the CJ1+ gives one extra passenger seat bringing the total to six.

Like the smaller CJ1+, the CJ2+ includes the Rockwell Collins ProLine 21 along with the Collins Flight Management System (FMS) replacing the Honeywell Bendix/King radios and Universal FMS found in its predecessor the CJ2. This also has FADEC.

The enhancements have led to greater performance, upping the zero fuel weights, improved payload, and increased range by around 50nm (1,613nm, 2,987km for the CJ2+) but the most impressive difference is the climb – the CJ2+ can now climb straight to its ceiling of 45,000ft in just 28minutes.

The CJ2+ is powered by two Williams FJ44-3A-24 engines offering 2,490lbs (11.8kN) of thrust giving a cruise speed of 412ktas.

The Citation CJ1+, CJ2+ and CJ3 are manufactured on the same production line, allowing Cessna to build these airframes on the same tooling.

This lean manufacturing practice allows Cessna to adjust Citation CJ1+, CJ2+ and CJ3 production rates more efficiently, and deliver airplanes to customers with shorter lead times.

HERITAGE

The CJ2+ is an enhanced CJ2 which itself grew from the successful CitationJet programme (see Citation CJ1+) The Citation CJ2+ was announced at the 2004 NBAA show. The CJ2+ received U.S. Federal Aviation Administration certification less than a year later on October 3, 2005, after 80 flights and 190 flight hours and EASA certified the aircraft in July 2006.

NEW

CESSNA CITATION MUSTANG

SPOTTER'S GUIDE

The Mustang has three windows on either side with an emergency exit over the central window over the starboard wing. It has low straight wings with a swept T-tail and high set swept tailplane.
It has a distinctive extended underbelly which allows the aircraft's remarkable spacious cabin. The twin PW 615F engines are mid-mounted on the rear fuselage.

SPECIFICATION

Length	39' 11"	12.17m
Wingspan	42' 3"	12.87m
Height	13' 9"	4.19m
Cabin Length	9' 9"	2.97m
Cabin Width	4' 7"	1.42m
Cabin Height	4' 6"	1.37m
Max Range	1,150nm	2,130km
Max Seating	2 + 4	
Typical Seating	1 + 4	
Powerplant	2x P&WC PW615F	1,350lb/3.01kN each
Avionics	Garmin G1000	
Max Cruise Speed	340 KTAS	630 km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,010fpm	917mpm
Take off Distance	3,120ft	951m
Landing Distance	2,610ft	796m
MTOW	8,645lbs	3,921kg
Max Landing Weight	8,000lbs	3,629kg
Useful load	3,180lbs	1,442kg
Payload with full fuel	600lbs	272kg
Price	$2.54m	€1.98m

FLIGHT departments and owner-pilots are looking with interest at the latest from the Cessna Citation stable, the entry-level Mustang.

The aircraft received certification for single pilot operations in early September – the first of the new breed of jets to achieve full certification. It has a top speed of 340ktas, a range of 1,150nm (1323 statute miles/2130km – NBAA IFR Reserves) and a service ceiling of 41,000ft (12,500m) – well suited for getting above weather and commercial traffic for more efficient operations.

The Garmin G1000 equipped aircraft will be one of the first to take advantage of WAAS navigation features including Lateral Performance with Vertical Guidance approach (LPV) and WAAS Vertical Navigation (VNAV). WAAS is a GPS-based navigation and landing system that provides precision guidance to aircraft at airports where there are currently no precision landing capabilities. The Mustang will also be one of the first aircraft certified with the Garmin SafeTaxi feature.

Pratt & Whitney Canada has received initial certification from Transport Canada for the dual-channel FADEC-controlled PW615F engines..

The Mustang is being built in Independence Kansas with 19 aircraft in production for delivery in 2007. With nearly 250 orders, the Mustang is sold out into the third quarter of 2009. Currently, about 60 percent of Mustang orders are from outside of the United States, with 30 percent from Europe. Other significant markets include South America and Australia.

HERITAGE

Cessna celebrates its 80th anniversary this year (2007) and throughout its history it has a record of innovation and working the market to meet its loyal customer needs. Cessna currently manufactures nine business jet models and is the only general aviation manufacturer to certify 11 new jets in the last 10 years. The Mustang is the first of its kind and bridges the gap between the Citation jets and the turboprop aircraft on offer from the Wichita based company. Mustang was launched at the NBAA convention in 2002 and first flew on April 23 (Cessna promised a May 2005 first flight and beat that schedule) It is designated as a Citation 510.

EVIATION JETS EV20 VANTAGE

IN DEVELOPMENT

SPECIFICATION

Length	40' 8"	12.39m
Wingspan	49' 1"	14.973m
Height	15' 4"	4.66m
Cabin Length	17' 3"	5.26m
Cabin Width	5' 5"	1.65m
Cabin Height	5' 2"	1.52m
Cabin Volume	372 cu.ft	10.53m3
Max Range	1,203nm	2,228km
Max Seating	2 + 8	
Typical Seating	2 + 6	
Powerplant	2x Williams FJ44-1AP	1,971lbs / 8.77kN each
Avionics	Garmin G1000	
Max Cruise Speed	427KTAS	790km/h
Max Ceiling	41,000ft	12,496m
Rate of Climb	3,000fpm	914mpm
Take off Distance	2,500ft	762m
Landing Distance	2,500ft	762m
MTOW	9,250lbs	4,195kg
Max Landing Weight	8,850lbs	4,014g
Useful load	4,200lbs	1,905kg
Payload with full fuel	1,450lbs	657kg
Price	$3.25m	€2.53m

ANOTHER VLJ is planned to begin development in the workshops in Brazil. Eviation's twin jet Vantage is moving from the drawing board to a prototype to replace the single engine prototype.

The manufacturer will make use of the low cost facilities in Brazil and certify the aircraft with CTA (Brazilian civil aviation authority) who has a bilateral agreement with the FAA.

The preliminary specifications suggest it is likely to offer a useful load of 4,200lbs (1,905kg) a maximum cruise speed of 427ktas (790km/h) and a ceiling altitude of 41,000ft (12,496m).

Eviation Jets have chosen the Williams FJ44-1AP to power the aircraft with 1,971lbs (8.77kN) of thrust and Garmin to provide the avionics with its G1000 suite.

It will have seating for ten occupants in high density but it is believed that a corporate interior will seat six in the relatively roomy cabin.

The fuselage design is essentially the original single engine version, but by removing the single engine from its internal positioning this has extended the fuselage and now offers a cabin length of 17' 3" (5.26m).

It is expected that the aircraft will have a range of 1,203nm (2,228km) and carry 1,450lbs (658kg) of passengers, crew and baggage.

Effectively this equates to six passengers and a single pilot at 200lbs (90.7kg) each and a 50lb (22kg) total baggage allowance.

HERITAGE

The Vantage was originally being developed by VisionAire, however after having spent $110m on development, the company went bankrupt.

The present version was purchased by an Iowa property developer who obtained the intellectual rights for $441,000 in October 2003.

The Vantage started life with a single Pratt & Whitney JT15D-5 but has evolved to feature two Williams FJ44-1APs.

Only a prototype of the single engine VisonAire version currently exists but the critical design review has been completed and the revised design prototype will follow soon.

SPOTTER'S GUIDE

The Vantage will feature a straight wing with a T-tail with swept tail fin and tail plane. It will have five windows on each side with the Williams engines mounted either side of the rear fuselage.

IN DEVELOPMENT

EMBRAER PHENOM 100

SPOTTER'S GUIDE

The Phenom 100 has a low, swept dihedral wing with a T-tail with a highly swept tailplane and a distinctive dorsal fin. The P&WC engines are mounted high on the fuselage to the rear. There are four windows on each side.

SPECIFICATION

Length	41' 8"	12.7m
Wingspan	40' 4"	12.3m
Height	14' 4"	4.4m
Cabin Length	11'	3.35m
Cabin Width	5' 1"	1.55m
Cabin Height	4' 11"	1.5m
Max Range (4)	1,160nm	2,148km
Max Seating	2 + 6	
Typical Seating	1 + 4	
Powerplant	2x P&WC PW535E	1,615lb/7.18kN each
Avionics	Embraer Prodigy	
Max Cruise Speed	380ktas	703km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb		
Take off Distance	3,400ft	1,036m
Landing Distance	3,000ft	914m
MTOW		
Max Landing Weight		
Useful load		
Payload with full fuel		
Price	$2.85m	€2.22m

BRAZILIAN manufacturer Embraer is the fourth largest aircraft maker in the world and has a reputation for delivering great aircraft. The Phenom 100 is a VLJ that many analysts believe will raise the bar for the category.

It has all of the big business jet comforts. The Phenom's BMW-designed cabin is longer, taller and wider than its competitors which equates to more legroom, a wardrobe and a small refreshment area. It also features a conventional lavatory with a solid door rather than a curtained-off potty.

The aircraft also has 45 cubic feet of external baggage space, enough for golf clubs, skis or of course luggage and a further 10 cu.ft in the nose and cabin.

The Phenom 100 will be certified for up to eight people but the interior design best suits four in the cabin with two seats in the cockpit. It will be rated for single pilot operation.

The aircraft is powered by Pratt & Whitney Canada's PW617F engine, with 1,615lbs (7.18kN) of thrust giving a comfortable air taxi range of 1,160nm (2,148km) (NBAA IFR reserves with 100nm alternate) with four people onboard and it will have a maximum operating speed of Mach 0.7. The aircraft is designed for a short take off distance and is capable of flying at 41,000ft (12,497m).

Embraer anticipates the Phenom 100 will enter service in mid-2008.

HERITAGE

This is the first of its kind from Embraer. The company is also building a light jet, the Phenom 300 due in 2009. The company's record for reliability with its regional jet programme is outstanding and the company has offered a fixed fee maintenance programme. Embraer's entry into the light jet and VLJ markets was announced at EBACE in Geneva in May 2005 and the "Phenom" name unveiled at NBAA in Orlando in November 2005.

IN DEVELOPMENT

HONDAJET

HERITAGE

Honda began research in small business jets in 1986, the first aircraft was the Honda MH02 built purely as a technology test bed and was manufactured totally from composites. In 1999 Honda developed its own jet engine, the HF118 which was developed with General Electric as part of the GE Honda partnership. The engine was actually test flown on a Cessna Citation. The present HondaJet prototype first flew in December 2003.

SPECIFICATION

Length	41' 8"	12.7m
Wingspan	39' 11"	12.2m
Height	13' 2"	4.1m
Cabin Length		
Cabin Width		
Cabin Height		
Max Range	1,100nm	2,037km
Max Seating	2 + 4/5	
Typical Seating	1 + 4/5	
Powerplant	2x GE-Honda HF118	2,000lb / 8.9kN
Max Cruise Speed	420ktas	778km/h
Max Ceiling	43,000ft	13,106m
Rate of Climb		
Take off Distance	2,647ft	807m
Landing Distance	2,277ft	694m
MTOW	9,200lbs	4,173kg
Max Landing Weight		
Useful Load		
Payload with full fuel		
Price		

THE HondaJet is very much a work in progress, after its debut at Oshkosh in 2005 Honda proclaimed to have no plans to go into production - one year later at Oshkosh 2006 Honda announced it was going to pursue certification and production.

Honda has teamed with Piper to create a new premium dealer and service network to bring the aircraft to market and aims to have type certification sometime between 2009 and 2010. The over wing engine mounted design has been coupled with a natural laminar flow wing and nose – essentially this increases efficiency at cruise speed by reducing wave drag and surface friction drag with a high lift coefficient. It makes use of composite materials for the fuselage and preliminary performance specifications are promising. Honda claims that these aerodynamic design points and fuel efficient engines allow it to operate some 30-35% more efficiently than similar jets.

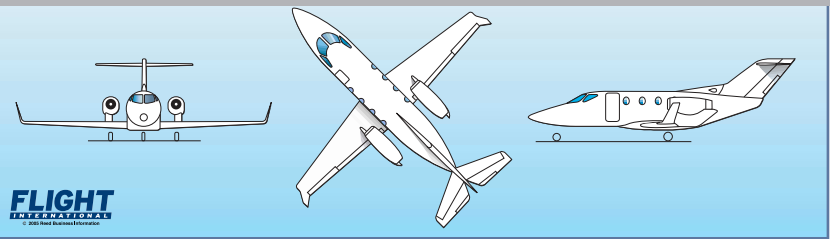
To date the prototype has completed more than 240 hours of flight-testing since July 2006 and has achieved an altitude of 43,000ft and a speed of 412ktas and is expected to meet or exceed all of its design specifications.

It is currently fitted with the Garmin G1000 avionics suite which comprises a primary flight display for pilot and co-pilot and a central multi-function display.

It will be powered by two GE-Honda HF118 turbofans delivering 2,000lbs (8.9kN) of thrust and be able to cruise at a maximum speed of 420ktas (778km/h). It is also expected that cabin noise levels will be lower due to the positioning of the engines and greater cabin space. The fuselage is constructed from a honeycomb sandwich structure and co-cured stiffened panels which reduce weight and manufacturing costs.

With a maximum take-off weight of 9,200lbs (4,173kg) places the HondaJet at the upper end of the VLJ category and could be comparable to the Cessna Mustang and Embraer Phenom 100. It is planned to have a range of 1,100nm (2,037km) and seat six or seven.

SPOTTER'S GUIDE



The Honda is obvious on the ramp because of the pod mounted engines above the wing. A T-tail and large winglets will also help to identify this jet.

IN DEVELOPMENT

SPECTRUM 33

HERITAGE

The Spectrum 33 is an all new composite eight seat business jet. Developed by Spectrum Aeronautical and its subsiduray Rocky Mountain Composites the two companies have developed the carbon fibre fuselage and wing by using a fibre-placement process called fibeX which helps to reduce weight. The Williams FJ33-4 powered aircraft was unveiled at NBAA in Orlando, Florida November 2005 and made its first flight from Spanish Fork to nearby Provo airport on 7 January 2006. US certification was scheduled for 2008.

SPECIFICATION

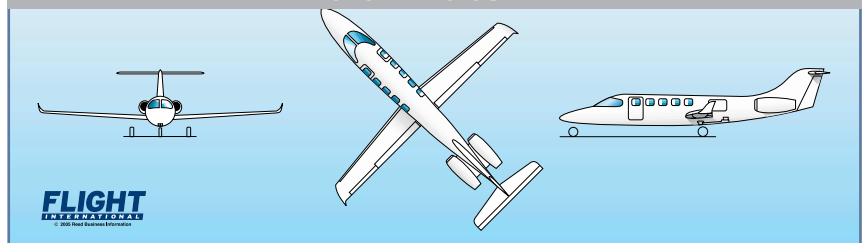
Length	45' 11"	13.99m
Wingspan	42' 1"	12.83m
Height	11' 8"	3.56m
Cabin Length	17' 6"	5.33m
Cabin Width	4' 10"	1.47m
Cabin Height	4' 10"	1.47m
Max Range	>1,750nm	>3.238km
Max Seating	1 + 9	
Typical Seating	1 + 6	
Powerplant	2x Williams FJ33-4	1,568lbs/ 6.97kN each
Avionics	TBC	
Max Cruise Speed	415ktas	768kmh
Max Ceiling	45,000ft	13,716m
Rate of Climb	5,082fpm	1,549mpm
Take off Distance	<3,000ft	<914m
Landing Distance	<2,700ft	<823m
MTOW	7,300lbs	3,311kg
Max Landing Weight		
Useful load	3,680lbs	1,669kg
Payload with full fuel	909lbs	412kg
Price	$3.65m	€2.84m

A MAJOR setback to the Spectrum 33 test programme occurred when the only flying prototype crashed on July 25 2006. Preliminary accident reports believe the crash to have been caused by a maintenance error and subsequently the flying controls were reversed after a redesign to accommodate strengthened main landing gear.

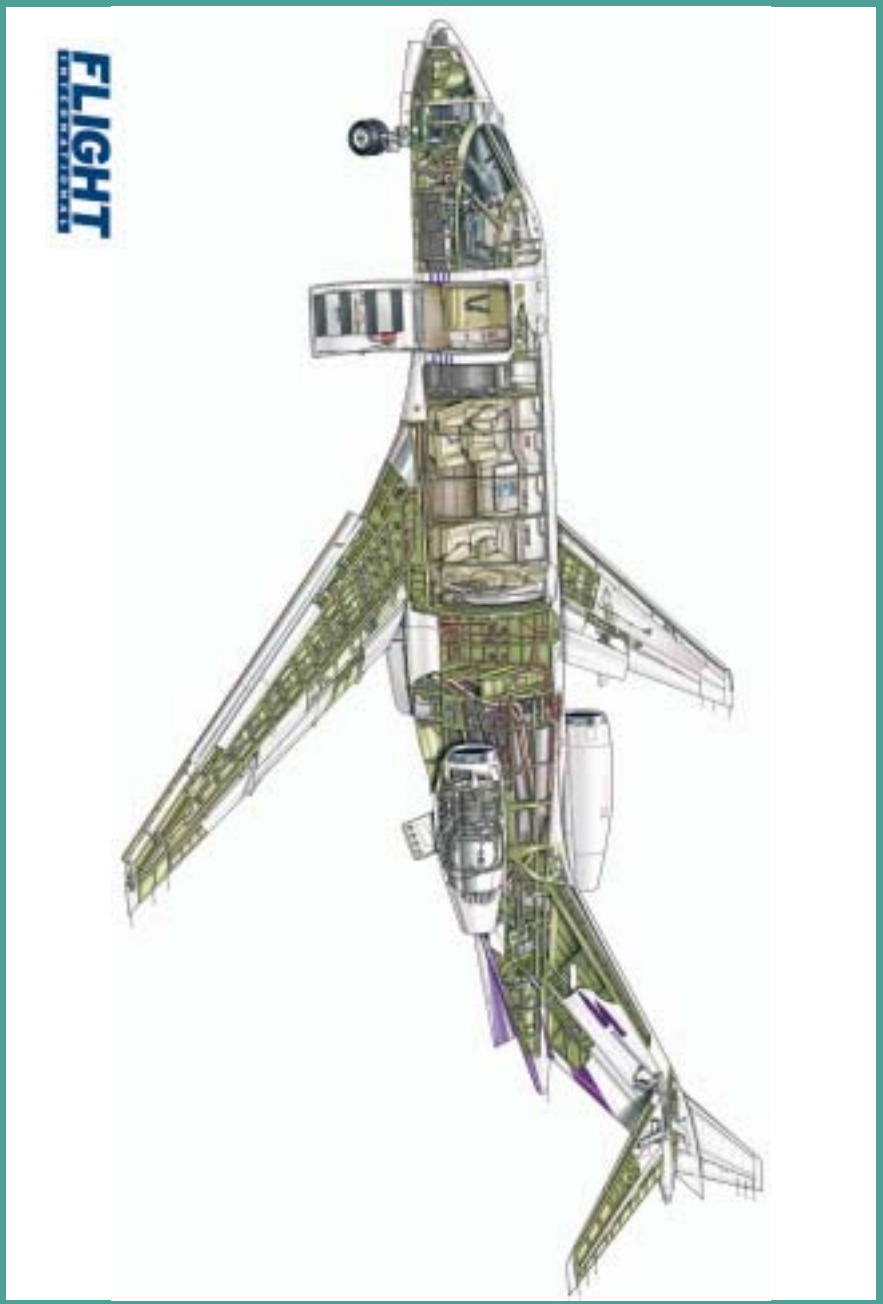
However, the preliminary specifications for the Spectrum 33 offer a good spread of capability. It is aimed to have an IFR range in excess of 1,750nm (3,238km) whilst being able to cruise at a ceiling of 45,000ft (13,716m) at a maximum cruise speed of 415ktas (768km/h).

The Spectrum team is focused on getting back on schedule and calculates that their light weight design is key to boosting fuel efficiency and that the 33 will have a fuel cost of $0.71/nm ($0.38/km). Although the 33 can seat a maximum of nine passengers its maximum take off weight is only 7,300lbs (3,311kg) however it still has a useful load of 3,680lbs (1,669kg) with a typical basic empty weight of 3,620lbs (1,642kg). The empty weight is comparable to piston engine twins such as the Piper Seneca V - 3,406 lbs (1,545 kg) or the Beechcraft Baron – 3,922lbs (1,779kg).

SPOTTER'S GUIDE



The Spectrum 33 has a T-tail and rear pod mounted engines. The wings have a high aspect ratio (the aspect ratio refers to the total span of a wing divided by the mean chord – where the chord is the length from the leading edge to the trailing edge) un-swept wing with winglets. Essentially high aspect ratio wings tend to be long and narrow, and low aspect ratios short and stubby. The 33 features five windows on each side and the cabin door is on the port side.



8

Light Jets

Honeywell's market forecast anticipates deliveries of more than 3,250 jets in these segments between 2006 and 2016, an increase of more than 12 percent compared with delivery expectations the previous year. Several new or proposed entrants to the category indicate the growth potential.

■ Sino Swearingen's SJ30 is one of the new kids on the block. Certified in 2005 the aircraft is already developing a reputation for breaking speed and distance records for the segment. Artist Tim Hall.

CESSNA CITATION BRAVO

HERITAGE

The Bravo first flew in April 1995. A development of the Cessna 550 Citation II, it flies to an altitude of 45,000ft (13,216m) and carries up to seven passengers. The aircraft is manufactured at Cessna's production facilities in Wichita, Kansas. The Citation II was a stretched version of Citation I (Cessna 500) and first built in 1976, entering service in 1978. Some 733 aircraft were sold before the Bravo replaced it when entering service in 1997.

SPECIFICATION

Length	47' 2"	14.39m
Wingspan	52' 2"	15.9m
Height	15'	4.57m
Cabin Length	20' 10"*	6.31m*
Cabin Width	4' 9"	1.47m
Cabin Height	4' 8"	1.45m
Max Range (4)	1,744nm	3,232km
Max Seating	2 + 7	
Typical Seating	1 + 7	
Powerplant	2x P&WC PW530A	2,887lbs/12.84kN each
Avionics	Honeywell Primus 1000	
Max Cruise Speed	402ktas	745km/h
Max Ceiling	45,000ft	13,216m
Rate of Climb	3,190fpm	972mpm
Take off Distance	3,600ft	1,097m
Landing Distance	3,180ft	969m
MTOW	14,800ft	6,713kg
Max Landing Weight	13,500ft	6,123kg
Useful load	5,560lbs	2,522g
Payload with full fuel	736lbs	334g
Price	$6.145m	€4.886m

*Forward Pressure bulkhead to aft pressure bulkhead

NETJETS decision to invest in the Citation Bravo reinforced Cessna's claim that the Citation Bravo offers the rarest of win-win outcomes – more power on less fuel. As a result the Bravo flies 20 knots faster, climbs to altitude far more quickly, and covers even more distance non-stop than its predecessor – the Citation II

But following the success of the CJ3, Cessna is ending production of this light jet and are delivering the final orders this year.

The aircraft - powered by two Pratt & Whitney PW530A engines each delivering 2,287lbs (12.84kN) of thrust - will be in service for many years to come.

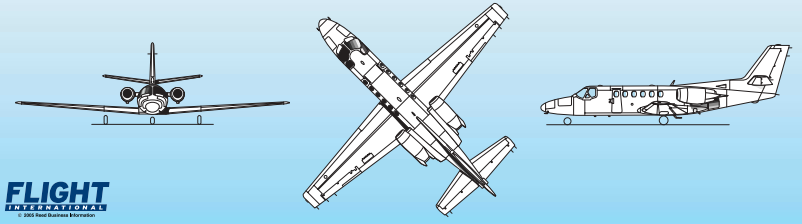
Bravo is certified for steep approach capability allowing it access to steep approach airports in Europe such as London City Airport in the UK, Lugano Airport in Switzerland and Seyer Airport in Germany.

The aircraft is equipped with Honeywell Primus 1000 integrated avionics system, with a Honeywell GNSX flight management system and an electronic flight information system, dual 7in x 8in screen primary flight displays and a 7in x 8in multi-function display.

The Honeywell navigation suite includes a VHF omni-directional ranger, distance measuring equipment and digital automatic direction finder, Honeywell VG-14A vertical gyroscopes and a C-14 compass set. The aircraft is fitted with a Honeywell Primus 660 colour weather radar.

The aircraft is fitted with single-wheeled hydraulically-retractable tricycle type landing gear. The trailing link system in the main landing gear gives smooth landing characteristics.

SPOTTER'S GUIDE



The Bravo aircraft is of similar construction to the Cessna CitationJet with tapered three-spar wings attached to the lower fuselage and the podded Pratt & Whitney engines mid-mounted to the rear fuselage. The T-tail has a tapered mid-set tailplane. There are six windows each side.

CESSNA CITATION CJ3

HERITAGE

The CJ3 first flew in April 2003. Flight testing of the engines began in August 2003. With a maximum take off weight of 13,870lb (6,290kg), the CJ3 was certificated for single-pilot operation under FAR 23 commuter-category rules, allowing a common type rating with the smaller CJ1 and CJ2 aircraft. It was certified by the FAA in October 2004 – just two years after it was launched at NBAA.

SPECIFICATION

Length	50' 2"	15.29m
Wingspan	53' 4"	16.26m
Height	15' 2"	4.62m
Cabin Length	15' 8"	4.78m
Cabin Width	4' 10"	1.47m
Cabin Height	4' 9"	1.45m
Max Range	1,875nm	3,475km
Max Seating	2 + 8	
Typical Seating	2 + 6	
Powerplant	2x Williams-Rolls FJ44-3A	2,820lb/12.54kN each
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	M 0.73	417KTAS/773km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	4,478fpm	
Take off Distance	3,180ft	969m
Landing Distance	2,770ft	844m
MTOW	13,870lb	6,291kg
Max Landing Weight	12,750lb	5,783kg
Useful load	5,370lb	2,436kg
Payload with full fuel	660lb	299kg
Price	$6.65m	€5.19m

TAKE a Citation CJ2 give it an extra 20 inches of cabin, add new engines and extend the wing and you have the CJ3 – the largest of the single pilot CJ series offered by Cessna.

The extra weight takes the CJ3 into the light jet category where its seven seat cabin is proving very competitive. While it is rated for single pilot operation it works well in the corporate environment – with two crew, four passengers and full fuel a range of 1,875nm (3,457km), including direct climb to 45,000ft in 27min is the norm.

The CJ3 had some difficulties with initial certification largely because of development problems with the aircraft's 2,780lbs (12.4kN) thrust Williams International FJ44-3A turbofan but early problems were ironed out and Cessna say the engines are proving to be very fuel efficient.

The CJ3 was very much a pioneering aircraft. As well as the new engines, Cessna introduced an expanded Rockwell Collins Pro Line 21 integrated avionics system. Becoming the first aircraft to have a file server as part of the standard avionics and the first to use electronic charts.

SPOTTER'S GUIDE

The aircraft has a 0.53m longer wing span, 0.3m taller vertical tail and a 0.15m longer tailcone to house the Goodrich full-authority digital engine control (FADEC) units. The aircraft is mainly of metal construction with low weight composite materials in the fairings, wing tips and tailplane tips. The CJ3 aircraft is of similar design to the original CitationJet with tapered three-spar wings attached to the lower fuselage and podded engines mounted above the rear fuselage. The T-tail has a tapered tailplane. It has seven windows on each side compared to four on the CJ1+ and six on the CJ2+.

NEW CESSNA CITATION ENCORE +

SPOTTER'S GUIDE

Encore is the largest of the straight wing Citations and also features the low swept tailfins with a large dorsal fin. It differs from the 550 series (Bravo) by the addition of a seventh window on either side. The two Pratt & Whitney engines are mid-mounted on the rear fuselage.

SPECIFICATION

Length	48' 11"	14.91m
Wingspan	54' 1"	16.48m
Height	15' 2"	4.62m
Cabin Length	17' 4"	5.28m
Cabin Width	4' 10"	1.47m
Cabin Height	4' 9"	1.45m
Max Range	1,760nm	3,262km
Max Seating	2 + 11	
Typical Seating	2 + 7	
Powerplant	2x P&WC PW535B	3,400lb/15.12kN
Avionics	Rockwell Collins Pro Line 21	
Max Cruise Speed	M 0.74	428KTAS/793km/h
Max Ceiling	45,000ft	
Rate of Climb	13,716m	
Take off Distance	3,590ft	1,094m
Landing Distance	2,770ft	844m
MTOW	TBD once Certified	
Max Landing Weight	TBD once Certified	
Useful load	6,430lb	2,917kg
Payload with max fuel	1,030lb	467kg
Price	$8.06m	€6.29m

CESSNA'S newest upgrade of the Citation 560 family – the Encore+ - was awaiting certification as this publication went to press. The Encore+ succeeds the Encore, offering increased efficiency, a new integrated avionics suite, increased payload capability, more standard equipment, and new interior styling features such as LED indirect cabin lighting.

Propulsion for the Encore+ is generated by twin Pratt & Whitney Canada PW535B engines equipped with dual-channel Full Authority Digital Engine Control (FADEC) and are rated at 3,400lbs (15.12kN) of thrust.

Maximum takeoff weight for the Citation Encore+ has been increased by 200lbs (90kg) over the Encore, enabling the typical operator to have a full fuel payload (in addition to two pilots) in excess of 1,100lbs (499kg). The Citation Encore+ is expected to be certified for single-pilot operation.

The avionics on the Encore+ are the most advanced available on this class of business jet. The integrated Collins Pro Line 21 avionics suite encompasses many of the same features as the Citation CJ3, CJ2+ and CJ1+. The heart of the integration resides in the File Server Unit (FSU) serving as a portal to display electronic charting, graphical weather, and enhanced mapping in the cockpit.

Other integrated avionics features include Pro Line 21 Communication, Navigation, and Surveillance (CNS) radios, and Collins FMS-3000 with performance database. The Encore+ is equipped with standard Terrain Collision Avoidance System (TCAS II), Mark VIII Enhanced Ground Proximity Warning System (EGPWS), and broadcast graphical weather including Next Generation Doppler Radar (NEXRAD) information, Meteorological Terminal Aviation Routine Weather Report (METARs), and textual Terminal Aerodrome Forecast (TAF).

HERITAGE

Citation Encore+ and Encore are part of the Citation 560 family developed from the Citation II which was first announced in 1987. The first production model was called the Citation V delivered to the launch customer in 1989; this was followed by the derivative Citation Ultra in 1993 fitted with EFIS and increased payload and performance and then in 1998 Cessna announced the addition of powerful PW315 turbofans and the designation Citation Encore. The Encore+ with the new engines first flew in March 2006 and is due to deliver to first customer early in 2007.

IN DEVELOPMENT

EMBRAER PHENOM 300

HERITAGE

The Phenom 300 is the second of the light jets being brought to market by Embraer – the first is the VLJ Phenom 100 which is due to be certified in 2008.
The 300 was announced at an investment analysts meeting in Washington on May 3rd 2005 and unveiled at EBACE a few weeks later.
The Phenom name was announced at NBAA in November 2005 and the aircraft is due to be certified and enter service in mid 2009.

SPECIFICATION

Length	50' 11"	15.5m
Wingspan	53' 2"	16.2m
Height	16' 4"	5m
Cabin Length	16'	4.9m
Cabin Width	5' 1"	1.55m
Cabin Height	4' 11"	1.5m
Max Range (6)	1,800nm	3,333km
Max Seating	2 + 7	
Typical Seating	1 + 7	
Powerplant	2x P&WC PW535E	3,200lbs/14.23kN each
Avionics	Embraer Prodigy	
Max Cruise Speed	450ktas	833km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb		
Take off Distance	3,700ft	1128m
Landing Distance	2,920ft	890m
MTOW		
Max Landing Weight		
Useful load		
Payload with full fuel		
Price	$6.65m	€5.19m

A LATE entry into the light jet market, but Brazilian manufacturer Embraer is confident that there is room and will argue that it is preparing an aircraft that will lead the class.

The manufacturer is offering premium comfort, outstanding performance and low operating cost with range, baggage space and speed performance targets that compare well.

It will be powered by Pratt & Whitney Canada's PW535E engine, with 3,200lbs (14.23kN) of thrust.

Comfortably accommodating up to nine people, the Phenom 300 range will be 1,800nm (NBAA IFR reserves with 100nm alternate) with six people onboard, and will have a maximum operating speed of Mach 0.78.

Up front the cockpit features a Prodigy flight deck, based on Garmin´s G1000 avionics system.

The panel features three 12-inch displays, with two PFDs and one multi-function display. The cockpit is the same as in the Phenom 100.

SPOTTER'S GUIDE

As a derivative of the Phenom 100 the outline is similar but the Phenom 300 is clearly bigger. There is much greater sweep of the low wings with winglets.
There is a T-tail and highly swept tailplane.
There are five windows on the left of the aircraft and six on the right.

IN DEVELOPMENT

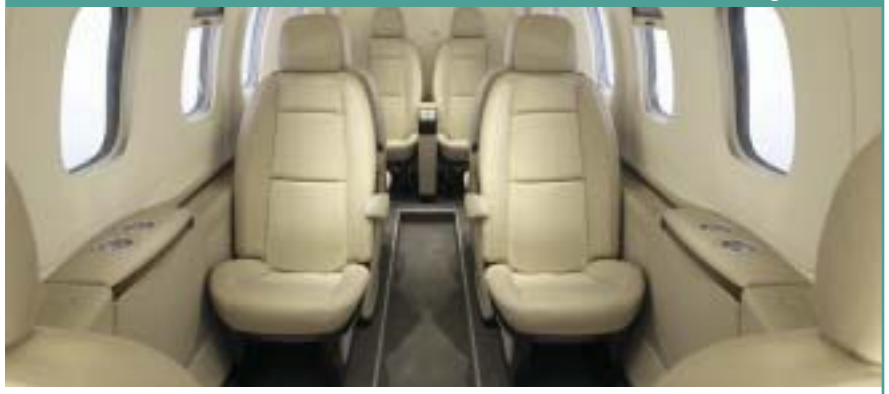
GROB SPn

SPOTTER'S GUIDE

The Grob SPn is an all-composite structure aircraft powered by two rear-mounted FADEC controlled Williams FJ44-3A turbofan engines. It low straight wings with winglets. A swept tailfin with mid-set swept tailplane. It has six windows on each side and features an exceptionally large cabin door with spyhole window.

SPECIFICATION

Length	48' 7"	14.81m
Wingspan	48' 9"	14.86m
Height	16' 10"	5.12m
Cabin Length	16' 9"	5.10m
Cabin Width	5'	1.52m
Cabin Height	5' 5"	1.64m
Max Range (6)	1,800nm	3,334km
Cabin Volume	406 cu.ft	11.5m3
Max Seating	1 + 9 / 2 + 8	
Typical Seating	1 + 6	
Powerplant	2x Williams FJ44-3A	2,820lbs/12.5kN each
Avionics	Honeywell Apex	
Max Cruise Speed	407ktas	754km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	4,360fpm	1,320mpm
Take off Distance	3,000ft	914m
Landing Distance	2,670ft	814m
MTOW	13,889lbs	6,300kg
Max Landing Weight	13,448lbs	6,100kg
Useful load	4,861lbs	2,205kg
Payload with full fuel	451lbs	205kg
Price	$7.43m	€5.8m



COMBINING the performance and passenger comfort of a light business jet with the operational versatility of a turboprop, German trainer manufacturer stunned the aviation world when it created a new class of "Utility Jet" aircraft behind closed doors and revealed an actual aircraft at the Paris air show.

The Grob SPn offers excellent range payload capability, robust short field performance, exceptional cabin volume and cargo conversion capability through its wide passenger door which is large enough to take a Euro-container.

With double club seating configuration (eight passengers in standard configuration) the cabin has 405 cu. ft. (11.5m^3) of space. Quick change capabilities allow this aircraft to accommodate cargo, passengers or both to a maximum payload of 2,491 lbs (1,130kg). A full lavatory is located forward in the standard configuration.

The Grob SPn sits high off the ground allowing easy ongoing operation from "unimproved" runways which are usually the exclusive domain of turboprops and are often comprised of gravel or grass surfaces. It will be certified for single-pilot operation.

The spacious cockpit features a Honeywell Apex suite. The Grob SPn comes fully equipped with state-of-the-art systems such as TCAS II with change 7 (Traffic Collision Avoidance System), EGPWS (Enhanced Ground Proximity Warning System) and FADEC (Full Authority Digital Engine Control).

HERITAGE

The Grob SPn was revealed to the world at the Paris Airshow in June 2005 as a fully assembled aircraft – including a full interior concept mock-up. The first flight followed in July 2005 with the second prototype appearing at EBACE, Geneva in May 2006. EASA certification is expected mid 2007 with FAA certification and first deliveries later in the year. The Grob SPn will be type certified in the "commuter category" for single-pilot operation under EASA CS 23 and FAA Part 23 regulations. The aircraft will be compliant for single-pilot operation under both VFR day/night, IFR and known icing conditions. It also will meet RVSM, MNPS and P-RNAV requirements. With a total of more than 3,500 aircraft produced and delivered globally, Grob Aerospace claims to be the world's largest and most experienced manufacturer of composite aircraft.

HAWKER 400XP

SPOTTER'S GUIDE

The Hawker 400XP has five windows on each side with a low swept wing and swept T-tail and tailplane. It also has a small ventral fin. The pair of Pratt & Whitney Canada JT15D-5 engines are mounted on the rear fuselage.

SPECIFICATION

Length	48' 5"	14.76m
Wingspan	43' 6"	13.26m
Height	13' 11"	4.24m
Cabin Length	15' 6"	4.72m
Cabin Width	4' 11"	1.50m
Cabin Height	4' 9"	1.45m
Max Range (4)	1,482nm	2,744km
Max Seating	2 + 9	
Typical Seating	2 + 7	
Powerplant	2x P&WC JT15D-5	2,965lb/13.19kN each
Avionics	Rockwell Collins Pro Line 4	
Max Cruise Speed	M0.78	450KTAS/833km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb		
Take off Distance	3,906ft	1,191m
Landing Distance	3,514ft	1,071m
MTOW	16,300lbs	7,394kg
Max Landing Weight	15,700lbs	7,121kg
Useful load	5,550lbs	2,517kg
Payload with full fuel	638lbs	289kg
Price	$7.14m	€5.57m

XP for Hawker – the larger jet brand for Raytheon Aircraft – stands for "Extended Performance" allowing the manufacturer to offer an extra seat or extra fuel for more range.

The Hawker 400XP is a key part of the NetJets fleet and typical layouts are for an eight-seat configuration with private lavatory compartment and refreshment facilities. The cabin length is 15'6" (4.72m) with a width of 4'11" (1.50m) and a height of 4'9" (1.45m).

Maximum range with a four-person payload is more than 1,476nm (2,734km) with IFR reserves and cruise speed is 465ktas (860km/h).

It is equipped with two Pratt & Whitney Canada JT15D-5 axial flow turbofan engines with standard Nordan thrust reversers. The engines are each rated at 2,965lb (13.19kN) take-off power.

HERITAGE

The aircraft is derived from the Mitsubishi MU-300 Diamond which first flew in 1978. Beech entered an agreement with Mitsubishi in 1985 to acquire the rights to the Diamond II and made a number of design modifications to improve the performance of the aircraft. It first flew in 1990 as the Beechjet 400A and in May 2003 was renamed the Hawker 400XP thanks to its increase in gross weight of 200lb (90kg). The aircraft also operates in a defence role as a military trainer for Japan and as a tanker trainer for the USAF where it is designated Beechjet T1A Jayhawk.

LEARJET 40 XR

SPECIFICATION

Length	55' 6"	16.93m
Wingspan	47' 8"	14.56m
Height	14' 1"	4.31m
Cabin Length	17' 7"	5.39m
Cabin Width	5' 1"	1.56m
Cabin Height	4' 9"	1.50m
Max Range	1,824nm	3,378km
Max Seating	2 + 7	
Typical Seating	2 + 6	
Powerplant	2x Honeywell TFE31-20BR	3,500lbs/15.56kN
Avionics	Honeywell Primus 1000	
Max Cruise Speed	M 0.81	465ktas/860km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	1,869fpm	569mpm
Take off Distance	4,680ft	1,426m
Landing Distance	2,660ft	811m
MTOW	21,000lb	9,525kg
Max Landing Weight	19,200lb	8,709kg
Useful load	7,285lb	3,304kg
Payload with full fuel	2,160lb	978kg
Price	$8.75m	€6.83m

THE first Learjet 40XR was delivered in December 2005 as a higher-performance variant of Bombardier's entry-level Learjet. The Learjet 40 is itself a derivative of the cutting-edge of the Learjet 45. The aircraft brings real hot and high-performance characteristics to the light market.

The XR's upgrade to Honeywell's TFE731-20BR powerplants from the original -20AR version on the Learjet 40, gives increased range out of high altitude, short runway destinations such as Aspen, Colorado and Jackson Hole, Wyoming.

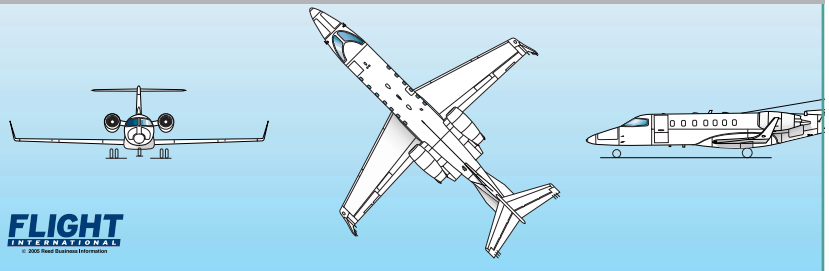
Weighing in at 21,250lbs (9,639kg), the 40XR boasts a cabin 17' 7" (5.39m) long with space for up to seven passengers.

However, normal operations are more likely to be four passengers and two crew where nominal cruise range will exceed 1,800nm (3,378km) with NBAA IFR reserves and the capability of achieving 51,000ft maximum operating altitude.

HERITAGE

Learjet is the Granddaddy of business jets, Bill Lear's first Learjet 23 launched in 1963 revolutionised the industry carrying seven passengers and outperforming the US Airforce frontline fighter aircraft (the F100) which could reach 40,000ft in just over seven minutes.
The phrase "jet set" was coined for people who would make use of this new form of transportation.

SPOTTER'S GUIDE



The Learjet 40 is a straightforward shrink of the 45. To pare the super light design down to fit the light jet niche, 24.5in (62cm) of fuselage was removed forward of the wing, along with three of the original 16 cabin windows. Six or seven windows will tell you the difference between the 40 and its big sister.

SINO SWEARINGEN SJ30

NEW

HERITAGE

Named the SJ30 because it was founder Ed Swearingen's thirtieth design it was conceived in 1986 but due to funding setbacks and the crash of the prototype in 2003 the project took longer than expected. However FAA certification was awarded in October 2005, icing and cabin certification were awarded in April 2006 and EASA certification is expected late 2007.

SPECIFICATION

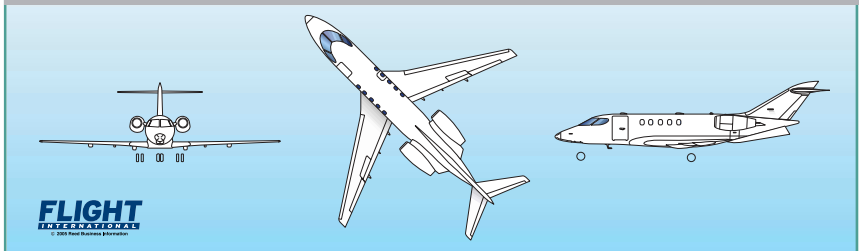
Length	46' 11"	14.95m
Wingspan	42' 4"	12.89m
Height	14' 3"	4.33m
Cabin Length	12' 6"	3.81m
Cabin Width	4' 10"	1.47m
Cabin Height	4' 4"	1.32m
Max Range	2,500nm	4630km
Max Seating	1 + 6	
Typical Seating	1 + 5	
Powerplant	2x Williams FJ44-2A	2,300lbs / 10.23kN each
Avionics	Honeywell Epic	
Max Cruise Speed	486ktas	900km/h
Max Ceiling	49,000ft	14,935m
Rate of Climb	3,700fpm	1,127mpm
Take off Distance	3,515ft	1,071m
Landing Distance	2,555ft	868m
MTOW	13,950lbs	6,340kg
Max Landing Weight	12,725lbs	5,784kg
Useful load	5,400lbs	2,454kg
Payload with full fuel	550lbs	249kg
Price	$6.195m	€4.83m

THE SJ30 is touted by Sino Swearingen as the world's fastest and longest-range light business jet available. It has a maximum cruise speed of 486ktas (900km/h) – 2kts slower than the Gulfstream G450 and a long range cruise of 2,500nm (4,630km). The SJ30 offers sea-level cabin pressurisation up to 41,000ft, at its ceiling of 49,000ft the cabin altitude is only 1,800ft. The cabin is a club four arrangement and the rear seats can be folded down to create a double bed. It is the only aircraft in its class to have leading edge slats which help to generate lift at slower speeds, thereby reducing stall speed and the approach speed – the slats compensate for the reduced efficiency of the swept wing which has optimum efficiency at high speed.

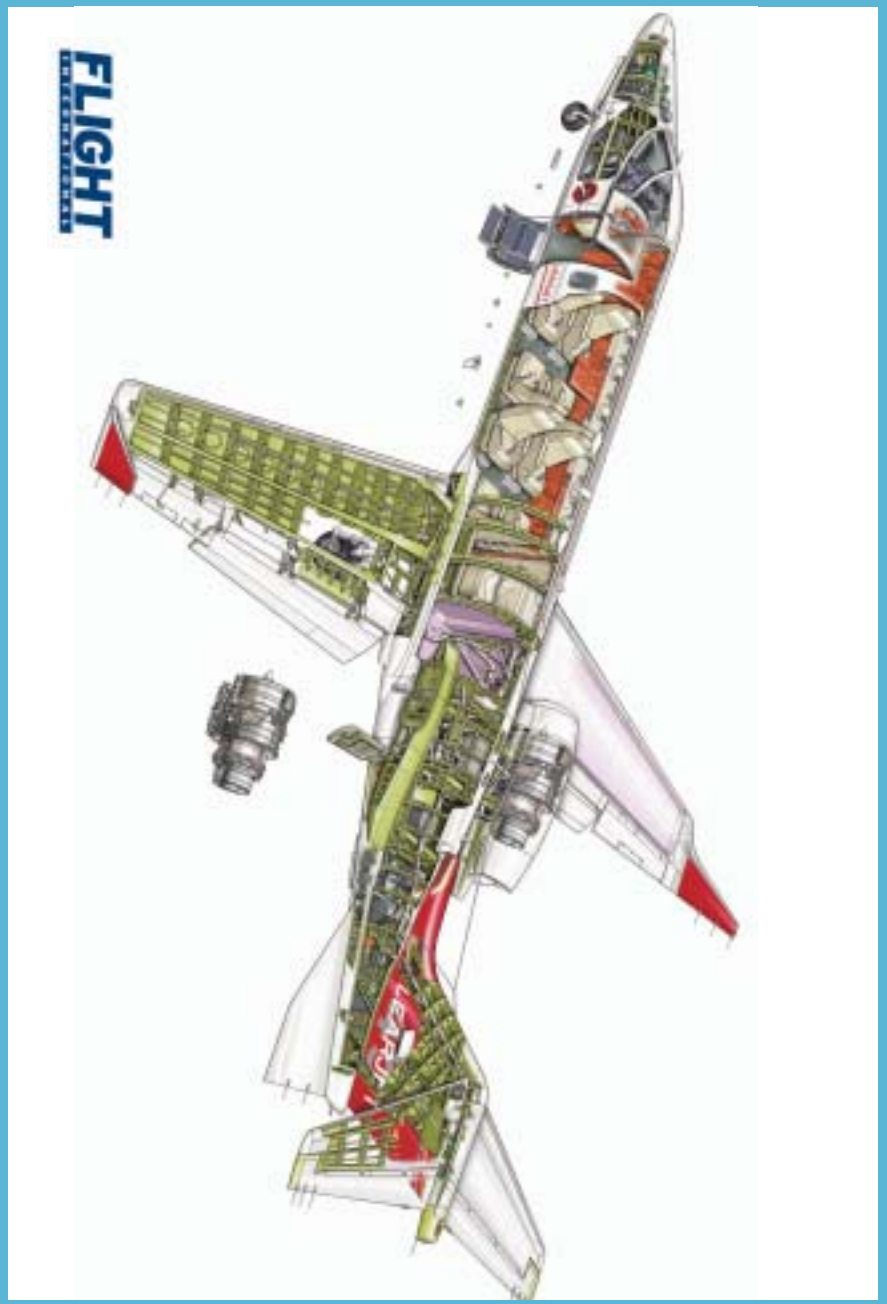
The two fuel efficient Williams FJ44-2A provide 2,300lbs (10.23kN) each and power the aircraft to a range of 2,500nm. Honeywell Epic avionics are the standard fit with three large 8-by-10-inch flat panel displays, with two primary flight displays (PFD), one for each pilot and a multi-function display in the centre.

The first aircraft was delivered in September 2006, and currently the programme is undertaking production ramp up. The SJ30 was shown at Farnborough in July 2006 having established a world record for a light business jet by flying from its US base in San Antonio, Texas to Farnborough in 10h 24min, including a 42min refuelling stop at Goose Bay, Canada, The jet flew Goose Bay-Farnborough direct, setting a speed and range record.

SPOTTER'S GUIDE



The SJ30 has a highly swept wing (32°) with five windows each side and a T-tail. The podded Williams engines are mid-mounted to the fuselage and similar to the LearJet, it has a single vertical fin under the tail.



9

Super Light Jets

Manufacturers are looking at upgrading, speed size and comfort while still remaining in the Light Jet category where the Cessna and Bombardier products go head to head for a share of the top end of this market segment.

■ The Learjet 45 is the first all-new Learjet since the original Learjet 23 launched almost 40 years earlier. Fast in the climb and smooth in the cruise it is a true Learjet.
Artist Tim Hall.

CESSNA CITATION XLS

HERITAGE

The Citation XLS carries the designation 560XL. Announced at NBAA in 1994 as the Citation XL, it made use of the wing and tail of the Encore and combined it with a shortened Citation X fuselage. Once in production it was renamed the Excel.
The Excel first flew in February 1996.
The upgraded XLS took over in 2004.

SPECIFICATION

Length	51' 10"	15.79m
Wingspan	56' 4"	17.17m
Height	17' 2"	5.24m
Cabin Length	18' 6"	5.64m
Cabin Width	5' 6"	1.68m
Cabin Height	5' 8"	1.73m
Max Range	1,939nm (full fuel MTOW)	3,593km
Max Seating	2 + 10	
Typical Seating	2 + 8	
Powerplant	2x P&WC PW545B	3,991lb/17.75kN each
Avionics	Honeywell Primus 1000	
Max Cruise Speed	M 0.75	433KTAS/802km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	3,500fpm	1,067mpm
Take off Distance	3,560ft	1,085m
Landing Distance	3,180ft	969m
MTOW	20,200lbs	9,163kg
Max Landing Weight	18,700lbs	8,482kg
Useful load	7,600lbs	3,447kg
Payload with full fuel	860lbs	390kg
Price	$10.7	€8.35m

WITH about a million hours of operation and more than 500 aircraft sold it is no wonder that the XLS – and the Excel before it – has been described as the "workhorse" for short-range charter operators.

Customers like the stand-up cabin, and operators like the economy, purchase price, operating cost, ease of maintenance and field service support.

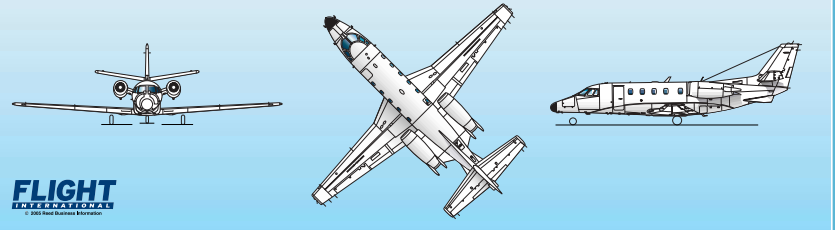
The 560 series began with the Citation XL, which was granted Federal Aviation Administration type certification in April 1998. The XL received a block point change in 2004 and became the XLS.

The XLS travels as fast as 500mph, has a range of more than 1,800nm (3,334km), climbs direct to 45,000ft (13,716m) in 29 minutes, and can land on runways as short as 3,560ft (1,085m).

The first European delivery, to an operator in Portugal, occurred late in 2004.

The Excel was one of the first applications for the new generation PW-500 series engines.

SPOTTER'S GUIDE



The XLS has six windows on the port side and five on starboard of this shortened Citation X fuselage (the same fuselage cross section as the Citation III, VI and VII). Look for the modified unswept supercritical wing and, the cruciform tail configuration and two ventral strakes.

BOMBARDIER LEARJET 45 XR

SPECIFICATION

Length	57' 6"	17.56m
Wingspan	47' 8"	14.56m
Height	14' 1"	4.31m
Cabin Length	19' 8"	6.02m
Cabin Width	5' 1"	1.56m
Cabin Height	4' 9"	1.50m
Max Range	2,087nm	3,865km
Max Seating	2 + 9	
Typical Seating	2 + 6	
Powerplant	2x Honeywell TFE7361-20-BR	3,500lbs/15.56kN
Avionics	Honeywell Primus 1000	
Max Cruise Speed	M 0.81	465ktas/860km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	1,720fpm	524mpm
Take off Distance	5,040ft	1,536m
Landing Distance	2,660ft	811m
MTOW	21,500lbs	9,752kg
Max Landing Weight	19,200lbs	8,709kg
Useful load	7,610lb	3,451kg
Payload with full fuel	1,800lbs	816kg
Price	$11.15m	€8.67m

THE Learjet 45 XR is proving popular with charter operators around the world. The upgraded derivative of the Learjet 45 has improved performance characteristics for hot and high fields thanks to the Honeywell TFE731-20BR-engines, upgraded from the 731-20AR

Like all of the Learjet models, Bombardier prides itself on its unmatched time-to-climb performance.

The aircraft will typically fly nearly 2,000nm (3,675km) with eight passengers on board.

With four passengers it has a maximum range of 2,087nm (3,865km).

A high speed cruise of Mach 0.81 (465 ktas or 860km/h) at 51,000ft (15,545m) puts it way above commercial traffic.

It can climb to 43,000ft in just 25 minutes with maximum gross take off weight.

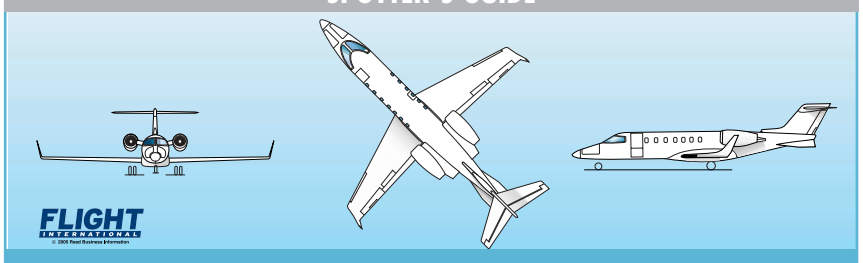
The Learjet 45 with the –AR engines are still available, but with reduced value on re-sale are not so popular and since the first delivery in July 2004 the XR is easily the most popular choice.

It can carry up to nine passengers.

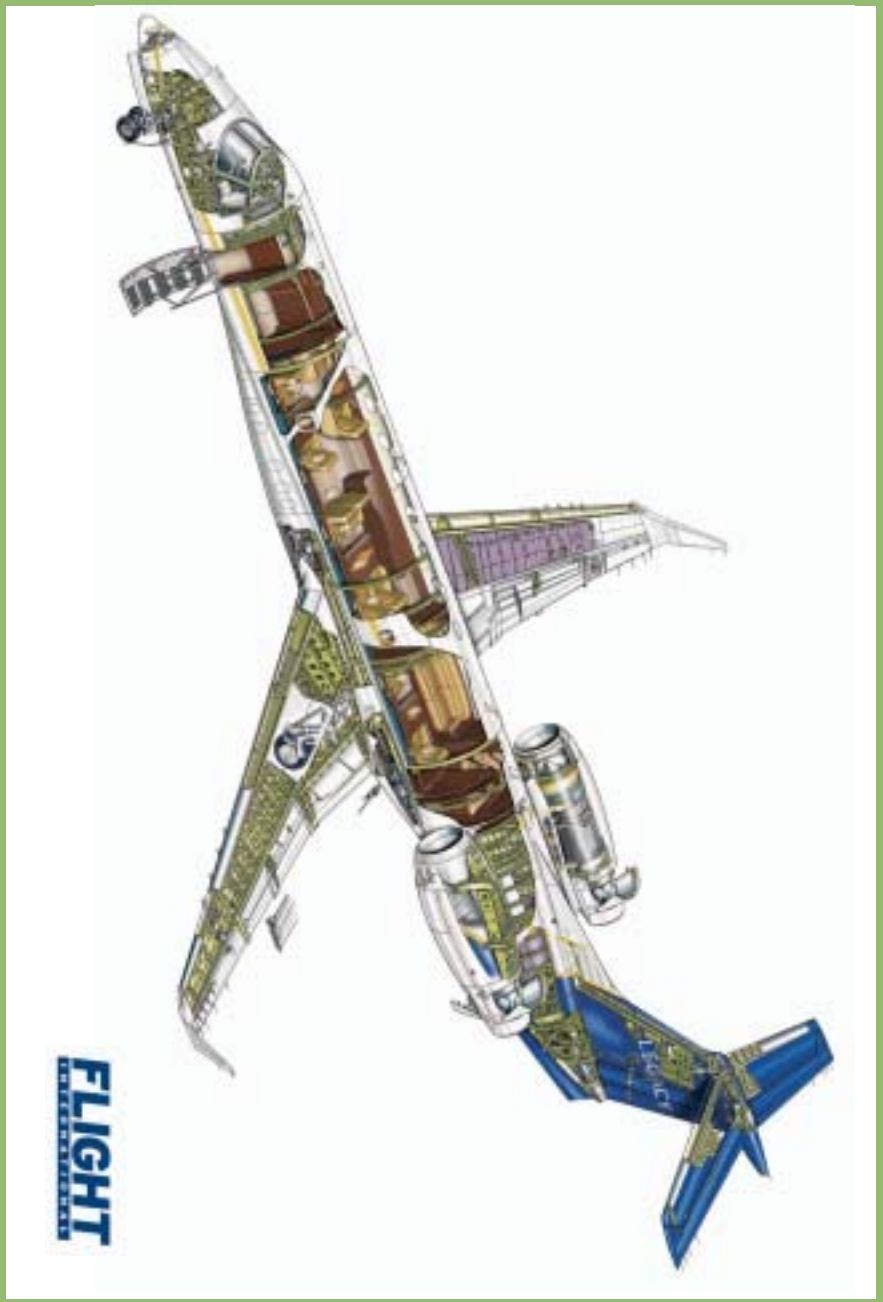
HERITAGE

The Learjet 45 launched in September 1992 was the first all-new Learjet since the original Learjet 23 launched almost 40 years earlier. The aircraft was the first business-jet to be fully designed on computer rather than paper (CAD).
A smaller derivative of the aircraft was launched as the Learjet 40 in 2002.
The Learjet 45 was the first business jet under 35,000lbs to receive type approval from Europe's JAA.

SPOTTER'S GUIDE



The Learjet 45XR has eight windows on each side plus the T-tail and the Learjet winglets makes it easily recognisable on the ramp.



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

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

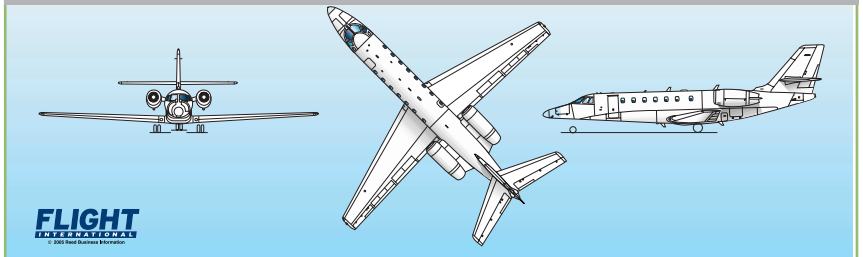
TWELVE passengers can be taken on Cessna's King of the Mid-Size jets. The Sovereign was designed to meet specific growing market needs for this category of aircraft. Its stand-up cabin is 25' 3" in length and 5' 9" in height – the largest of any Citation - with an in-cabin baggage storage compartment 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

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 (40.0m^3) cabin area.

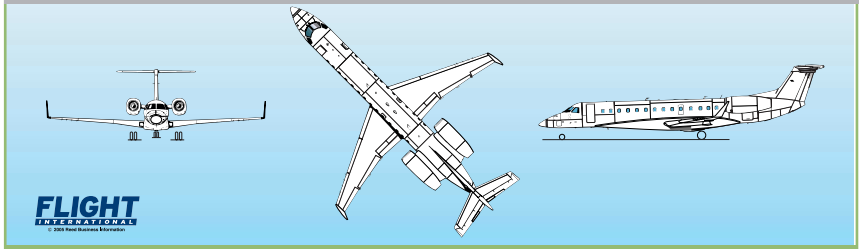
Embraer's designers developed a concept of three cabin zones which provides comfort and privacy for the passengers.

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.

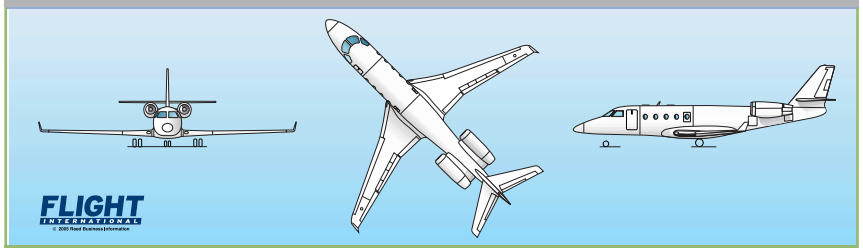
HERITAGE

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

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

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 superceded 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.

11

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

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

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

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

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 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.

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.

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	17.98m3
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

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 preproduction 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

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.

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.

SPOTTER'S GUIDE

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

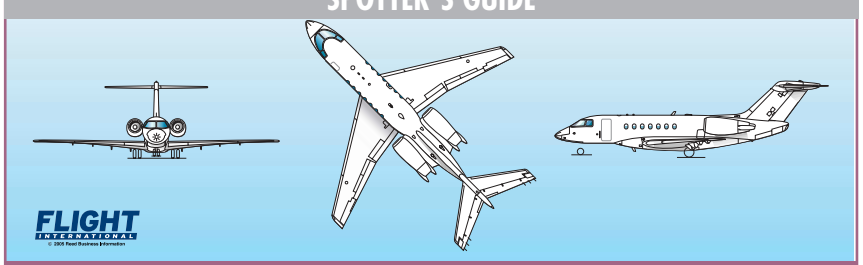
GOOD things come to those who wait – The Hawker 4000 (formerly Hawker Horizon) is five years behind schedule but Raytheon is now positioned to deliver the newly certified aircraft.

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



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.

12

Large Jets

Honeywell forecasts delivery of more than 1,300 large business jets over the next ten years with deliveries expected to peak in 2007 at just over 100 aircraft, then decline slightly to a stable level of around 95 aircraft per year until stepping up again in 2012 and beyond. OEMs are working at upgrading or downsizing to meet the range and size requirements to suit the fractional operators.

■ Dassault's Falcon 2000 is fostering two derivatives the 2000EX and the 2000DX giving optimum short range trips with large cabin comfort.
Artist Tim Hall.

BOMBARDIER CHALLENGER 605

IN DEVELOPMENT

SPECIFICATION

Length	68' 5"	20.85m
Wingspan	64' 4"	19.61m
Height	20' 8"	6.30m
Cabin Length	28' 5"	8.66m
Cabin Width	8' 2"	2.49m
Cabin Height	6' 1"	1.85m
Max Range (5)	4,045nm	7,491km
Max Seating	3 + 12	
Typical Seating	3 + 9	
Avionics	Rockwell Collins Pro Line 21	
Powerplant	2x GE CF34-3B	8,729lb / 38.84 kN
Max Cruise Speed	M 0.82	470 KTAS / 870 km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	1,681fpm	512mpm
Take off Distance	5,480ft	1,780m
Landing Distance	2,777ft	846m
MTOW	48,200lb	21,863kg
Max Landing Weight	38,000lb	17,237kg
Useful load	21,215lb	9,623kg
Payload with full fuel	4,915lb	2,229kg
Price	$26.7m	€20.83m

BOMBARDIER listened to its customers with the redesign of the best-selling large business jet which has become the Challenger 605.

A 14% increase in window size over the original 604 has given more than 30% increase in cabin light and a better line of sight for passengers.

The 605 has altogether a much lighter and improved feel with changes to the cabin electronic system, to the galley and to the lavatory.

First customer delivery is due in the third quarter of 2007.

The new Challenger was launched in November 2005 with first flight in January 2006.

The aircraft's capacity for three crew and 12 passengers makes it a promising option for the corporate market.

The 605 is fitted with the Rockwell Collins Pro Line 21 avionics.

The Canadian manufacturer delivered the last 604 with the PrecisionPlus upgrade of its Pro Line 4 avionic suite in mid 2006.

HERITAGE

A successor to the Challenger 604 – which itself is part of the Challenger 600 series with first flight in November 1978. More than 700 aircraft of the series have been manufactured since. Continual improvements with the 601-1A, 601-3A, 601-3R through to the 604 have seen range and payload growth.

SPOTTER'S GUIDE

Although only two inches (5cm) bigger than the 604 windows, the Challenger 605 windows look much larger. A good identifier for the Challengers is the arced mounting for the engines. The low swept wing with winglets give this aircraft a fine look. The new Challenger tailcone has an angular finish, not flush like that of the 604.

IN DEVELOPMENT

DASSAULT FALCON 2000DX

DASSAULT has listened to its customers who want to operate shorter range trips but want the comfort and performance of a large-cabin aircraft.

The company has come up with the Falcon 2000DX which is based on the design of the 2000EX, but the range has been reduced by 550 nautical miles to 3,250nm (6,010km) – still some 250nm (460km) more than the original Falcon 2000 which it will replace.

Among its capabilities, the 2000DX will be able to climb directly to 41,000ft in 17 minutes. It will also feature an EASy cockpit.

SPOTTER'S GUIDE

As a straight derivative of the 2000EX there is no external difference. Like the 2000 it features 10 windows, a low swept wing, a tall swept tail fin with mid-mounted swept tailplane and a Pratt and Whitney Canada PW308C engine on either side of the rear fuselage.

SPECIFICATION

Length	66' 4"	20.21m
Wingspan	63' 5"	19.33m
Height	23' 2"	7.06m
Cabin Length	26' 2"	7.98m
Cabin Width	7' 8"	2.34m
Cabin Height	6' 2"	1.88m
Cabin Volume	1,024 cu.ft	28.99m3
Max Range (6)	3,250nm	6,019km
Max Seating	2 + 19	
Typical Seating	2 + 18	
Powerplant	2x P&W PW308C	7,000lb / xkN each
Max Cruise Speed	476ktas	882km/h
Max Ceiling	47,000ft	14,326m
Rate of Climb	2,412fpm	735mpm
Take off Distance	4,800ft	1,463m
Landing Distance		
MTOW	41,000lbs	18,598kg
Max Landing Weight	39,300lbs	17,826kg
Useful load	18,010lbs	8,169kg
Payload with full fuel	3,410lbs	1,547kg
Price	$25.55m	€19.93m

HERITAGE

The Dassault Falcon 2000DX is a direct replacement for the Falcon 2000 and a shorter range version of the 2000 EX, achieved by taking 2,000lb (900kg) of fuel capacity out of the 2000EX. First flight is planned for June 2007 and certification and first deliveries at the end of the year The Falcon 2000 was announced at the Paris Air Show of 1989 (as Falcon X) and first flew in March 1993 with first delivery in February 2005.

DASSAULT FALCON 2000EX

HERITAGE

The Falcon 2000, on whose platform the 2000EX is based, was originally designed for U.S. transcontinental travel; easily able to cover 3000 nm at Mach 0.80 with NBAA IFR reserves. The popularity of the plane introduced the need for a longer-range model, and ten years after the 2000's launch, the 2000EX was born. The EX offers a higher performing engine, a 30% increase in fuel capacity and an almost 800 nm gain over its sibling. The programme was launched in October 1999 and had first flight in October 2001 followed by joint FAA and JAA certification in March 2003. with first deliveries two months later. EASy flight deck was introduced during 2004.

SPECIFICATION

Length	66' 4"	20.21m
Wingspan	63' 5"	19.33m
Height	23' 2"	7.06m
Cabin Length	26' 2"	7.98m
Cabin Width	7' 8"	2.34m
Cabin Height	6' 2"	1.88m
Cabin Volume	1,024 cu.ft	28.99m3
Max Range (6)	3,800nm	7,037km
Max Seating	2 + 19	
Typical Seating	2 + 8	
Powerplant	2x P&W PW308C	7,000lb / xkN each
Max Cruise Speed	480ktas	889km/h
Max Ceiling	47,000ft	14,326m
Rate of Climb	1,952fpm	595mpm
Take off Distance	5,374ft	1,638m
Landing Distance	5,839ft	1,780m
MTOW	42,200lbs	19,142kg
Max Landing Weight	39,300lbs	17,826kg
Useful load	18,110lbs	8,215kg
Payload with full fuel	1,450lbs	658kg
Price	$27.2m	€21.22m

EUROPE'S business jet manufacturing industry is led by Dassault and the French company has made its name worldwide with its Falcon 2000 family.

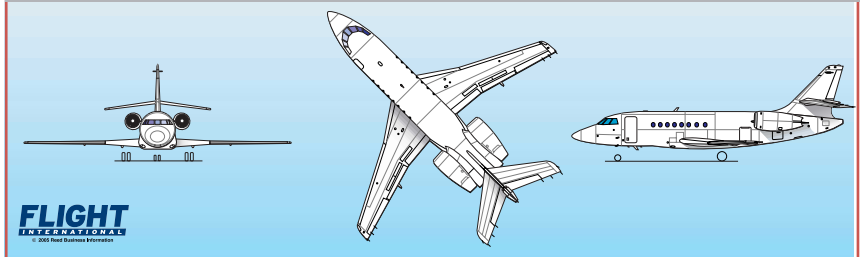
The cabin can accommodate up to 19 passengers. The forward part of the passenger cabin is arranged as a four-seat lounge.

The rear part of the cabin is set out with a two-seat sofa and four seats. The cabin is 1.88m high, 2.34m wide and the cabin floor has a length of 7.98m.

The flight deck was initially equipped with the ProLine IV, but is now supplied fitted with the Honeywell EASy Enhanced Avionics System, as on the Falcon 900EX. EASy is based on the Primus Epic system with improved safety and information management features (See Falcon 7X, p202).

The 3.79m-pressurised baggage compartment is externally loaded, internally accessible and stows up to 725kg.

SPOTTER'S GUIDE



The Falcon 2000 is a direct descendent of the Falcon 900 – but without the third engine. The P&WC 308C engines are mounted on the sides of the rear fuselage. There are only nine windows compared to the F900's 12, but there is a similar tall swept tail fin and mid mounted swept tailplane.

GULFSTREAM G350

SPECIFICATION

Length	89' 4"	27.23m
Wingspan	77' 10"	23.72m
Height	25' 2"	7.67m
Cabin Length	45' 1"	13.74m
Cabin Width	7' 4"	2.24m
Cabin Height	6' 2"	1.88m
Max Range (8)	3,800nm (M 0.80)	7,042km
Max Seating	3 + 19	
Typical Seating	3 + 12-16	
Powerplant	2x Rolls-Royce Tay Mk 611-8C	13,850lb/61.6kN each
Avionics	Honeywell Primus Epic	
Max Cruise Speed	M 0.80	459KTAS/850km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	3,960fpm	1,207mpm
Take off Distance	5,050ft	1,539m
Landing Distance	3,260ft	994m
MTOW	70,900lbs	32,160kg
Max Landing Weight	66,000lbs	29,937kg
Useful load	28,200lbs	12,790kg
Payload with full fuel	2,600lbs	1,179kg
Price	$29.5m	€23.02m

THE Gulfstream G350 is a sister to the G450, built on the same fuselage but with very different missions in mind. The 350 was planned to take in the sector that the Gulfstream III had dominated with mid range but large cabin.

It was developed specifically for customers who require ample seating and cargo space, but who don't need long- or ultra-long-range capability. The aircraft features a huge array of standard equipment items, including Gulfstream's PlaneView cockpit, based on Honeywell's Primus Epic.

Also available as optional equipment are the next-generation Visual Guidance System, Honeywell Head-Up Display (HUD) and the exclusive Gulfstream Enhanced Vision System. (EVS). Many customers have also opted for the Broadband Multi-Link (BBML) system, enabling high-speed Internet access.

Two Rolls-Royce Tay 611-8C engines provide the motion, enabling cruise altitudes up to FL450 and speeds up to Mach .88. The G350 typically seats 12 to 16 passengers in a cabin pressurised to 6,000ft when flying at its maximum altitude.

HERITAGE

The G350 has found its way as replacement for the Gulfstream III via a brief incarnation as the G300. However, in comparison with the G300, the G350 features an additional range of 200nm (370km), a roomier cabin and cockpit and baggage area, an advanced technology flight deck and an upgraded cabin environmental control system.

The G350 business jet was first announced on February 23, 2004, at the Asian Aerospace show in Singapore. On November 1, 2004, it was certified by the FAA and, on March 30, 2005, it received validation from the European Aviation Safety Agency.

It is similar in design to its sister ship, the large-cabin, long-range G450. While the G450 can fly 550nm (1,019km) farther than the G350, both aircraft feature the same spacious cabin. The first aircraft was delivered in July 2005.

SPOTTER'S GUIDE

The G350 and the G450 are virtually identical and impossible to tell apart on the ramp.

13

Super Large Jets

These are specialist purpose built business jets rather than conversions and among the most fiercely contested of all aviation market places. Honeywell believes that this segment, combined with ultra long range aircraft will lead to deliveries of more than 1,600 aircraft in the next 10 years. There could be as many as 170 aircraft during peak years. The Bombardier Global 5000 and the Gulfstream 450 often go head-to-head but Dassault with its two Falcon 900 variants is challenging hard.

■ The Gulfstream 450 is a derivative of the classic Gulfstream GIV series and features all of the latest technologies available in the industry.
Artist Tim Hall.

BOMBARDIER GLOBAL 5000

SPECIFICATION

Length	96' 10"	29.5m
Wingspan	94'	28.6m
Height	25' 6"	7.7m
Cabin Length	42' 6"	12.94m
Cabin Width	8' 2"	2.49m
Cabin Height	6' 3"	1.91m
Cabin Volume	1,882 cu.ft	53.29m3
Max Range (8)	4,800nm	8,889km
Max Seating	3 + 17	
Typical Seating	3 + 8	
Powerplant	2x Rolls Royce Deutschland BR710A2-20	14,750lbs/65.6kN each
Avionics	Honeywell Primus 2000XP	
Max Cruise Speed	M0.89	513ktas/950km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	1,869fpm	569mpm
Take off Distance	5,000ft	1,524m
Landing Distance	2,670ft	814m
MTOW	87,700lbs	39,893kg
Max Landing Weight	78,600lbs	35,652kg
Useful load	36,870lbs	16,724kg
Payload with full fuel	1,120lbs	508kg
Price	$36.7m	€28.63m

THIS intercontinental jet is designed to fill the niche in Bombardier's product line between the Challenger 604/605 and the ultra-long-range Global Express.

Powered by the same 14,750lbs (65.6kN) thrust Rolls-Royce Deutschland BR710 engines as the Global Express the Global 5000 has a shortened fuselage (32" - 77cm) – but without short cuts on performance.

The aircraft's zero flap takeoff capability allows operations at maximum take off weight at most airports worldwide. This means the Global 5000 can land at smaller airfields closer to business areas.

A balanced field length of just 5,000ft (1,525m) is required for a maximum range mission of 4,800nm (8,889km) at speed Mach 0.85.

For shorter missions it goes even faster - Mach 0.89 (590mph; 950 km/h) and can fly at a maximum ceiling of 51,000ft (15,545m).

The Global 5000 programme was launched in February 2002 and took its maiden flight in March 2003.

Transport Canada (TC) type certification was received in March 2004, European Joint Aviation Authorities (JAA) in July 2004 and US Federal Aviation Administration (FAA) in September 2004.

The aircraft entered service in April 2005, with a Middle East operator as the launch customer.

The aircraft is equipped with a Honeywell Primus 2000XP avionics suite with dual flight management systems, dual Category II autopilot systems and an automatic flight control system.

The long and wide cabin features the Rockwell Collins Airshow 21 integrated cabin electronics system and the Bombardier EVS as an option.

HERITAGE

The first true derivative of the Global Express which itself was the first clean-sheet designed ultra-long range business jet launched in 1993 with first flight in 1996 certification by Canada in July 1998, FAA in November 1988 and JAA in May 1999.
First customer delivery was July 23 1999.

SPOTTER'S GUIDE

The outline of the Global Express is easily recognisable with effectively a CRJ fuselage mated to a low swept supercritical wing with winglets. It also features a swept T-tail with swept anhedral tailplane. The 10 windows differentiates the Global 5000 from the original Global Express (13) and the Global XRS (15).

DASSAULT FALCON 900DX

SPOTTER'S GUIDE

The 900DX features the same tri-engine design as the 50EX and the 7X and has twelve windows each side compared to the fourteen of the 7X. It has swept wings without winglets and the mid-mounted tail is swept with anhedral. As a Falcon it is easily distinguished, but may be confused with the larger 7X.

SPECIFICATION

Length	66' 4"	20.21m
Wingspan	63' 5"	19.33m
Height	24' 9"	7.55m
Cabin Length	33' 2"	10.11m
Cabin Width	7' 8"	2.34m
Cabin Height	6' 2"	1.88m
Cabin Volume	1,264 cu.ft	35.79m3
Max Range (8)	4,100nm	7,593km
Max Seating	2 + 19	
Typical Seating	2 + 12	
Powerplant	3x Honeywell TFE731-60	5,000lb / 22.24kN each
Max Cruise Speed	474ktas	878km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	2,055fpm	627mpm
Take off Distance	4,890ft	1,490m
Landing Distance	3,530ft	1,076m
MTOW	46,700lbs	21,183kg
Max Landing Weight	42,200lbs	19,142kg
Useful load	22,430lbs	10,174kg
Payload with full fuel	3,600lbs	1,633kg
Price	$32.75m	€25.55m

THE900DX is a long range tri-jet featuring Dassault Falcon EASy flight deck and is powered by Honeywell TFE731-60 turbofans producing 5,000lbs (22.24kN) each. It is of a similar overall configuration to the smaller Falcon 50, it uses the same wing, but also offers a wider and longer fuselage.

It can comfortably transport eight passengers 4,100nm (7,593km) and can easily fly from Paris to Chicago and doesn't need three miles of runway at the other end.

At maximum take off weight of 46,700lbs (21,183kg) it will clear the 50' (15m) perimeter fence in 4,890ft (1,490m).

This fast, long range, jet offers 1,264 cubic feet (35.79m^3) of cabin space, ample room for the typical eight passenger configuration whilst being able to cruise at 51,000ft (15,545m) and a maximum of 474ktas – this jet means business.

HERITAGE

The first 900 series Falcon was announced in 1983 as a development of the Falcon 50. It first flew in 1984 and was certified in March 1986 and first delivery occurred in December that same year. It has replaced the 900C and bridges the gap between the $25m 2000EX and the $35m 900EX. It flew for the first time on 13 May 2005 after having been announced at EBACE in 2004 and certification was awarded in October 2005.

DASSAULT FALCON 900EX

HERITAGE

Dassault announced the development of the 900EX in October 1994 and entered the development program with risk sharing partners, Alenia, Hellenic Aircraft Industries, Honeywell, Latecoere and SABCA, which provided 20% of the funding. The 900EX completed its first flight in June 1995 FAA certification was granted in July 1995 and the aircraft entered service in November 1996 with Anheuser-Busch Companies Inc. The aircraft is an upgraded version of the Falcon 900 which was announced at the Paris Airshow in June 1982. The 900 is a derivative of the Falcon 50.

SPECIFICATION

Length	66' 4"	20.21m
Wingspan	63' 5"	19.33m
Height	24' 9"	7.55m
Cabin Length	33' 2"	10.11m
Cabin Width	7' 8"	2.34m
Cabin Height	6' 2"	1.88m
Cabin Volume	1,264 cu.ft	35.79m3
Max Range (8)	4,500nm	8,334km
Max Seating	2 + 19	
Typical Seating	2+ 12	
Powerplant	3x Honeywell TFE731-60	5,000lb / 22.24kN each
Max Cruise Speed	474ktas	882km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	3,880fpm	1,182mpm
Take off Distance	5,215ft	1,590m
Landing Distance	3,522ft	1,074m
MTOW	49,000lbs	22,226kg
Max Landing Weight	44,500lbs	18,641kg
Useful load	23,800lbs	10,796kg
Payload with full fuel	2,800lbs	1,270kg
Price	$36.15m	€28.2m

WITH its classic trijet engine design, the Falcon 900EX can use small airports at high altitudes, even on hot days. It's the most versatile aircraft and also one of the safest given, its ability to fly slower on approach than its twinjet competitors... and that can be after a 4500nm (8,334km) nonstop flight.

The 900EX cabin length measures 33' 2"(10.11m) from the cockpit divider to the aft pressure bulkhead, devoting 25'(7.62m) to passenger seating. It is a broad 7' 8" (2.34m) wide and 6' 2" (1.88m) high so passengers can move about easily.

Dassault has always been a leader in cabin comfort and facilities.

Computers, fax, telephone, SATCOM, digital datalink, copiers, video displays and conference tables ensure productive flights – and as you would expect from a classic French design there is a galley fully equipped for multiple meals.

The 900EX was the first to incorporate the EASy flight deck born out of a military heritage that demands a highly intuitive and performance enhancing flight environment.

SPOTTER'S GUIDE

The 900EX features low swept and tapered wings with three Honeywell TFE731-60 turbofan engines each providing 5,000lbs (22.24kN) of thrust, two mounted on the sides of the rear fuselage and one on top of the fuselage at the base of the tail. There is a tall swept tailfin and a mid-mounted highly swept tailplane. There are 12 windows on either side of the aircraft.

GULFSTREAM G450

HERITAGE

Gulfstream GIV/GIV-SP/G400, of which 500 aircraft were built and sold between 1982 and 2002, formed the basis for the G450. The GIV entered service in June,1987 and in December 2002, the last GIV was "rolled out" and the manufacturing line was transitioned to produce the Gulfstream G300 and G400.
The first G450 test aircraft completed its first flight on April 30th 2003, FAA type certification was awarded in August 2004 and in November 2004 the European Aviation Safety Agency (EASA) validated the FAA certification.
Gulfstream are proud of the commonality of the G450 with the G350 and to a degree the G500 and G550 which allows simple pilot type conversions and impressive savings for spares.

SPECIFICATION

Length	89' 4"	27.23m
Wingspan	77' 10"	23.7m
Height	25' 2"	7.67m
Cabin Length	45' 1"	13.74m
Cabin Width	7' 4"	2.24m
Cabin Height	6' 2"	1.88m
Max Range (8)	4,350nm	8,061km
Max Seating	3 + 19	
Typical Seating	3 + 12-16	
Powerplant	2x Rolls-Royce Tay Mk 611-8C	13,850lb/61.6kN each
Avionics	Honeywell Primus Epic	
Max Cruise Speed	M 0.80	459ktas/850km/h
Max Ceiling	45,000ft	13,716m
Rate of Climb	3,760fpm	1,146mpm
Take off Distance	5,450ft	1,661m
Landing Distance	3,260ft	994m
MTOW	73,900lb	33,521kg
Max Landing Weight	66,000lb	29,937kg
Useful load?	6,000lb	2,722kg
Max fuel Payload?	1,800lb	816kg
Price	$34.17m	€26.66m

THE G450 was unveiled at NBAA in Florida October 2003 as a replacement to the successful G400 and classic GIV series. It outperforms the G400 with a 250nm (463km) additional range capability and improved hot-day and high-elevation takeoff performance. There is an extra 12" (30cm) in the fuselage and changes in the interior arrangement. Inside the cockpit is the fully integrated flight deck utilising Gulfstream's PlaneView.

The cabin can seat up to 19 passengers. It can be customised to the operator's requirements, for example with an aft stateroom, galleys with countertop cooking, exercise bicycles rated to handle 2G bank angles, surround sound entertainment systems, multiple flat panel monitors, satellite telephone and DIRECTV and Broad Band Multi-Link (BBML) internet access.

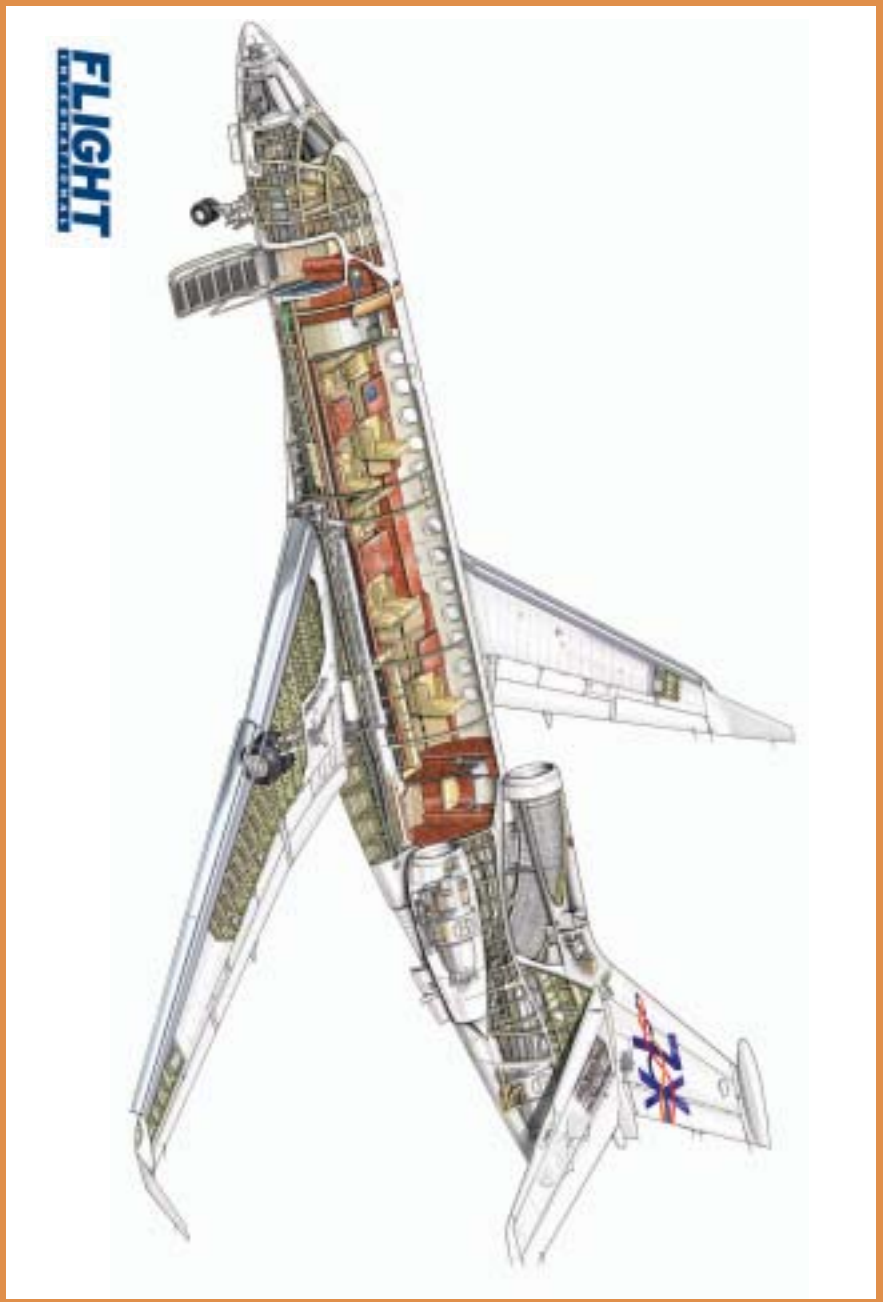
The cabin has three separately controlled temperature zones with 100% fresh air air-conditioning and 12 heated oval widows.

During 2006 Gulfstream has been using the aircraft to prove the latest technologies. The company is flight testing its second generation of enhanced vision system (EVS), with certification on the G450 and G550 scheduled for the second quarter of 2007. The EVSII system will be fitted to new production aircraft from late 2007 or early 2008.

The aircraft features an improved Rolls-Royce Tay engine, designated the Tay 611-8C, which produces 13,850lbs (61.6kN) of thrust with a Full Authority Digital Engine Control (FADEC), improved larger diameter fan, modified high pressure turbine and new bypass/core mixer. These improvements have resulted in reduced fuel burn, increased operating margins, increased thrust for improved takeoff and climb performance, and extension of maintenance intervals to 6,000 hours midlife and 12,000 hours for full overhaul.

SPOTTER'S GUIDE

From the exterior, the discerning observer of the G450 will note the repositioning of the main entrance door and the slightly longer fuselage than that of the GIV/G400. There are 12 distinctive oval windows, a low swept wing with winglets, the Tay engines are mounted on the sides of the rear fuselage behind which is the swept 'T' tail with swept tailplane.



14

Ultra Long Range Jets

Another of the categories being fuelled by new entrants and upgrades of established players. This is where the big boys of the business aircraft world battle it out. It is where miles count. Bombardier's flagship Global Express XRS, the two Gulfstreams the G500 and the G550 have been fighting over range and comfort supremacy and soon the Dassault 7X with all of its new features will be joining the fray.

■ The all-new fly-by-wire Dassault 7X is at the latter stages of the certification process and with its tri-jet power, its French flair and US marketing skills will soon be bringing an aircraft that was wholly designed on a virtual platform into the reality of a market place
Artist Tim Hall.

BOMBARDIER GLOBAL EXPRESS XRS

SPECIFICATION

Length	99' 5"	30.3m
Wingspan	94'	28.6m
Height	25' 6"	7.7m
Cabin Length	48' 4"	14.70m
Cabin Width	8' 2"	2.49m
Cabin Height	6' 3"	1.91m
Cabin Volume	2,140 cu.ft	60.6m3
Max Range (8)	6,150nm	11,390km
Max Seating	4 + 19	
Typical Seating	4 + 8	
Powerplant	2x RR BR710A2-20	14,750lbs / 65.6 kN
Avionics	Honeywell Primus 2000XP	
Max Cruise Speed	513ktas	950 km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	1,433fpm	436mpm
Take off Distance	6,190ft	1,887m
Landing Distance	2,670ft	814m
MTOW	98,000lbs	44,452kg
Max Landing Weight	78,600lbs	35,652kg
Useful load	46,800lbs	21,228kg
Payload with full fuel	1,825lbs	827kg
Price	$47.7m	€37.21m

THIS is the flagship of the Bombardier fleet with ultra long range capabilities and high performance.

It entered service in November 2005 and showed significant improvements over its legacy predecessor the Global Express with increased range to 6,150nm (11,400km) at M0.85– the original target for the Global Express.

The aircraft features an additional 1,486lb (674kg)-capacity forward fuel tank in the wing/body fairing. Pressurisation is increased to reduce cabin altitude to 4,500ft (1,372m) up to 45,000ft (13,716m).

Other cabin improvements include a relocated crew rest area, two additional windows, LED lighting and a larger baggage area. The Global XRS will have Bombardier's EVS as standard, comprising the CMC Electronics infrared sensor and Thales Avionics HUD.

Developments in the cabin are also making an impact. Mid-2006 Bombardier began offering as standard the Rockwell Collins Airshow 21 cabin electronic system.

With a dual-redundant Ethernet backbone, the Airshow 21 suite controls the cabin environment; provides communications and entertainment; manages lighting; waste and water systems; and enables centralised maintenance.

Two Inmarsat Aero H+ channels and an Iridium based channel means high-speed data satellite communications is standard for both the cockpit and the passengers.

Plug and play servers with a built-in aircraft firewall allows the Rockwell Collins eXchange system – purpose built for business jets – provide internet and email coverage as well as live TV images through the Tailwind 500 system.

Other improvements include a faster refueling system and improved zero-flaps take off capability for hot and high airports.

HERITAGE

A derivative of the Global Express which itself was the first clean-sheet designed ultra-long range business jet launched in 1993 with first flight in 1996 certification by Canada in July 1998, FAA in November 1988 and JAA in May 1999. First customer delivery was July 23 1999 and the final delivery in September 2005 after 148 aircraft had been delivered.

SPOTTER'S GUIDE

With 15 windows – Two more than the original Global Express – on each side of the cabin it clearly differentiates the XRS from the Global 5000 (with 10) and the Global Express (13). The outline of the Global Express is familiar with effectively a CRJ fuselage mated to a low swept supercritical wing with winglets. It also features a swept T-tail with swept anhedral tailplane.

IN DEVELOPMENT

DASSAULT FALCON 7X

HERITAGE

The 7X was announced at the Paris Air Show in June 2001 under the designation of FNX and made its public debut in June 2005, again at the Paris Air Show. It flew for the first time on 5 May 2005. The 7X features full FBW (Fly-By-Wire) control and was completely designed in a virtual environment, the result is that a proof of concept prototype was never needed. The first 7X to roll off the production line will be identical to the tenth, thirtieth or fiftieth. The design system allowed every person involved to 'walkround' the 7X in a virtual environment before the first metal was even cut. Certification is expected in early 2007 and the first deliveries are set to begin in April 2007.

SPECIFICATION

Length	76' 1"	23.19m
Wingspan	86'	26.21m
Height	25' 8"	7.863m
Cabin Length	39' 1"	11.91m
Cabin Width	7' 8"	2.34m
Cabin Height	6' 2"	1.88m
Cabin Volume	1,552 cu.ft	44m³
Max Range (8)	5,950nm	11,019km
Max Seating	3 + 19	
Typical Seating	3 + 12	
Powerplant	3x P&WC PW307A	6,400lb / 28.46kN each
Avionics	Falcon EASy	
Max Cruise Speed	TBC	
Max Ceiling	51,000ft	15,545m
Rate of Climb	TBC	
Take off Distance*	5,505ft	1,585m
Landing Distance**	2,262ft	716m
MTOW	69,000lbs	31,299kg
Max Landing Weight	62,400lbs	28,304kg
Useful load	34,928lbs	15,843kg
Payload with full fuel	1,900lbs	1,355kg
Price	$39.2m	€30.58m

* 63,600lbs take off weight
**37,100lbs landing weight

THE 7X is the newest tri-jet member to join the Dassault Falcon family. It features Fly-By-Wire controls and was designed in a completely virtual environment. Originally the specifications called for a 5,700nm (10,556km) range. However, following customer feedback Dassault installed a new fuel tank forward of the wing centre section, increasing fuel capacity by 1,760lbs (800kg) and fitted drag reducing winglets.

These improvements combined to extend the range to 5,950nm (11,000km) with eight passengers and three crew.

The 7X incorporates the Falcon EASy avionics suite, which was developed in collaboration with Honeywell and is based on Honeywell's Primus Epic integrated system. The system is made up of four 14.1 inch flat-panels in a T configuration, designed with the flight crew in mind.

Three 6,400lb (28.46kN) Pratt & Whitney PW307A engines power this aircraft and in testing it has so far achieved speeds of M0.92 (526ktas/975km/h).

It can cruise at 51,000ft (15,545m) above the congestion and lift a useful load of 34,928lbs (15,843kg).

SPOTTER'S GUIDE

The 7X has three engines; two are pod mounted at the rear and then third is at the back of the fuselage with its air intake in front of the tail and on top of the fuselage. The wings are swept with winglets, the horizontal stabilisers are swept and mid-mounted.

GULFSTREAM G500

SPECIFICATION

Length	96' 5"	29.39m
Wingspan	93' 6"	28.50m
Height	25' 10"	7.87m
Cabin Length	50' 1"	15.27m
Cabin Width	7' 4"	2.24m
Cabin Height	6' 2"	1.88m
Cabin Volume	1,670 cu.ft	47.3m3
Max Range (8)	5,800nm	10,742km
Max Seating	4 + 19	
Typical Seating	4 + 14-18	
Avionics	Honeywell Primus Epic	
Powerplant	2x Rolls-Royce BR710 C4-11	15,385lb/68.4kN each
Max Cruise Speed	487ktas	901km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	3,950fpm	1,204mpm
Take off Distance	5,150ft	1,570m
Landing Distance	2,770ft	844m
MTOW	85,100lbs	38,601kg
Max Landing Weight	75,300lbs	34,156kg
Useful load	37,100lbs	16,828kg
Payload with full fuel	2,300lbs	1,043kg
Price	$38.76m	€30.24m

BUILT for those who want to go far ... but not that far. The Gulfstream G500 is a derivative of the Gulfstream G550 model with a range of options to allow buyers fit the aircraft to suit their needs

It entered service in 2004 and has been certified for worldwide operations, the aircraft features a normal cruising speed of Mach .80 and a range of 5,800nm (10,742km) with a typical load of eight passengers. It flies high above commercial air traffic and adverse weather, permitting more direct routing by air traffic control and shorter en route times. The G500 operates efficiently on short-range, high-speed routes as well, flying up to 5,100nm (9,445km) at Mach .85.

G500 also provides an exceptional, advanced safety feature, the Automatic Emergency Descent Mode, built into the Flight Management System. In the unlikely event of a rapid cabin depressurization at 40,000 feet or above, coupled with crew incapacitation, the G500 will automatically turn and descend to a safe altitude of 15,000 feet and a speed of 250 knots. This allows the flight crew to regain consciousness and resume control of the aircraft with plenty of altitude to spare.

The G500's required take off distance is only 5,150ft. The G500 has the same PlaneView advanced flightdeck as the G550 and the long-range, $34 million G450. Depending on the configuration, the G500 can accommodate 14 to 18 passengers.

SPOTTER'S GUIDE

The G500 is a shorter range version of the G550, and has the same exterior appearance, (see Gulfstream G550).

HERITAGE

Both the Gulfstream G500 and G550 aircraft are products from the G-V – the first ultra long range aircraft to fly. Since announcing the concept at NBAA in 1992 there was a battle between Gulfstream with the GV and Bombardier with the Global Express to be first to market. Based on a lengthened and re-engineered G-IV fuselage but with a more efficient wing, Gulfstream won the race and flew on 28 November 1995.The G500 is a reduced range version of the G550.

GULFSTREAM G550

HERITAGE

The first production Gulfstream G550 was originally known as the SP (Special Performance) version of the Gulfstream GV offering enhanced performance and greater cabin space than the GV-SP. It rolled out in June, 2002 and received FAA certification on August 14 2003.

SPECIFICATION

Length	96' 5"	29.39m
Wingspan	93' 6"	28.50m
Height	25' 10"	7.87m
Cabin Length	50' 1"	15.27m
Cabin Width	7' 4"	2.24m
Cabin Height	6' 2"	1.88m
Max Range (8)	6,750nm (M0.80)	12,501km
Max Seating	4 + 19	
Typical Seating	4 + 14-18	
Powerplant	2x Rolls-Royce BR710 C4-11	15,385lb/68.4kN each
Avionics	Honeywell Primus Epic	
Max Cruise Speed	M 0.87	498KTAS/922km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	3,650fpm	1,113mpm
Take off Distance	5,910ft	1,801m
Landing Distance	2,770ft	844m
MTOW	91,000lbs	41,277kg
Max Landing Weight	75,300lbs	34,156kg
Useful load	42,700lbs	19,369kg
Payload with full fuel	1,800lbs	816kg
Price	$46.665m	€36.41m

JUST one week after entering service in September 2003, the G550 completed a 20,000-mile flight around the world – setting four city-pair speed records in the process. And that tradition has continued with the aircraft clocking up records between cities and continents across the globe.

The aircraft was the 2004 winner of the famous Collier trophy and recognized for its ability to outreach any other business-jet aircraft in its class.

The G550 can accommodate up to 19 passengers, fly at a maximum speed of Mach 0.885 and cruise at a maximum altitude of 51,000ft (15,545m).

With a 100 percent fresh air system, maximum cabin altitude of 6,000ft and 14 signature oval windows that allow for ample natural lighting, the G550 cabin maximizes passenger comfort while decreasing the effects of travel fatigue and jet lag.

The Gulfstream G550 also features the PlaneView cockpit and the Gulfstream Enhanced Vision System (EVS) as standard. (This system enables flight crews to see runway markings, taxiways, adjacent roads and surrounding areas in conditions of limited visibility. The system also helps crews avoid runway incursion and hazards that would otherwise not be easily visible.)

Powered by two Rolls-Royce BR710 engines, each producing more than 15,000lbs (66kN) of thrust, the G550 can fly eight passengers and four crewmembers 6,750nm (12,501km) – it will fly non-stop from New York to Tokyo in 14 and one-half hours at altitudes up to 51,000ft (15,545m), high above commercial air traffic, weather and adverse winds and permitting even more direct air traffic routing.

SPOTTER'S GUIDE

This aircraft differs externally from the legacy Gulfstream V by a seventh passenger window on the left side of the aircraft (as opposed to six on the left and either six or seven on the right). It features a low swept wing with winglets, twin Rolls-Royce Deutschland BR710 turbofan engines mounted on the fuselage ahead of a swept T-tail and swept tailplane.

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Airliners & Supersonic Jets

These aircraft tend to be omitted from forecasts provided by Honeywell, Bombardier and Embraer but almost certainly there is greater growth than anyone imagined. This is reflected by the interest being taken by air transport giants Boeing and Airbus. With Embraer joining Bombardier in promoting new aircraft based on their regional passenger jets, deliveries of aircraft in this class are projected to total around 200 through 2016 with value of around $12 billion. The market for supersonic business jets is still untested but there are other manufacturers beyond Aerion working on taking this potential further.

■ The Dornier 328Jet has been known as the Fairchild Dornier Envoy and the Avcraft 328Jet under its different ownership in the past six years. With more than 60 aircraft parked in the desert, the latest owners are keen to get the aircraft back in the air.
Artists: Tim Hall, Giuseppe Picarella, and Tim Brown

AIRBUS A318 ELITE

HERITAGE

The A318 is the smallest of the A320 family with a reduced cabin length. The concept was announced at the Farnborough Airshow in 1998 with Pratt & Whitney PW6124 engines selected. The first flight was in January 2002. Seven months later a version with CFM56-5B9/P engines was flown. The Elite version was launched in 2005.

SPECIFICATION

Length	103' 2"	31.45m
Wingspan	111' 10"	34.10m
Height	41' 2"	12.56m
Cabin Length	70' 2"	21.38m
Cabin Width	12'	3.71m
Cabin Height	7' 4"	2.24m
Max Range (8)	4,100nm	7,600km
Max Seating	2 + 18	
Typical Seating	2 + 14	
Powerplant	2x CFM56-5B9/P	23,300lb/103.6kN
	2x PW6124A	23,800lb/105.9kN
Max Cruise Speed	473ktas	876km/h
Max Ceiling	41,000ft	12,500m
Rate of Climb		
Take off Distance	4,429ft	1,350m
Landing Distance	4,396ft	1,340m
MTOW	142,200lbs	64,500kg
Max Landing Weight	126,760lbs	57,500kg
Useful load	65,312lbs	29,625kg
Payload with Full Fuel	26,988lbs	12,242kg
Price	$45	€35.11m

THIS is the newest of the Airbus Corporate Jetliner (ACJ) family, based on the A318 regional jet. It has the same wide cabin as the rest of the Airbus A320 range, and is positioned as an entry-level airliner aiming at the market for flights of up to 4,000nm range.

The A318 entered service in July 2003. Airbus is in partnership with Lufthansa Technik to offer a choice of two cabin layouts seating up to 14 and 18 passengers, respectively, with seats and settees clustered in several lounge areas throughout the cabin.

Both configurations are able to fly non-stop from London to New York, offering true intercontinental capability.

As the youngest, as well as the smallest, member of the Airbus A320 Family, the A318 features several innovations which are being progressively introduced in the rest of the range. These include advanced manufacturing techniques such as laser-beam welding, liquid-crystal displays in the cockpit and an improved cabin-management system for lighting, in-flight entertainment and other services.

Like the rest of the Airbus ACJ Family, the A318 offers features that are currently unavailable on other business jets. These include public-transport certification, centralised maintenance, sidestick controllers, fly-by-wire controls, carbon brakes, category 3B autoland and a choice of engines and auxiliary power units.

With a shorter fuselage but the same wing as the other ACJs, the Elite has excellent short-field take-off and landing performance. The A318 Elite is offered with a steep approach capability of 5.5 degrees – making it suitable for operation from airports with noise or obstacle limitations.

SPOTTER'S GUIDE

Compared with the A319, the A318 is four and a half frames shorter. Other changes include a tail which is slightly taller than the A319, A320, and A321 variants. There is a reduced size cargo door. The engines are either CFM56-5B9/P or PW6124. Only one emergency exit above wing.

AIRBUS CORPORATE JETLINER (ACJ)

HERITAGE

The ACJ's parent – the A319 was launched at the Paris Airshow in June 1993 and flew for the first time on August 25 1995 from Hamburg in Germany. European JAA certification and service entry, with Swissair, took place in April 1996.

SPECIFICATION

Length	111'	33.84m
Wingspan	111'10"	34.1m
Height	38' 7"	11.76m
Cabin Length	78'	23.78m
Cabin Width	12' 2"	3.7m
Cabin Height	7' 4"	2.24m
Max Range (8)	6,000nm	11,100km
Max Seating	2 + 48	
Typical Seating	2 + 19	
Powerplant	2x CFM56-5B7/P	27,000lbs/120.1kN each
	2x IAE V2527-A5	26,500lb/117.9kN each
Max Cruise Speed	472ktas	874km/h
Max Ceiling	41,000ft	12,500m
Rate of Climb		
Take off Distance		
Landing Distance		
MTOW	166,500lbs	76,500kg
Max Landing Weight	137,800lbs	62,500kg
Useful load		
Payload with Full Fuel		
Price	$55m	€42.91m

THE Airbus Corporate Jetliner (ACJ) is based on the A319 airliner and has the widest and most spacious cabin of any single-aisle business jet.

The ACJ was launched at the Paris Airshow in June 1997 and made its maiden flight in November the following year. In November 1999 the first aircraft was delivered to a Kuwaiti customer.

The ACJ is certificated with up to six additional fuel tanks, an increased cruise altitude of 41,000ft and airstairs.

Its fly-by-wire cockpit is identical to all of the other A320 Family aircraft – the A318, A319, A320 and A321. Only one pilot type rating is required to fly the ACJ and any member of the A320 family, while transitioning to the A330, A340, and A380 requires only minimal additional training through Airbus' cross-crew qualification concept. This provides a pool of thousands of pilots who are qualified on Airbus fly-by-wire aircraft around the world and ready to command the ACJ.

Pilots operate the aircraft though side-stick controllers, and the fly-by-wire controls allow unrestricted input throughout the flight envelope – protecting against overspeeding, stalling and windshear, while keeping the ACJ well within the structural limits. And with twice as much flight deck volume as typically-sized business jets, the ACJ is designed for maximum pilot productivity.

SPOTTER'S GUIDE

The A319 is a minimum change, shortened derivative of the highly successful A320. The major difference between the A320 and A319 is that the latter is shorter by seven fuselage frames, while in almost all other respects the A319 and A320 are identical. With the exception of Easy Jet's A319s, the A319 only has one emergency exit above the wing. Easy Jet A319s and all A320s have two.

AIRBUS A320 PRESTIGE

SPOTTER'S GUIDE

Two emergency exits above the wing denotes the A320 from its smaller siblings.

SPECIFICATION

Length	123' 3"	37.57m
Wingspan	111' 10"	34.10m
Height	38' 7"	11.76m
Cabin Length	90' 3"	27.50m
Cabin Width	12' 1"	3.70m
Cabin Height	7' 4"	2.24m
Max Range (30)	4,100nm	7,600km
Max Seating	2 + 50	
Typical Seating	2 + 19	
Powerplant	2 x CFM56-B4/P	27,000lbs/120.1kN
	2 x V2527-A5	26,500lbs/117.9kN
Max Cruise Speed	487ktas	903km/h
Max Ceiling	39,000ft	11,900m
Rate of Climb		
Take off Distance		
Landing Distance		
MTOW	169,800lbs	77,000kg
Max Landing Weight	145,500lbs	66,000kg
Useful load		
Payload with full fuel		
Price	$65m	€50.71m

AS Airbus realised the success of its ACJ programme based on the A319, it identified demand for more corporate shuttle space and so developed a corporate jet within the frame of the A320.

Dubbed the Prestige – which is also what Airbus calls it VVIP interior option for the A319 ACJ – this aircraft is appropriate for intercontinental shuttle flights with 30 passengers travelling 4,100nm (7,600km) – the same mission that the A318 Elite does with eight.

The Prestige has a number of cabin options and the space for two additional centre tanks for the increased range (the A319 ACJ can take six).

HERITAGE

The A320 program was launched in March 1982, first flight occurred on February 22 1987, while certification was awarded on February 26 1988. Launch customers Air France and British Airways took delivery of their first A320s in March that year. The initial production version was the A320-100, which was built in only small numbers before being replaced by the definitive A320-200 (certificated in November 1988) with an increased max take off weight, greater range and wingtip fences.

BOEING BUSINESS JET (BBJ)

HERITAGE

The first BBJ rolled out from Boeing's Renton, Washington plant on July 26 1998 and received FAA and JAA certification on October 29 1998. The concept was a joint idea from Boeing and engine maker GE – in actual fact it was back in 1995 when GE's then CEO Jack Welch recognised the need for more space in his corporate jet that led him to call his buddy, Boeing chairman and CEO Phil Condit to see if it was possible … the rest as they say is history.

SPECIFICATION

Length	110' 4"	33.6m
Wingspan	117' 5"	35.8m
Height	41' 2"	12.5m
Cabin Length	79' 2"	24.13m
Cabin Width	11' 7"	3.53m
Cabin Height	7' 1"	2.16m
Max Range (50)	6,000nm	11,482km
Max Seating	10 + 149	
Typical Seating	3 + 19	
Powerplant	2x CFM56-7	27,300lbs/91.19kN each
Max Cruise Speed	469ktas	868km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,300fpm	1005 mpm
Take off Distance	6,085ft*	1855m
Landing Distance	2,905ft	885m
MTOW	171,000lbs	77,565kg
Max Landing Weight	134,000lbs	60,780kg
Useful load	15,724lbs	34,665kg
Payload with full fuel	11,907lbs	26,250kg
Price (green)	$48m	€37.55m

* based on FAR 25 with one engine

BOEING'S BBJ was created to meet a need for a business aircraft that has the subtle presence of a traditional airliner on the ramp but the space within for a custom-built interior literally fit for a king.

The BBJ is a high performance derivative of the Boeing's Next Generation 737-700. Using the 737-700 fuselage with the strengthened wings and landing gear from the heavier and larger 737-800

Other changes from the airliner-configured 737 include blended winglets specially designed by Airline Partners of Seattle for additional fuel economy (5-7% improvement); self-contained airstairs for landing at airports with limited ground support. Additional fuel tanks boost the BBJ's range to 6,200m (11,482km), giving it intercontinental capability. It also has ETOPS-180 certification. Another great sales advantage to the BBJ is its lineage. The 737 is the most successful airliner in the world today, with more than 3,500 aircraft flying. Boeing officials say a 737 lands and takes off somewhere in the world every 4.6 seconds.

SPOTTER'S GUIDE

The very early BBJs were without the winglets – but the very beauty of the aircraft is that there is little to tell it apart from other 737s at the airport other than tasteful paint jobs.

BOEING BBJ 2

SPOTTER'S GUIDE

Almost 20 feet longer than the BBJ 1 with Aviation Partners blended winglets fitted as standard. There are underwing CFM-56 turbofans and the familiar 737 swept tailfin with dorsal fin and low set tailplane.

SPECIFICATION

Length	112' 6"	34.3m
Wingspan	117' 5"	35.8m
Height	41' 2"	12.5m
Cabin Length	107' 2"	33.66m
Cabin Width	11' 7"	3.53m
Cabin Height	7' 1"	2.16m
Max Range	4,765nm	8,825km
Max Seating	10 + 189	
Typical Seating	3 + 8-25	
Powerplant	2x CFM International CFM 56-7	27,000lbs/120kN each
Max Cruise Speed	471ktas	872km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,100fpm	945mpm
Take off Distance	7,000ft	2,134m
Landing Distance	2,475ft	754m
MTOW	187,700lbs	85,130kg
Max Landing Weight	157,300lbs	71,350kg
Useful load	77,700lbs	35,244kg
Payload with full fuel	14,200lbs	6,441kg
Price	$58m*	€45.37*

*2009Price/Green – No exterior paint or interior furnishings

THE Boeing Business Jet 2, is an evolution of the BBJ family, providing a 25% increase in cabin volume and 100% increase in cargo volume compared to the BBJ. The aircraft's long range capability allows direct non-stop flight from New York to London, Moscow or Dubai, or from London to Rio de Janeiro, Johannesburg, Singapore or Tokyo

The aircraft is in service with government and corporate customers including the Abu Dhabi Amiri Flight and the government of Belarus.

The cabin has more than a thousand square feet of floor area (over 93m^2) and can seat up to 78 passengers in addition to an executive lounge and private suite. Germany's Lufthansa Tecknik has a wealth of experience in completions of the BBJ types, having incorporated an executive office, conference rooms, private offices and bedrooms into their BBJ designs. In addition to staff or family sleeping or seating areas, variations can also be created using for example a living room, dining room, a master bedroom and bathroom, or two bedrooms and two bathrooms.

The aircraft is always ordered green (eg without interior) with completions to order from suppliers in Europe and the USA.

Like the BBJ there are built-in airstairs to give self-sufficiency at airports with reduced ground support.

The cargo holds are easily loaded, with a maximum cargo volume of 34.7m^3.

HERITAGE

The BBJ 2 is derived from the 737-800 airframe design, which provides improved performance in terms of higher range and speed, lower noise levels and lower emissions than previous members of the Boeing 737 family. BBJ 2 was announced in October 1999 with production beginning in September 200 and entry to service in February 2002.

BOEING BBJ 3

SPOTTER'S GUIDE

Again, the blended winglets, non-airline livery and airstairs denote the BBJ from the commercial 737s.

SPECIFICATION

Length	129' 6"	39.5m
Wingspan	117' 5"	35.8m
Height	41' 2"	12.5m
Cabin Length	98' 4"	29.97m
Cabin Width	11' 7"	3.53m
Cabin Height	7' 1"	2.16m
Max Range (8)	5,580nm	10,334km
Max Seating	2 + 50	
Typical Seating	2 + 8	
Powerplant	2x CFM56-7	27,000lbs/120kN each
Max Cruise Speed	470ktas	871km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,100fpm	944mpm
Take off Distance	8,560ft	2,609m
Landing Distance	2,500ft	762m
MTOW	187,700lbs	85,140kg
Max Landing Weight	157,300lbs	71,350kg
Useful load	70,980lbs	32,196kg
Payload with full fuel	998lbs	452kg
Price	$64m*	€50.07m*

*2009Price/Green – No exterior paint or interior furnishings

ARAB demand for more space beyond the "standard" BBJ, saw the announcement at Dubai Air Show in November 2005 of a new addition to the BBJ fleet – a derivative of the 737-900ER- made the BBJ 3.

The aircraft has 1,120ft² (104m²) of cabin space, or 11% more than the 737-800-based BBJ 2.

With up to five auxiliary fuel tanks it has a maximum range of 4,765nm (8,815km). Boeing says 26% of the BBJ worldwide fleet is based in the Middle East, and more than 50% of the fleet in the region is made up of the larger BBJ 2.

The company opted to offer the increased capacity-derivative of the stretched 737 model after rejecting a BBJ variant based on the shorter-fuselage 737-600.

HERITAGE

Boeing says it will extend plans to include wide body aircraft like the 787 Dreamliner to the BBJ range.
The current range makes use of the 737 "next generation" family with its high life devices and greater speeds over the original 737-100 family of "baby Boeings".
The maiden flight of the first NG 737 was in February 1997.

BOMBARDIER CHALLENGER 800 SERIES

The Challenger 850

SPECIFICATION (CHALLENGER 850)

Length	87' 10"	26.77m
Wingspan	69' 7"	21.21m
Height	20' 5"	6.22m
Cabin Length	48' 5"	14.76m
Cabin Width	8' 2"	2.49m
Cabin Height	6' 1"	1.85m
Cabin Volume	1,990 cu.ft	56.35m3
Max Range (5)	3,044nm	5,637km
Max Seating	2 + 19	
Typical Seating	2 + 15	
Powerplant	2x GE CF34-3B1	8,729lbs / 41kN
Avionics	Collins Pro Line 4	
Max Cruise Speed	M 0.80	459 KTAS / 850 km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb	3,395fpm	1,034mpm
Take off Distance	6,305ft	1,922m
Landing Distance	2,910ft	887m
MTOW	53,000lbs	24,040kg
Max Landing Weight	47,000lbs	21,319kg
Useful load	18,833lbs	8,546lbs
Payload with full fuel	778lbs	354kg
Price	$28.95	€22.59m

THIS flag carrier is the Challenger 850, a business jet based on the Bombardier CRJ200 regional jet platform and comes in two variants – the executive business aircraft and the corporate shuttle.

The latter variant was launched at EBACE, Geneva in May 2005 and Bombardier outlined a shuttle series to include modification of the CRJ 700 and CRJ 900 to become the Challenger 870 and 890 in due course.

Although manufacturing of the CRJ 200 has ended for regional jet programmes it is continuing for the business aircraft division and in its business jet format. The 850 combines Challenger performance and customer service and style with the dependability and reliability of a regional jet. Its large cabin – similar in size to a Global Express - can accommodate 15 passengers for missions of around 2,500nm and it can exceed 3,000nm with five passengers giving true transcontinental performance.

The standard interior includes the inflight mapping system from the Rockwell Collins Airshow 410.

Continued overleaf

Lufthansa Technik is completing the interiors and painting the aircraft. The agreement marks the first time a North American business aircraft manufacturer has entrusted an entire program of completions to an overseas company. It also marks an extension of Lufthansa Technik's capabilities to smaller-size business aircraft.

The shuttle version of the 800 series looks particularly attractive to European customers and reflects Bombardier's extensive research into companies already operating shuttles.

In a standard configuration the Challenger 850 shuttle can fly 1,472nm with its full load of 50 passengers in a 2+2 (airline) seating configuration.

The 2,189-nm-range split-cabin version carries 32 passengers–six in a separated executive cabin and 26 in the aft cabin, or there is a deluxe version for 27 passengers in 2+1 (business-class) seating using a similar seat to those found on Challenger 300s.

The standard Challenger 870, which has a range of 1,662nm, holds 70 passengers in airline seating; the split-level version has a range of 2,199-nm-and can carry 44 people –eight executive sections and 36 in the aft cabin. In the deluxe version there is range of 2,232nm with 42 passengers in the business-class-style seating.

With a range of 1,669nm, the standard Challenger 890 can accommodate 90 passengers. The split-cabin edition holds 52 (12 executive) and the deluxe version has 52 in business-class seating, with a range of 1,971nm.

Interior view of The Challenger 850 shuttle.

Interior view of The Challenger 870 shuttle.

HERITAGE

For several years Bombardier has been offering the Challenger 800–a shuttle also based on the CRJ200–on an ad hoc basis. But has now decided the time is right to offer a more cohesive shuttle solution because companies are increasingly finding it harder to transport employees efficiently on the airlines.
Interestingly the whole CRJ fleet are derivatives of the Challenger 601 business jet. The three CRJ models and the Challenger 601/604 are also powered by the same engine–the General Electric CF34. This now brings the airframe back to its roots.

The Challenger 870

SPOTTER'S GUIDE

From the outside there is nothing to tell the Challenger 850 from its CRJ brother.

DORNIER 328JET (ENVOY)

HERITAGE

This aircraft has had a troubled history. Launched by Fairchild Dornier as a jet powered development of the Dornier 328 turboprop regional aircraft at the Paris Airshow in 1997 the company soon realised its executive jet application. Built in Germany and marketed in the US the 328 first flew in January 1998 and was certified and delivered in June 1999. Certification for the Envoy 3 business jet followed later in the month.
Fairchild Dornier went bankrupt in late 2002 and Avcraft purchased the company.
Then Avcraft also collapsed.
Now Corporate Jet Service, has acquired the Dornier 328 type certificate from the AvCraft Aerospace administrators. They do not manufacture, but provide support for the 230 aircraft worldwide.

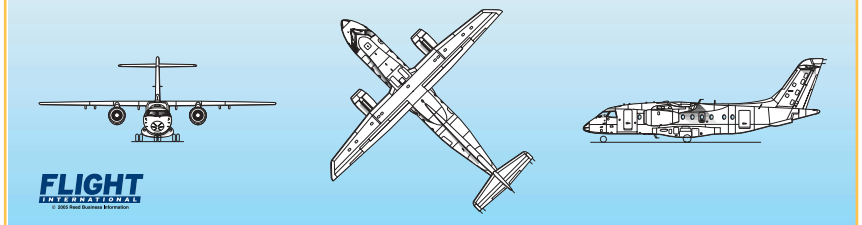
SPECIFICATION

Length	69' 10"	21.28m
Wingspan	68' 10"	20.98m
Height	23' 9"	7.24m
Cabin Length	33' 11"	10.34m
Cabin Width	7' 2"	2.18m
Cabin Height	6' 2"	1.89m
Max Range (10)	1,900nm	3,519km
Max Seating	2 + 33	
Typical Seating	2 + 14	
Powerplant	2x P&WC PW306B	6,050lb/26.9kN each
Avionics	Honeywell Primus 2000	
Max Cruise Speed	400ktas	740km/h
Max Ceiling	31,000ft	9,449m
Rate of Climb*	1,938fpm	590mpm
Take off Distance	4,535ft	1,382m
Landing Distance	4,285ft	1,306m
MTOW	33,047lb	14,990kg
Max Landing Weight	31,724lbs	14,390kg
Useful load	12,227lbs	5,569kg
Payload with full fuel		
Price	$14.5m (2004)	€11.31m

THE Dornier 328Jet was based on a jet version of the 30-seat Dornier 328 turboprop. Called the Envoy 3, the aircraft was priced in the range of a mid-sized jet, but with a cabin size similar to that of large business jets costing twice as much. Range can be extended to 2,000nm (3,700km), from the basic 328Jet's 918nm(1,700km), by adding fuel tanks although generally it is a little less.

Owners Corporate Jet Service subsidiary, 328 Support Services, has been converting jets to the 14-seat executive layout or the 19-seat corporate shuttle as demand grows...and at a very low cost.

SPOTTER'S GUIDE



The 328 has a high straight wing with the leading edge tapered. There are two underwing P&WC PW 300 turbofan engines. There is a high tapered tailfin (almost T-tail) with a swept tail and dorsal fin.

IN DEVELOPMENT

EMBRAER LINEAGE 1000

SPOTTER'S GUIDE

The E190 on which the Lineage derivative is formed has a low swept wing and blended winglets, with twin underwing podded GE CFE34-10E7 turbofan engines. It has a clean swept tailfin with a small dorsal fin and a swept tailplane.

SPECIFICATION

Length	118' 11"	36.2m
Wingspan	94' 2"	28.7m
Height	34' 8"	10.6m
Cabin Length	85'	25.9m
Cabin Width	8' 10"	
Cabin Height	6' 6"	
Max Range (8)	4,200nm	7,778km
Max Seating	2 + 19	
Typical Seating	2 + 18	
Powerplant	2x GE CF34-10E7	18,500lbs/82.3kN each
Avionics	Honeywell Primus Epic	
Max Cruise Speed	469KTAS	869km/h
Max Ceiling	41,000ft	12,497m
Rate of Climb		
Take off Distance	6,900ft	2,100m
Landing Distance		
MTOW	120,150lbs	54,500kg
Max Landing Weight		
Useful load		
Payload with full fuel		
Price	$40.95m	€31.95m

EMBRAER is thinking big with its latest business aviation offering. The Lineage is developed from the Embraer E-190 regional jet although with a maximum take off weight of 121,250lbs, the Lineage is closer to the weight of the 118-seat E195 airliner.

The Lineage's 615cu.ft baggage compartment is to be positioned above the floor level to make space for additional fuel tanks below to give additional range.

The available cabin space – in excess of 4,000cu.ft (115m^3) - offers five zones which can be outfitted as work centres and meeting spaces, or for gathering, dining and sleep, with seclusion for VIPs.

Two private lavatories, an optional third, and an optional stand-up shower complete the picture.

Surprisingly the aircraft is longer than both its BBJ and ACJ competitors.

The Lineage 1000, is to be powered by two 18,500lbs (82.3kN) thrust GE CF34-10E7 engines, will feature a five-screen Honeywell Primus Epic integrated avionics suite.

It will have a maximum operating speed of Mach 0.82 and a ceiling of 41,000ft.

HERITAGE

Based on the Embraer 190 commercial jet platform, the Lineage was announced on 2nd May 2006 at EBACE in Geneva.
The E190 is itself a derivative of the E170 commercial jet which rolled out in October 2001 with first flight in February 2002.
The stretched 190 first flew in March 2004.
The Lineage 1000 is expected to enter service in mid 2008.

IN DEVELOPMENT

AERION SBJ

SPOTTER'S GUIDE

It could be some years before there is anything to see but when the SBJ does make the ramp, it will be hard to miss with the laminar flow wings way back from the long nose. The twin Pratt & Whitney engines are mounted to the rear of the fuselage with a swept tail fin and mid mounted tailplane set behind the tail fin.

SPECIFICATION

Length	135' 7"	41.3m
Wingspan	64' 2"	19.6m
Height	21' 2"	6.5m
Cabin Length	30'	9.1m
Cabin Width	6' 7"	2.0m
Cabin Height	6'	1.8m
Max Range (8)	4000nm	7408km
Max Seating	2 + 12	
Typical Seating	2 + 8	
Powerplant	2 x P&W JT8D-219	19,600lb/ 87.2 kN
Max Cruise Speed	Mach 1.6	915ktas/1,695km/h
Max Ceiling	51,000ft	15,545m
Rate of Climb	n/k	
Take off Distance	<< 6,000ft	1,829m
Landing Distance	<< 5,000ft	1,524m
MTOW	90,000lbs	40,823kg
Max Landing Weight	n/k	
Useful load	45,100lbs	20,457kg
Payload with full fuel	n/k	
Price	n/k	

HERITAGE

With billionaire Robert Bass as Chairman and former Learjet president Brian Barents as vice chairman, Aerion is being taken seriously. Added to the top team is aerodynamicist Dr Richard Tracey known for his work on the X-30, the Global Hawk and the design of the carbon composite Lear Fan. The company is based in Reno, Nevada and was created to pursue the development of supersonic transport. There are no dates for certification or flight yet.

SUPERSONIC air travel holds a special place in the hearts of travellers everywhere. Especially since Concorde hung up its wings in November 2003 there has been much speculation about a potential supersonic business jet.

Aerion's unveiling of a workable concept at NBAA in 2004 was the first and work is progressing on the design and testing. The aircraft's supersonic laminar flow wing reduces airframe drag by as much 20% over a delta wing such as Concorde and will allow efficient sub-sonic cruise speeds on routings where supersonic flight is prohibited.

The cabin is planned to be comparable to super mid-size jets and will accommodate eight to 12 passengers. A typical mission from New York to Paris will be reduced from today's seven and a half hours to four hours 15 minutes.

16 Company profiles

ADAM AIRCRAFT INDUSTRIES

Adam Aircraft was founded by George F. Adam Jr. and John C. Knudsen at Centennial Airport in Arapahoe County, Colorado, USA in 1998. The company designs and manufactures aircraft for civil and government markets, using computer-aided design, rapid prototyping, advanced manufacturing techniques, and carbon composite materials. Adam's carbon fibre pressurised twin piston-engined centreline thrust Adam A500 has been type certified by the FAA. Its larger twinjet sister, the Adam A700 AdamJet falls into the Very Light Jets (VLJ) category.

Adam has over 80,000 square feet (7,430 square metres) of office and manufacturing space in Englewood, Colorado, 22,000 square feet (2,040 square metres) of manufacturing and testing space in Pueblo Colorado and 22,000 square feet at Assembly 2 in Ogden, Utah. In 2006 the company raised $93m (€73m) through a private funding round led by US venture capital firm DCM. At the end of 2005 in conjunction with other partners, the company won a major contract from the US Defense Advanced Research Projects Agency for the development of a next-generation rotorcraft.

CONTACT: Adam Aircraft Industries, 12876 East Adam Aircraft Circle, Englewood, CO 80112 US
Web: www.adamaircraft.com

AERION CORPORATION

Aerion Corporation is an advanced aeronautical engineering organisation headquartered in Reno, Nevada, USA. The company is focused on the commercialisation and development of new concepts in supersonic transportation.

Aerion has earned patents on several concepts related to supersonic aerodynamics and structures, including patents on a supersonic natural laminar flow wing design.

In addition to the Reno organization, Aerion includes an engineering group in Palo Alto, California specialising in advanced computational methods for flow analysis and design optimisation.

The company was set up to bring supersonic business aircraft to market it is headed by Robert Bass, president of Keystone, Inc. and the founder of the Oak Hill investment partnerships, as chairman. There is a strong team behind him. Brian Barents is vice chairman. He is the former CEO of Learjet and Galaxy Aerospace where he was responsible for the development and successful introduction of new-technology business jets. COO Michael Henderson was Boeing's chief project engineer for enabling technologies, and Richard Tracy, Chief Technology Director who developed the natural laminar flow supersonic wing, and conducted research on its capabilities privately and under subsequent DARPA grants. He has worked on both civil aircraft and defense programs, including the Global Hawk and the single-stage-to-orbit X-30. He led the initial design on the Learstar 600 for Bill Lear, later produced as the Canadair Challenger.

Aerion's business case is to seek a leading manufacturer(s) to build a consortium of suppliers to distribute the development and certification cost among the risk-sharing partners for its supersonic business jet (SBJ)

Contact: Aerion Corp.1325 Airmotive Way, Suite 370, Reno, NV 89502
www.aerioncorp.com

AGUSTAWESTLAND

British and Italian partners GKN plc and Finmeccanica S.p.A merged their helicopter subsidiaries GKN-Westland Helicopters and Agusta to form AgustaWestland, a 50/50 joint venture in 2001. Finmeccanica bought out GKN's stake in 2004 and now fully owns the company. Prior to the merger, Agusta and Westland had each been manufacturing helicopters for more than 50 years. The companies first collaborated in the 1960s, when Westland started licence production of the Agusta AB47, better known as the "Sioux".

AgustaWestland's civil rotorcraft include the A119 Koala; the A109 Power and Power Elite; and medium transports AB412, AB139, and BA609 Tiltrotor. Military aircraft include the multi-role Super Lynx 300; the light utility A109 LUH; the 10.6-ton NH90; the medium-lift EH101; and the US101, which will be the new US presidential helicopter. AgustaWestland also produces the Apache helicopter under license from Boeing.

The company's industrial capability comes from specialist centres producing key helicopter segments linked to integration lines situated in Vergiate, Italy, Yeovil, UK, and Philadelphia, USA, which are responsible for final assembly, flight test and delivery. It participates in a number of joint ventures and collaborative programmes with major European and American helicopter primes and is represented around the world by subsidiaries and joint ventures including: AgustaWestland Inc., Agusta Aerospace Corporation and Bell/Agusta Aerospace Company in the USA; Agusta Aerospace Services and EHI Ltd in Europe.

In summer 2006 the company employed 8,530 people had a production value of $3,170 m (€2,490m), and an order backlog valued at $9,410m (€7,397m) with future orders of $4,725 m (€3,712m).

CONTACT:AgustaWestland Italy , Via Giovanni Agusta, 52021017 Cascina Costa di Samarate (VA) Italy
Web: www.agustawestland.com

BOEING COMMERCIAL AIRCRAFT GROUP

In 1996, Boeing's Commercial Aircraft division (BCA) and General Electric (GE) created a 50/50 partnership to create the Boeing Business Jet (BBJ) company. The BBJ series is built on factory conversions of Boeing's 737NG airliners for the corporate jet market, BCA is based in Renton, Washington and is a unit of The Boeing Company.

It is the world's largest manufacturer of civil aircraft as measured by total sales revenue (2005), but the second-largest civil aircraft manufacturer in total aircraft orders after Airbus. As the largest exporter in the US, Boeing's stock is a component of the Dow Jones Industrial Average.

Around 90 BBJs are currently in service, with approximately 35 percent based in North America and 65 percent based in Europe, Asia/Pacific, Africa, Latin America and the Middle East.

Almost all versions of Boeing's commercial airliners are in use as corporate jets, often for presidential or VIP transport. These range from the popular B727, a few remaining B707s, up to the ultra large B747-400s.

CONTACT: Boeing Business Jets, P.O. Box 3707, MC 1E-77 Seattle, WA 98124-2207US
Web: www.boeing.com /commercial/bbj

BELL HELICOPTER

USA based Bell Helicopter Textron helicopter and tiltrotor manufacturer is headquartered in Fort Worth, Texas. The company manufactures military products in the US, predominantly at its sites in at Fort Worth and Amarillo, Texas, and commercial products in Mirabel, Quebec, Canada.

Bell was a former fixed wing manufacturer and produced the famous Bell X-1, which, was the first aircraft to fly faster than the speed of sound in level flight, flown by Chuck Yeager. The company has a close association with AgustaWestland with a partnership dating back to separate manufacturing and technology agreements with Agusta and Westland. When the two European firms merged, the partnerships were retained, with the exception of the AB139, which is now known as the AW139.

In addition to its commercial helicopters, which can be configured for VIP transport, Bell is developing a tiltrotor the BA609 in conjunction with Italian company Agusta. The dual company flight-tests for the aircraft supports dual production line plans for both manufacturers.

Bell Helicopter is owned by Textron Inc, a $10 billion multi-industry company which also owns Cessna and Lycoming.

CONTACT: Bell Helicopter, 13901 Aviator Way, Fort Worth, Texas, 76177 US
Web: www.bellhelicopter.textron.com

BOMBARDIER AEROSPACE

A subsidiary of Canada's Bombardier Inc., Bombardier Aerospace took over the Canadian government-owned Canadair aircraft manufacturing company after it had recorded the largest corporate loss in Canadian business history. The manufacturer then added de Havilland Canada from Boeing and the bankrupt Short Brothers firm and Learjet. Bombardier's aerospace arm now accounts for over half its revenue.

The airframer is the world's third largest manufacturer of civil aircraft behind Boeing and Airbus; the largest regional aircraft producer (Canadair, de Havilland), ahead of Embraer; and trails just behind Gulfstream as the second largest maker of business jets.

The company produces light (Learjet), mid-size (Challenger), and ultra-large/long-range (Global) business jets; CRJ regional jets and Q Series Turboprops; and amphibious aircraft. Bombardier's Aerospace arm also provides military aviation training, pilot and maintenance training, fractional ownership services (Flexjet), charter services (Skyjet), aircraft interior completion, and maintenance, technical support, and parts services.

Bombardier's family of business jets varies from the Learjet 40XR to the top of the range ultra-long range Global Express XRS. The series is divided into the Learjet, the Global Express and the Challenger families. Employing 27,000 staff, the company posted a sales growth of 2.1% at $15,741m (€12,354m) in 2005.

CONTACT: Bombardier Aerospace, 400 Cote-Vertu Road West, Dorval, Quebec H4S 1Y9, Canada
Web: www.bombardier.com

BRITTEN-NORMAN GROUP

Britten-Norman Group (BNG) was formed by John Britten and Desmond Norman in 1955 in the UK and began making the twin-engine, 10-seat Islander in 1966 and the three-engine, 18-seat Trislander by the 1970s. BNG also manufactures the militarised Defender 4000, which is a stretched variant of the Islander. All three aircraft are capable of short take-off and landing (STOL) operations and usually used for inter-island hops.

The private company was acquired by B-N Group in 2000 and formed its manufacturing subsidiary Britten-Norman Aircraft Limited in 2002. The company is owned by the Zawawi family from the Sultanate of Oman, making it one of the UK's two last independent commercial aircraft producers.

Britten-Norman has sold more than 1,250 aircraft to customers in 120 countries worldwide and performs maintenance, overhaul and repair work as well as sub-contracted engineering and design work. BNG's only factory is in Bembridge on the Isle of Wight in the UK, although some airframes were assembled under license in Romania.

Many modern Islanders/Defenders have been fitted with turbine rather than piston engines and turbine-Islanders are the only fixed-wing aircraft in use by the British Army. The company posted sales of $19.7m (€15.5m) in 2005.

CONTACT: B-N Group Limited, Bembridge Airport, Bembridge, Isle of Wight PO35 5PR United Kingdom
Web: www.britten-norman.com

CESSNA AIRCRAFT COMPANY

Cessna is the world's largest manufacturer of general aviation airplanes, based on the number of aircraft sold. In 2005 the company delivered more than 1,100 aircraft and reported revenues of $3.5bn (€2.85bn). The company – headquartered in Wichita, Kansas USA – is celebrating its 80th anniversary during 2007.

Since the company was first created by Clyde Cessna and introduced the cantilever wing to the world, Cessna has delivered some 187,000 aircraft to almost every country around the globe. The global fleet of more than 4,500 Citations is the world's largest business jet fleet.

Cessna is owned by Textron Inc, a $10 billion company which also owns Bell Helicopter and Lycoming. The company's manufacturing production facilities are located in Wichita, Kansas; Independence, Kansas; and Columbus, Georgia

Its product range includes single engine piston aircraft used by flying schools and GA owner- pilots – indeed over half of the general aviation aircraft flying today are Cessna's – through to the rugged utility aircraft, the Caravans and onto the business jet Citation fleet which ranges from an entry-level jet the Mustang, through to the world's fastest civil aircraft in service, the Citation X.

Cessna has nine Citation Service Centres located throughout the United States and two international Citation Service Centres.

CONTACT: Cessna Aircraft Company , One Cessna Blvd, Wichita, KS 67215 USA
Web: www.cessna.com

DASSAULT AVIATION

French company Dassault Aviation manufactures military, regional and business jets. Named after its founder Marcel Bloch in 1928, the company changed its name when he changed his in 1947. It was renamed Dassault Aviation in 1990.

Traditionally its Falcon family of corporate jets has accounted for most of its sales, but a slowdown in commercial aviation revenues has meant that its military offerings, the Mirage and Rafale jet fighters, account for a significant portion of its income. Dassault has also teamed up with SAFRAN to develop unmanned aerial vehicles (UAVs) and is the prime contractor for joint manufacturer EADS' combat UAVs.

The founding Dassault family still owns 50% of the company with EADS accounting for a further 46%.

A subsidiary of Dassault Aviation, Dassault Falcon Jet began production in 1963 and sells and supports Falcon 50EX, 900DX, 900EX, 7X, 2000, and 2000EX business jets.

The airframer also offers engine maintenance, spare parts and tools distribution, parts exchange, special equipment testing, operational assistance, and pilot, maintenance, and cabin crew training. To date it has produced more than 1,600 Falcon jets.

Dassault Falcon Jet builds its aircraft in France, and then flies them over to its US facilities for exterior painting and interior completions. In 2005 the group posted revenues of $4,589m (€3,607 m) with $1,460m (€1,147 m) coming from Dassault Falcon Jet.

CONTACT: Dassault Aviation, 9, Rond-Point des Champs-Elysées, Marcel Dassault, 75008 Paris, France
Web: www.dassault-aviation.com

EADS SOCATA

EADS owns both Airbus and Socata as well as Eurocopter. The European Aeronautic Defence and Space Company (EADS) is the second largest aerospace and defence company in the world after Boeing. EADS is a complex merger of DaimlerChrysler Aerospace (DASA, Germany), Aerospatiale Matra (France), and Construcciones Aeronáuticas SA (CASA, Spain), which together form the consortium.

Socata produces piston engined and turboprop general aviation aircraft, including small private and business aircraft. The company also manufactures aircraft structures for other airframers including Airbus, Dassault, Embraer, Eurocopter and Lockheed Martin. The company's flagship turboprop, the Socata TBM 850, received FAA approval in January 2006; six weeks after EASA certified the aircraft.

With over 6,000 aircraft in service worldwide, Socata is one of the leading general aviation manufacturers in the world. Its headquarters and production are located in Tarbes in Southwest France and cover 128 acres, including 861,000 square feet of floor space (80,000 square metres). The company also has premises in South Florida, which are its US headquarters for sales, marketing, spare parts distribution, technical and customer support.

Parent company EADS' largest holding is an 80% stake in Airbus, (at the time of going to press, the other 20% was owned by BAE Systems). Other operations include helicopters (Eurocopter), business and military jets (46% of Dassault Aviation and 43% of Eurofighter), satellites (Astrium), missiles (38% of MBDA), and commercial satellite launch systems (about 29% of Arianespace). The company posted a net income growth of 646% in 2004 with sales of more than $42,117m (€33,092 m)

CONTACT: EADS Socata, Aeroport de Tarbes-Lourdes-Pyrénées, 65921 Tarbes Cedex 9, France
Web: www.socata.com

ECLIPSE AVIATION

Eclipse Aviation is the brainchild of successful IT entrepreneur Vern Raburn. In 1998 he founded the company to create the Eclipse 500 Very Light Jet (VLJ), perhaps the best known aircraft from the new category. Eclipse hopes that its 500 will become the backbone of a national air taxi service designed to offer private jet travel to passengers at fares that are competitive with conventional full-fare airline ticket prices. The 500 is the least expensive twin-turbofan business jet in the world, and is designed for high hour/cycle operations. Florida-based DayJet is the company's main fleet customer, with an order of 239 Eclipse 500s.

In July 2006, the 500 received provisional type certification from the Federal Aviation Administration, becoming the first ultra-light VLJ to be certified. Using a test fleet of five FAA conforming aircraft, the 500 was certified in more than 1,800 flights and 2,700 flight hours.

Based in Albuquerque, New Mexico, the company employs about 500 people with plans to double that number in 2007. At the time of writing it had secured nearly 2,500 orders worldwide and plans to open facilities in New York and Florida.

Eclipse is owned by investors from the aerospace, automotive, and information technology industries, including an undisclosed holding by Microsoft. In 2005 the company won the US National Aeronautic Association's prestigious Robert J. Collier Trophy for designing and developing its VLJ.

CONTACT: Eclipse Aviation, 2503 Clark Carr Loop SE Albuquerque, NM 87106 US
Web: www.eclipseaviation.com

EMBRAER-EMPRESA BRASILEIRA DE AERONÁUTICA S.A

Embraer, the Empresa Brasileira de Aeronáutica S.A. (Embraer) is a Brazilian aircraft manufacturer producing commercial, military, and corporate aircraft, aircraft components and mission systems for air and ground operations.

Between 1999 to 2001 it was Brazil's largest exporter and is today one of the country's three main exporters. Employing more than 17,000 people worldwide, it has the fourth largest workforce of airframe manufactures (behind Boeing, Airbus and Bombardier), and the third largest annual delivery of commercial aircraft (behind Boeing and Airbus). The company has maintenance and commercial sites in the US and sales offices in France, Singapore and China.

Headquartered in São José dos Campos, São Paulo, Embraer's main production facilities and engineering and design offices are also at the same site. The manufacturer has a production plant in Gavião Peixoto, São Paulo, which boasts a 16,400 feet (5000 metre) runway for flight-testing. The company also sells transport, light attack, and surveillance aircraft, mainly to the Brazilian Air Force.

Embraer was founded in 1969 as a government initiative and privatised on December 7, 1994. In March 2006 the majority of shareholders approved its capital restructuring proposal, which consisted of a simplified capital structure, contributing to enhanced corporate governance practices and transparency standards. Brazil's government pension funds own more than a 20% share.

In May 2005 the company launched two new business aircraft models, a very light jet and a light jet dubbed the Phenom 100 and 300, respectively. The pair join its super mid-size Legacy 600 and a very large jet, the executive version of its E-190, the Lineage 1000.

CONTACT: Embraer, Avenue Brigaderio Faria Lima 2170, 12227-901 San Jose dos Campos SP, Brazil
Web: www.embraer.com

EPIC AIRCRAFT

Epic Aircraft is based in Oregon US and is a subsidiary of Aircraft Investor Resources (AIR). It is developing two aircraft types, an all-composite turboprop, which also comes in kit form and a Very Light Jet, the Elite. In June 2006 Epic said it would fly the Elite for the first time at the July's Oshkosh AirVenture show, but was prevented by a US court injunction from doing so because of a dispute over a wing co-developed with UK's Farnborough Aircraft Company Ltd (FACL). As a consequence Epic does not exhibit the Elite anywhere, including websites (and the reason it is not featured in this book).

The company has a short but turbulent history and filed a countersuit last year against Abu Dhabi's Gulf Aircraft Maintenance (GAMCO), claiming that GAMCO misappropriated its intellectual property by signing an MOU with FACL without AIR's knowledge. Epic insists that the jet programme is continuing and says the planned jet uses a different wing. The aircraft was to be produced with Tbilisi Aircraft Manufacturing (TAM) in Georgia.

The company also offers a four-place kit aircraft, the AIR IV-PB LT, that home builders can take away to complete. The company has constructed a centre where kit builders can construct their aircraft–using production tooling–at its "Build Facility" in Bend, Oregon, which will double as a manufacturing plant for certified LTs.

The Epic LT will be certified first by Transport Canada, with FAA and EASA tickets shortly after – anticipated for first quarter 2007. The company will also create a duplicate of its production plant in Bend in Alberta, Canada, effectively doubling its manufacturing capacity.

CONTACT: Aircraft Investor Resources, LLC, 2121 Redbird Drive, Las Vegas, NV 89134
Web: www.epicaircraft.com

THE EUROCOPTER GROUP

The Eurocopter Group is a wholly owned subsidiary of European Aeronautic, Defense and Space Company (EADS) and Europe's largest manufacturer of helicopters. It is now Europe's leading fully integrated aeronautical group, consisting of three entities: the parent company, Eurocopter, the German subsidiary, Eurocopter Deutschland and the third pillar, Eurocopter España.

Eurocopter was formed in 1992 by the merger of the helicopter operations of Germany's DaimlerChrysler Aerospace and French company Aerospatiale Matra. In addition to building a range of military and civilian helicopters, the company offers repair, maintenance, and overhaul services.

Eurocopter's civilian products include the Colibri, the Ecureuil, the Dauphin, and the Super Puma; military models include the Tiger, Panther, Cougar, and NH90.

At the time of writing parent company EADS' largest holding is an 80% stake in Airbus and it is about to purchase the remaining 20% from BAE Systems.

Other operations include turboprops (Socata), business and military jets (46% of Dassault Aviation and 43% of Eurofighter), satellites (Astrium), missiles (38% of MBDA), and commercial satellite launch systems (about 29% of Arianespace). The company posted a net income growth of 646% in 2004 with sales of more than $42,117m (€33,092m).

CONTACT: Eurocopter, Aéroport International de Marseille, 13725 Marignane, , France
Web: www.eurocopter.com

EVIATION JETS

In 2003, after three years of research, USA, Ames, Iowa based real-estate developer Matt Eller paid $441,000 (€346,080) to acquire the intellectual property of bankrupt airframer VisionAire. He went on to found Eviation Jets to create the

EV-20 Vantage Jet, a progressive 8–10 seat, all composite, twin-engine very light business jet. Eller has attracted private investment to help fund the aircraft's certification effort and beyond.

The company acquired all of VisionAire's technical drawings, trademarks, moulds and tooling, as well as a mock-up of the original Vantage Jet prototype. The city of Ames helped finance the construction of a $5 m (€3.9 m) assembly plant, which VisionAire never occupied. The plant was not part of the assets Eller bought.

Former VisionAire president Tom Stark is now working as a consultant for Eviation and the company has now completed the critical design review of the EV-20 and will soon issue tenders to potential subcontractors to build a prototype. The company is outsourcing parts manufacture and final assembly will happen at Eviation's research and development base in Sao Paulo, Brazil.

The twin-engine, 8-10-seat, all-composite aircraft has 12 years of engineering, design and marketing behind it, including initial concept input by pioneering designer Burt Rutan.

CONTACT: Eviation Jets, 235 Alexander Ave, Ames, Iowa 50010 US
www.eviationjets.com

EXTRA AIRCRAFT LLC

Extra Aircraft is headquartered in North America in Lancaster, Pennsylvania, with a manufacturing plant in Germany. Founded in the 1980s by veteran German aerobatic pilot Walter Extra, Extra Aircraft became a US-owned and -operated company in 2003.

Over the years, Extra and his team of engineers have built and certified seven different aircraft.

The product line includes six highly specialized models: the EA-200, EA-300L, EA-300S, and EA-300LP aerobatic aircraft, as well as the EA-400 and EA-500, business and touring aircraft.

One of the world's most successful competitive aerobatic pilots, in 1982 Extra decided to design and build his own aircraft. Extra's Flugzeugbau (Extra Aircraft Construction) revolutionised the aerobatics flying scene and the aircraft still dominate world aerobatic competitions.

The success of Extra's first aircraft prompted him to design a more powerful machine. His next version the EA-260 was the plane that helped produce national titles for aerobatic champions Patty Wagstaff and Klaus Schrodt. In 1988 three pilots flew the EA-300 in the World Aerobatic Championships. Today the 300-series aircraft are mostly carbon fibre and are the only unlimited category planes certified to plus or minus 10 G's.

In 1998 Extra unveiled the EA-400, a six-seat piston aircraft, and now also offers the turbo-prop version, the EA-500.

CONTACT: Extra Aircraft LLC, 1935 Fruitville Pike, Lancaster PA 17601-3996 USA
Web: www.extraaircraft.com

FARNBOROUGH AICRAFT COMPANY LIMITED

Farnborough Aircraft Company's (FACL) F1 utility turboprop has had a bumpy history, but is on course to market.

Farnborough Aircraft took over the Farnborough F1 program in 2002, after its creator supersonic car inventor Richard Noble had failed to raise sufficient capital from small investors via the internet. Noble had designed a six seater turboprop composite taxi aircraft, the Farnborough F1, and its associated operating system. He aimed to raise funds by the project via supporters buying merchandise sold online. He also intended to sell the aircraft through the internet.

Farnborough Aircraft reverted to a more traditional business model and it is likely that the Gulf Aircraft Partnership (a link with Gulf Air's GAMCO in Abu Dhabi) will market the airplane worldwide to a variety of potential operators. Rather than providing cash, GAMCO is likely to share risks via investing in a new 100,000-sq-ft composites manufacturing facility.

The Kestrel programme was beset by further difficulties when Farnborough Aircraft (FACL) became involved in a dispute with Oregon's Epic Aircraft Company over intellectual property rights to a co-developed wing. However, the F1 Kestrel single-engine turboprop completed its ferry flight from Bend, Oregon in the USA to Redhill, Surrey in the UK in summer 2006. The nine-sector journey via Goose Bay, Kuujjuaq, Sondrestrom and Reykjavik took just over 30h.

CONTACT: Farnborough Aircraft Corporation Ltd, Building X92, Cody Technology Park, Farnborough, Hants GU14 0LX UK
Web: www.farnborough-aircraft.com

GULFSTREAM AEROSPACE CORPORATION

Gulfstream Aerospace Corporation is located in Savannah, Georgia, United States, and has been a unit of General Dynamics (GDAS) since 2001. The first Gulfstream aircraft was the twin-turboprop Grumman Gulfstream I. In 1978, Grumman sold Gulfstream to Allen E. Paulson's American Jet Industries, renaming the company Grumman American.

The company then bought Rockwell's Aero Commander program and completed Gulfstream Aerospace. In 1985, Chrysler acquired Gulfstream with Paulson remaining at the helm and a few years later he bought it back. In 1999 GDAS acquired the company and in 2001, added the Galaxy Aerospace Company from Israeli Aircraft Industries (IAI). Their production lines, located in Israel, are used to co-produce the G100/G150 and G200 with IAI.

The company has manufactured more than 1,500 aircraft for corporate, government, private and military customers worldwide and more than one-quarter of Fortune 500 companies operate Gulfstream aircraft. In addition over 152 government and military Gulfstream aircraft are in service in 35 countries worldwide in a variety of roles, including maritime surveillance, medical evacuation, weather research and astronaut training.

In 1997 the company won the US National Aeronautic Association's prestigious Robert J. Collier trophy for the Gulfstream V. The variant won the award again in another incarnation when the G550 won the prize in 2003.

Gulfstream is known for its innovative technology and in September 2001 its Enhanced Vision System (EVS) was the first system of its kind to be certified by the FAA. EVS dramatically improves a pilot's overall situational awareness. Gulfstream has subsequently advanced the technology introducing synthetic vision systems (along with avionics manufacturer Honeywell).

The company is also deeply involved in research into sonic boom suppression. It is preparing to fly a modified GV as a fly-by-wire testbed for its next generation of jets.

CONTACT: Gulfstream Aerospace, 500 Gulfstream Road, Savannah, Georgia 31407 USA
Web: www.gulfstream.com

HONDA

Japanese car maker Honda launched sales of its HA420 HondaJet in 2006 at the US Experimental Aircraft Association's AirVenture show in Oshkosh, Wisconsin in the USA and has set up a new US production company to pursue FAA certification of the VLJ.

Honda Aircraft will be based in Greensboro, North Carolina, at the Piedmont Triad International airport facility where the VLJ has been designed and flight-tested.

Lead designer Michimasa Fujino was appointed president and chief executive of the company, which began operations in October 2006 despite several setbacks. Fujino proposed the HondaJet in 1995 and has spent 20 years developing technology for the car manufacturer's first aircraft.

Production will take place at an as-yet un-named location in the US. Honda Aircraft will oversee marketing as well as sales and product support, which falls under a new partnership with Piper Aircraft, who bring 80 sales and service centres to the table.

Honda and Piper say they are also exploring other areas of alliance in the general and business aviation markets. Honda has been collaborating with engine manufacturer GE on light business jet engines since 2004.

CONTACT: Honda Aircraft Company, Piedmont Triad Airport, North Carolina, USA
Web: www.honda.com

HONEYWELL

Honeywell is a diversified technology and manufacturing company with 40% of its $29 billion sales coming from aerospace products and services.

Honeywell's aerospace business is headquartered in Phoenix, Arizona, USA and is a leading global provider of integrated avionics, defense electronics, engines, systems and service solutions for aircraft manufacturers, airlines, business and general aviation, military and airport operations.

The company's capabilities rest in supplying sophisticated avionics, flight safety products and systems, propulsion engines, auxiliary power units and wheels and brakes. In recent years it has developed a number of sophisticated safety products such as RAAS, a warning system to stop aircraft runway incursions and synthetic vision systems which allow pilots to see through bad weather.

Honeywell's aerospace products can be found on virtually every type of aircraft in use, in nearly every region of the world.

The company employs more than 100,000 people in 95 countries, 40,000 of them in the aerospace sector.

Contact details: Honeywell Aerospace, 1944 East Sky Harbor Circle, Phoenix, Arizona 85034, USA
www.honeywell.com

PIAGGIO AERO INDUSTRIES

Piaggio Aero Industries is an Italian aircraft manufacturing company and one of the world's oldest aircraft manufacturers. It is composed of two units based in Genoa and Liguria, Italy and two subsidiaries: Piaggio Aero France (Cannes France and Piaggio America (West Palm Beach, Florida). It has 1,450 staff on its payroll.

The manufacturer is primarily owned by, the Ferrari automotive family and its chief executive Josè di Mase, who have a combined stake of 55%, with private shareholders and institutional investors together holding an additional 10% of the company.

In April 2006 Mubadala Development, a wholly owned investment vehicle of the Abu Dhabi government, purchased a 35% stake in the company. The level of Mubadala's investment is thought to be around $22.4m (€20m). The cash will possibly kick-start development of a new light business jet to join the company's flagship P180 Avanti II twin pusher.

The original P180 was a long time coming to fruition. The aircraft was tested in Italy and the US in 1980 and 1981. A collaboration with Learjet to develop the aircraft was begun in 1982, but ended in 1986, when the prototype first flew. The P180 finally obtained US certification in 1990.

The first 12 fuselages were built in Wichita, with H & H Parts and Plessey Midwest, then flown to Italy for assembly. The company ran out of money in 1994 and the project languished until 1998. The next generation aircraft, the Avanti II is having more success, with a fleet order of 36 aircraft from New Jersey based fractional ownership operator Avantair, which markets the type exclusively.

CONTACT: Piaggio Aero Industries, Via Cabraria, 4, Genova I-16154 , Italy
Web: www.piaggioaero.com

PILATUS AIRCRAFT

Privately owned Pilatus Aircraft Ltd is the acknowledged world market leader in the manufacture of single-engine turboprop aircraft and the only Swiss company to develop, produce and sell aircraft and training systems all over the world. It is also licensed to maintain and perform upgrades on a variety of aircraft. Its first aircraft, the SB-2 Pelican took to the air in 1944.

Established in 1939 and headquartered in Stans, Pilatus owns four independent subsidiaries in Altenrhein, Geneva, Broomfield, Colorado (USA) and Adelaide (Australia). There are additional sales offices in England, Malaysia and the United Arab Emirates. Pilatus Business Aircraft, Ltd. in Broomfield, Colorado, was established in

1996. Altenrhein Aviation Ltd and TSA Transairco SA maintenance centres are both fully owned subsidiaries of the Pilatus Group.

The company's aircraft are renowned for their longevity and popularity. The legendary civilian PC-6 Porter was introduced in 1959 and is still in production today along with its successor, the Turbo Porter. 1978 saw the first flight of the tandem-seat PC-7 Turbo Trainer and to date the company has built more than 450 of the type.

Pilatus' history contains some of the most famous names in rugged general aviation products. In 1979, the company acquired British manufacturer Britten-Norman, which produces the hardy Islander and Defender aircraft. It eventually sold Britten-Norman to finance its Pilatus Business Aircraft enterprise. In 1994 Pilatus introduced its most successful model, the turboprop-powered PC-12 multi-purpose aircraft. To date, more than 600 of the type have been built. Its latest aircraft, the PC-21 advanced military, trainer was rolled out in 2002.

CONTACT: Pilatus Aircraft Ltd, P.O. Box 9926371 Stans, Switzerland
Web: www.pilatus-aircraft.com

PIPER AIRCRAFT

New Piper Aircraft was formed in 1995 to buy key assets of the bankrupt pioneering general aviation player, Piper Aviation. Founded as the Taylor Brothers Aircraft Manufacturing Company in September of 1927, the company filed for bankruptcy in 1930 and William Piper purchased its assets.

Piper, often called the "Henry Ford of Aviation," believed that a simple low-cost private aircraft would flourish, even in the Great Depression. Manufacturing ceased in the mid 1980's, but recommenced in 1995 when the company was acquired by shareholders including US investment firm, American Capital Strategies (ACS). ACS now owns 94% of Piper's voting equity.

New Piper's output includes: trainers (Seminole, Arrow, Warrior III), models designed for personal use (Saratoga II TC, Saratoga II HP, Archer III, Piper 6X, and Piper 6XT), as well as business aircraft (Meridian, Mirage, and Seneca V).

In August 2006 the company dropped the "New" from its name, reverting to Piper Aircraft and announced a partnership with Honda to market the new HondaJet. The firm is evaluating its output. It recently completed an extensive market survey to determine its future project strategy, which will include new products or innovations every year it says.

CONTACT:Piper Aircraft Company, 2926 Piper Drive, Vero Beach, Florida 32960, USA
Web: www.newpiper.com

RAYTHEON AIRCRAFT COMPANY

Raytheon Aircraft Company (RAC) is a subsidiary of the major US military contractor, Raytheon. The firm designs, manufactures, markets and supports Beechcraft and Hawker aircraft for the world's commercial and military markets. The company's headquarters and major facilities are located in Wichita, Kansas, with other manufacturing operations in Salina, Kansas, and Little Rock, Arkansas. The company also has 100 authorised service centres worldwide.

Although RAC accounts for 13% of Raytheon's business, it is likely to be sold during 2007. It lags its competitors on profitability and was hit badly after 9/11 and did not return to profit until 2004. The firm has also suffered as a result of some of its innovative aircraft developments. The Premier I took a long time to perfect, although it now enjoys strong sales. The Hawker 4000, formerly the Horizon, was unveiled in 1996 and only entered into service in 2006.

However, the revamped Beechcraft propeller aircraft is extremely popular and the Hawker 800XP, now 850XP, is the world's best-selling mid-size jet. RAC also markets, produces and supports a whole range of special-mission aircraft for military and governments worldwide. Missionised versions of its King Air series, pistons, and Hawker 400XP and 850XP (and predecessor models) are in service worldwide. Its King Air 350ER offers extended range as well as overland and maritime radars (HISAR and SeaVue) from sister company Raytheon's Space and Airborne Systems business.

CONTACT: Raytheon Aircraft Company, PO Box 85, Wichita Kansas 67201-00854, USA
Web: www.raytheonaircraft.com

ROCKWELL COLLINS

For more than 70 years, Rockwell Collins has been recognised as a leader in the design, production, and support of communication and aviation electronics for customers worldwide. It operates from more than 60 locations in 27 countries and employs some 17,000 people. The company's 2006 sales will be in the region of $3.8bn (€2.96 billion)

Its heritage is rooted in the Collins Radio Company formed in 1933. Rockwell International Corporation purchased the Collins Radio Company in 1973. The Collins legacy continued to be fostered under Rockwell's ownership until 2001 when it became an independent company.

Headquartered in Cedar Rapids, Iowa, Rockwell Collins has a balance of commercial and government customers allowing it to maintain stability in a volatile marketplace. Leveraging developments across both markets has helped Rockwell Collins reduce costs, extend product viability, and enhance the capabilities of its systems.

As well as its market-leading activities in the business aviation arena, Rockwell Collins supplies defence communication and electronic solutions to the U.S. Department of Defense, foreign militaries, and manufacturers of military aircraft and helicopters. Products and systems include communication, navigation, and integrated systems for airborne, ground, and shipboard applications.

Its work in the business aviation – and air transport market – includes supplying new and retrofitting avionics and cabin electronics including next-generation information and flight display systems; Cabin information systems ; In-flight entertainment systems including live, multiregion airborne TV, audio/video-on-demand, moving maps, real-time e-mail and Internet access, and more .

Going forward the company is well-positioned in five key areas of high growth potential: including information management – providing "office in the sky" solutions – open system architecture and a next-generation GPS system.

Since 1997, Rockwell Collins has acquired a number of leading aerospace companies including Kaiser, Hughes-Avicom International and Flight Dynamics.

Contact details: Rockwell Collins Inc, 400 Collins Road N.E. Cedar Rapids, IA 52498, USA
www.rockwellcollins.com

SIKORSKY AIRCRAFT CORPORATION

Sikorsky Aircraft Corporation was founded 1923 by a Ukrainian-American aircraft engineer Igor Sikorsky. Sikorsky created the first stable, single-rotor helicopter to enter full-scale production. In 1934 the company was absorbed into what is now United Technologies Corporation (UTC), and remains one of the world's leading rotorcraft producers.

Its output includes the UH-60 Black Hawk used for troop assault, combat support, special operations, and medevac operations; and the Seahawk, used for submarine hunting, missile targeting, anti-surface ship warfare, and search and rescue. It also makes experimental types like the Sikorsky X-Wing. The company also collaborated with Boeing on the Comanche attack/scout helicopter, designed to utilise stealth technology, but the army cancelled the programme. Civil products include the S-76 and S-92, which are used for rescue, offshore oil, hospital, and corporate use.

Sikorsky supplied the US Presidential helicopter, Marine One, between 1957 and 2005, but in January 2005 the government selected Lockheed Martin's AgustaWestland EH101 as a replacement, which caused an outcry in Sikorsky's home state of Connecticut.

UTC recently acquired Schweizer Aircraft Corporation, which is now a subsidiary of Sikorsky. The product lines of the two firms dovetail, as Sikorsky concentrates on medium and large helicopters, while Schweizer produces small helicopters, UAVs, gliders, and light planes.

The firm's main plant and administrative offices are in Stratford, Connecticut. It has other facilities in West Haven, Shelton, and Bridgeport in Connecticut; West Palm Beach in Florida and Troy in Alabama. It also has branches all over the world.

CONTACT: Sikorsky Aircraft Company, 6900 Main St., Stratford, CT 06614, USA
Web: www.sikorsky.com

SINO SWEARINGEN AIRCRAFT CORPORATION

Sino Swearingen Aircraft Corporation (SSAC) was founded in 1999 and is backed by the Taiwanese government. Originally started as a partnership between Swearingen Aircraft Corporation of San Antonio and Sino Aerospace Investment Corporation of Taiwan, the firm was incorporated in 1999. The company was formed to develop, build and market the SJ30 business jet.

The company's headquarters and manufacturing and final assembly facility is located at San Antonio International Airport, Texas. A large static test facility lies across the field. Additional main wing and fuselage manufacturing facilities are based at the John D. Rockefeller IV Technology Centre on the airport in Martinsburg West Virginia.

SSAC also has a marketing facility at Orange County Airport in Southern California. The company has employed 400 people, but recently had to lay off 140 staff whilst it ramped up rate tooling for the SJ30 production process. However, SSAC expects to reach its target of delivering 100 aircraft a year by 2010.

In July 2006 the SJ30 established world speed and range records for a light business jet by flying from its US base in San Antonio, Texas to Farnborough,UK, in 10h 24min, including a 42min refuelling stop at Goose Bay, Canada.

CONTACT: Sino Swearingen Aircraft Corporation, 1770 Skyplace Blvd., San Antonio, TX 78216
Web: www.sj30jet.com

SPECTRUM AERONAUTICAL LLC

California based Spectrum Aeronautical LLC designed a very light let (VLJ), the Spectrum 33, using a revolutionary graphite-epoxy construction process, giving it virtually the same size cabin as popular eight to nine seat light business jets, but at less than two-thirds of the weight.

CEO Linden Blue, formerly of Beech Aircraft, embarked on the programme, a surprise late entrant into the VLJ market, in 1995. The Spectrum 33 was unveiled at the US National Business Aviation Association convention in Orlando, Florida in 2005 and made its first flight from Spanish Fork the following January.

For the past twenty years Blue has been working with the principals of Rocky Mountain Composites (RMC) to develop the techniques necessary for building lighter airplanes out of advanced composites that are within economic reason. Over the last few years they had succeeded in demonstrating disruptive new technologies making these objectives a reality.

However, the future of the Spectrum 33 programme suffered a major setback with the fatal crash in July 2006 of the only version of the proof-of-concept aircraft at an airport near Spanish Fork, Utah.

The test pilots Glenn Maben, Spectrum's director of flight operations, and Nathan Forrest, the company's vice-director, were both killed in the accident.

The aircraft rolled right immediately after takeoff, reaching a 90 degree angle before the wingtip struck the ground. Preliminary US National Transportation Safety Board reports indicate that the control linkage had been incorrectly connected during maintenance after the previous flight.

Blue and his team are now committed to refocusing their efforts to bring the program back on schedule.

CONTACT: Spectrum Aeronautical, LLC, 120 Birmingham Suite 110E, Cardiff by the Sea, CA 92007, US
Web: www.spectrum.aero