New Business Jets

BY MARK HUBER



As the global economic recovery slowly builds, a combination of new jet designs and block changes of existing ones is taxiing for takeoff across the size spectrum into ever-narrowing and fiercely competitive niches. Development schedules for several programs in both the brand-new and block-change categories have been pushed back anywhere from several months to more than a year so far this year, as OEMs struggle with the development of a new generation of avionics, composite structures, engines and fly-by-wire flight controls. Attempts to wring cost from programs, via sometimes complicated global supply chains, have also fostered some delays. To a lesser degree, some programs have been hampered by corporate cash-flow aerobatics that have produced schedule lags. Several major OEMs with multiple development programs under way are clearly stretched, both in terms of finance and manpower, in the battle to defend and expand market share.

Aside from these engineering, manufacturing and finance challenges, the slow rate of economic recovery and growth continues to cause concern. In the U.S., most of this new jet output appears destined for the export market, although the anticipation of sustained double-digit growth in the BRIC countries (Brazil, Russia, India, China), and with it a surge in new jet orders there, appears, for the moment, to be something of a mirage. While demand in those countries is growing, it is substantially lower than optimistic projections just a few years ago. China in particular, seen as potentially a large consumer of private lift, continues to struggle with balancing the challenge of private flying in state-controlled, communist skies and the attendant bureaucracy. Private aviation is expanding in these countries, but it is taking longer than first thought to build critical mass.

Despite this uncertainty, OEMs remain confident that the increased value presented by their new designs will resonate with both their existing and future customers. New designs feature more passenger and baggage space, better man-machine interface in the cockpit, and engines, airfoils and materials that produce more range, greater speeds and improved fuel economy. In the age of $100-a-barrel oil, the magnitude of the improvements is such that operators who fly their aircraft more than 300 hours per year almost cannot afford not to upgrade. Large fleet operators, particularly industry-leading NetJets, recognize this and are already placing aggressive new aircraft orders in a strategy aimed at locking down prices. Last year NetJets placed orders potentially worth $17.6 billion from Bombardier, Cessna and Embraer for 225 new airplanes and options for 445 more over the next decade. The company already operates more than 500 airplanes and manages another 170.

This kind of demonstrable demand for value will continue to drive new programs and designs for the remainder of the decade. ■

NEW DESIGNS

Singles

Flaris LAR 01

The Poland-based aviation newcomer unveiled its five-seat, single-engine light jet at the Paris Air Show this summer. A prototype is expected to fly later this year and Part 23 EASA and FAA certification is expected in 2015. The prototype will be powered by a Pratt & Whitney Canada PW610F producing 1,460 pounds of thrust, although a final engine selection for production aircraft is pending, and fitted with dual Garmin G600 avionics. Other features include rear-hinged main cabin doors reminiscent of 1960s Lincoln Continentals and current Rolls-Royces, detachable wings and stabilizers, a fuselage fuel tank, electric de-icing, and whole aircraft ballistic parachute housed in the nose. The $1.5 million aircraft is targeting performance that includes a maximum cruise speed of 380 knots, stall speed of 62 knots, 1,400 nm of range, a 45,000-foot ceiling, and the ability to operate from short grass strips.

Cirrus Vision SF50

Cirrus anticipates 2015 certification for its long-delayed, $1.96 million SF50 jet single and plans to fly the first conformal flight-test aircraft next year, one of three planned for the program. While the aircraft will look similar to the non-conforming test version Cirrus has been flying since 2008 (logging more than 600 hours aloft), changes have refined the design. They include a slightly longer nose and higher loft than the model currently flying. Range is estimated at 1,000 nm at 300 knots; 1,200 at 210. The single Williams FJ33-4 turbofan is expected to power the aircraft to 25,000 feet. The five-plus-two occupant layout is retained but options such as weather radar, a "relief station" and upgraded leather have been added. Cirrus is already beginning to gear up for production by adding factory robotics and a fuselage lay-up mold for the all-composite aircraft. The company has received deposits for more than 500 of the jets.

As the SF50 bucks up against the $2 million price mark, company chairman Dale Klapmeier indicated that Cirrus might capitalize on its relationship with its new owner and have China Aviation Industry General Aircraft (Caiga) build certain component parts in that country to cut costs.

Light Twins

HondaJet

Honda's tortuous path to certification appears to be nearing its destination, with approval of its light twin now expected for late next year following delays in the development and redesign of its new GE Honda HF120 engines (2,050 pounds of thrust each). Garmin is providing the G3000 touchscreen avionics system for the aircraft.

The 420-knot, $4.5 million twinjet is expected to have a range of 1,180 nm, an initial climb rate of 4,000 feet per minute and a maximum altitude of 43,000 feet. Honda claims the aircraft is faster and 15 to 20 percent more fuel-efficient than competing types. The five-to six-passenger jet will be certified for single-pilot operation. The HondaJet uses a carbon-fiber composite fuselage mated to metal wings. That, coupled with the unique positioning of the engines on over-the-wing pylons, creates larger cabin volume and generous passenger legroom. Emteq is providing its SkyPro HD IFE and cabin-management system, which features audio/video on demand, interactive 3-D moving map, exterior camera and wireless cabin control of lighting and monochromatic window shades at each seat via passengers' personal electronic devices. With the SiriusXM satellite radio option, passengers can select station presets at individual seats.

A fleet of conformal test aircraft (which look almost identical to the prototype that has been flying since 2003) is currently racking up hours. More than 600 employees are working at Honda's 83-acre Greensboro, N.C. campus, which has 500,000 sq ft under roof and should be able to turn out 70 to 100 aircraft per year when production is fully ramped up. The first two years of production are already sold out.

Light Mediums

Pilatus PC-24

The word "game-changer" is decidedly overused in this business, but Pilatus's entry into the jet market earlier this year, the PC-24, really does change the landscape. The aircraft combines light jet operating economics with super-midsize jet capabilities and comfort and is aimed at more conventional offerings from Cessna and Embraer. Like the PC-12 single-engine turboprop, the PC-24 retains an aft cargo door and the capability to operate from unpaved and unimproved fields–with the PC-24 as short as 2,690 feet at an mtow of 17,650 pounds. Pilatus aims to have the 10-passenger, $8.9 million all-metal aircraft certified by 2017 and approved for single-pilot operations.

Power comes from a pair of Williams International FJ44-4As rated at 3,435 pounds of thrust each. The engines have some special features, including automatic thrust reserve, passive thrust-vectoring nozzles, quiet power mode in place of an APU to provide ground power, integral pre-cooler to condition bleed air and reduce drag losses, and an anti-ice and noise-suppressing inlet. They have a 5,000-hour TBO and a hot section time of 2,500 hours. The engines help propel the PC-24 to FL450 in less than 30 minutes and achieve a high-speed cruise speed of 425 ktas at FL300. Range with four passengers is 1,950 nm and at mtow the maximum payload is 2,500 pounds.

Up front, the customized avionics suite dubbed Pace–Pilatus Advanced Cockpit Environment–is based on the Honeywell Primus Apex system and features all the latest advances. The voluminous passenger cabin provides more overall space than either the Cessna XLS+ or the Embraer Phenom 300 and has a flat floor, which means less headroom in the aisle. The aircraft will come with seven different interior options for layouts that include executive, commuter, combi and quick-change configurations as well as options for an externally serviced lavatory, either forward or aft, and galleys. Like the PC-12, the PC-24's dominant feature is its rear cargo door, which in this case measures 4.1 feet wide and 4.25 feet tall.

Power comes from a pair of Honeywell HTF7500Es (6,540 pounds of thrust each) that can propel the aircraft to 43,000 feet in 22 minutes. The aircraft pressurization system keeps cabin altitude at 6,000 feet at the 450's maximum cruising altitude of 45,000 feet. Maximum cruising speed is Mach 0.83 and range is 2,300 nm.

The 678-cu-ft cabin offers seating for seven to nine passengers. Cabin management and IFE is courtesy of Honeywell's HD Ovation Select cabin-management system, which allows for control of entertainment, communications, lights, temperature, window shades and more via drink rail-mounted units, wireless handheld remotes or a galley touchscreen. The system can interface with high-speed satellite communications and a variety of consumer electronics.

The cockpit offers Rockwell Collins Pro Line Fusion avionics. The four large active-matrix LCDs in the panel connect the pilots with synthetic enhanced vision with an optional head-up display; electronic charts, maps, graphical weather depiction from an intuitive MultiScan weather radar system that sees up to 300 miles out; and an airport surface-management system that minimizes the chances of ground mishaps. Fusion can grow to accommodate future technology add-ons such as voice recognition, surface guidance and automatic dependent surveillance-broadcast (ADS-B), the future of ATC.

Cessna Citation Latitude

Cessna announced plans for its $14.9 million light midsize Citation Latitude in 2011 and plans to fly the aircraft next year in time for service entry in 2015. The company began cutting metal for the aircraft this year and in August announced that it had completed the first fuselage for the aircraft, to be used as a static-test article.

The Latitude features seating for eight, a new and large ovoid fuselage, and a maximum range of 2,500 nm. The Latitude's flat-floor cabin is 27 feet, six inches long, 72 inches tall and 77 inches wide. The standard seating arrangement accommodates passengers with a forward, two-place, side-facing divan, a club-four grouping of single seats and two more single seats aft of that. The Latitude will feature Garmin G5000 avionics and the wireless Clairity cabin management system. The fiber-optic Clairity cabin management system allows completely wireless control of cabin functions. It will be compatible with personal electronic devices. The engines are Fadec (full authority digital engine control) Pratt & Whitney Canada PW306D turbofans (5,700 pounds of thrust each). They will propel the Latitude to 43,000 feet in 23 minutes en route to a maximum cruise altitude of 45,000 feet. Like its predecessors, the Latitude will have good short-runway capability. Cessna predicts runway length required at mtow to be 3,900 feet.

The G5000 in the Latitude's cockpit features three 14-inch LCD primary and multifunction displays and four touchscreen control panels. It includes synthetic vision, electronic charts, Garmin's Safe Taxi airport charts, dual FMS, Waas and Taws.

Bombardier Learjet 85

Bombardier's new $20.4 million all-composite light midsize has been beset with delays mainly related to the fabrication of its composite structure at the company's plant in Querétaro, Mexico, and what, from the start, has seemed an improbably ambitious development schedule. Earlier this year the company announced a major program delay, with forecast certification now in next year's third quarter, but even that seems doubtful now as the first flight of the aircraft was yet to occur through early September and may not happen until early next year. An OEM's initial foray into composite construction of the majority of aircraft structure is never an easy one, and

Continues on next page ▶



MATT THURBER

HondaJet



Bombardier Learjet 85



Embraer Legacy 450



Pilatus PC-24



MARK WAGNER

Flaris LAR 01



MARK WAGNER

Flaris LAR 01



MATT THURBER

Cirrus Vision SF50

▶ Continued from preceding page

Bombardier does not appear immune to these difficulties.

Thanks to composite construction, the 85 will weigh only one-third more than the considerably smaller Learjet 60 but will need only 20 percent more thrust, fly 500 more miles on a comparable load of fuel and have a slightly higher top cruise speed–all while offering better specific fuel consumption.

Several different configurations will be available, including eight single executive seats in a double-club layout or six single seats and a three-place divan. The single seats are pitched at 30 inches and recline into full-berthing positions. (A maximum of four can be berthed at any one time.) The divan and the berthing seats reflect the 85's 3,000-nm transcontinental/transatlantic design range (four passengers). This longer-legged Learjet also features a full galley and an aft cabin lavatory. Like several other contemporary cabin designs, the 85 will feature larger passenger cabin windows, 12 by 16 inches each, and more monolithic, streamlined headliners and sidewalls.

Bombardier has tapped Lufthansa Technik to provide the cabin management system; Rockwell Collins for a three-screen Pro Line Fusion avionics system with advanced capabilities including synthetic vision; and Pratt & Whitney Canada for new PW307B engines (6,100 pounds of thrust each). High-speed cruise is Mach 0.82 and the aircraft's service ceiling will be 49,000 feet.

Midsize

Cessna Citation Longitude

This stretched and longer-legged $25.9 million variant of the Latitude is scheduled to enter service in 2017. It shares the Latitude's avionics, cabin management system, seats, windows and fuselage cross section, but is nine feet longer and turns to Snecma's Fadec-controlled Silvercrest engines (11,000 pounds of thrust each) with autothrottles for power. The engine hot sections and times between overhaul (TBOs) will be "on condition," much like airliner engines. The Longitude will have limited fly-by-wire (FBW) capabilities for controlling the rudder, spoilers and brakes ("brake-by-wire"). The 30-degree swept wing will incorporate leading-edge slats, winglets and five speed-brake/spoiler panels per side. Cessna has selected the Garmin G5000 for the Longitude, using the same three-screen "touch control" avionics architecture that the company is using on both the Latitude and the revised Citation X (née Ten) and Sovereign. The CMS will build on the new wireless Clairity system.

The aircraft will have seating for eight passengers, a full-fuel payload of 1,950 pounds, a maximum range of 4,000 nm at Mach 0.82 and an MMO of Mach 0.86. Takeoff distance at an mtow of 55,000 pounds is estimated at 5,400 feet, but that drops to 4,000 feet on missions of 2,000 nm or less with lighter loads. Service ceiling is 45,000 feet.

The cabin features a large forward galley and aft lavatory with vacuum-flushing toilet. The forward cabin may include a crew lavatory as well as a third crew/flight attendant seat. Like the Latitude's, the Longitude's interior cross-section is 72 inches tall and 77 inches wide. The forward club-four configuration is capacious and the single executive seats are full-berthing. There is room for another club-four in the aft cabin or a three-place divan, certified for takeoff and landing, opposite an entertainment center with large flat-screen monitor.

Embraer Legacy 500

Embraer's formal entry into the midsize market came in 2008 when it announced development of a pair of fly-by-wire aircraft that share the same engines, systems, wings, empennage and cabin cross-section, the Legacy 450 and 500. In July, Embraer said the 500 program is about halfway to certification, with more than 450 flight-test hours logged and entry into service expected early next year. Compared with the 450, the 500's fuselage is six feet longer and range with IFR reserves increases to 2,800 nm with eight passengers, at Mach 0.80 and NBAA IFR reserves. Current price is $19.9 million.

The 500 can carry up to 12 passengers in a cabin that is near super-midsize, measuring 26 feet 10 inches long, 6 feet 10 inches wide and 6 feet tall. Customers can choose between a large, well appointed forward galley opposite galley annex storage or a single, side-facing seat ideal for a cabin attendant. Or they can have a side-facing, two-place divan opposite a small refreshment center. The wet galley features hot and cold water, four gallons of potable water, crystal storage and an ice drawer, compartments for china and silverware, 110V power outlet and optional monitor and espresso maker. Passengers can bring more luggage, skis, golf clubs and anything else than they could fit in almost any other midsize or super-midsize jet: the 500 has 150 cu ft of baggage space–110 in the external compartment and another 40 in the closet that can be accessed through the lavatory.

Large

Bombardier Global 7000 and 8000

Bombardier is developing a pair of new aircraft with more range and fuel efficiency than the company's current Global 6000 flagship. Both aircraft use the current Global 6000 fuselage but stretch it–the 7000 by 11 feet, 3 inches and the 8000 by two feet, three inches–and add bigger cabin windows extending higher up the sidewall. The aircraft are scheduled to enter service in 2016 and 2017, respectively. Bombardier has said that the aircraft will use a new thin high-speed wing, fuel-efficient GE Passport 20 engines (16,500 pounds of thrust each) and Rockwell Collins Pro Line Fusion avionics.

Bombardier said that both aircraft will beat the G650's range at Mach 0.90; the G650's range at this speed is 5,000 nm, while at that speed the Global 8000 will be designed to go 5,650 nm and the Global 7000 5,100 nm. At Mach 0.85 the range bumps up to 7,900 nm and 7,300 nm, respectively. Range numbers assume 10 passengers and four crew on the 8000. Maximum ramp weights for both aircraft top 105,000 pounds. The price is expected to be in the $65 million range (2010). The new Globals got a big lift from NetJets, which in March last year announced orders for 20 Global 7000s and 8000s and options for as many as 50 more. VistaJet has also placed a large order for 16 Global 8000s.

Airliner Category

Sukhoi Business Jet (SBJ)

Plans for the $50 million Sukhoi Business Jet (SBJ) were formally announced in 2011 but entropy continues to surround the program designed to offer executive versions of the long-range SuperJet variant (SSJ100-LR). Launch customer Comlux said in July that it had backed out of a deal to complete the first two aircraft and could back out of its deal to buy the aircraft altogether.

Just when the first SBJ will be placed into service is now uncertain as Sukhoi and Italian partner Alenia toil to make deliveries to airline clients after fitting the aircraft with numerous upgrades, including a revamped passenger cabin by the Italian design house Pininfarina. So far the only firm order for the aircraft has been placed by the Russian government for delivery next year. Earlier this summer the interior of that aircraft was being installed under contract by the Komsomolsk-upon-Amur Aircraft Production Organization (KnAAPO) in Russia. However, SuperJet is in the process

Continues on page 38 ▶



Sukhoi Business Jet



Bombardier Global 7000



Embraer Legacy 500



Cessna Citation Longitude

AINonline
Go to our Resource Center for a PDF of this Report.



Bombardier Challenger 350



Cessna Citation X

▶ Continued from page 36

of setting up its own executive and corporate shuttle completions capability that likely will be located in Venice, Italy, adjacent to the hangars in which it paints the aircraft and installs commercial interiors.

The 109,000-pound-mtow SBJ currently has a ceiling of 40,000 feet and a range, with auxiliary tanks in VIP configuration, projected at a maximum 4,250 nm with eight passengers. Anticipated VIP configurations will provide seating for 13 to 38. The SBJ has a lot of interior real estate: 714 sq ft of floor space and 4,191.8 cu ft of cabin volume overall. The cabin measures 67 feet, 11 inches long. Cruise speed is Mach 0.78 and required takeoff runway length at mtow/ISA/sea level is 6,720 feet.

REVISED DESIGNS

Light Jets

Eclipse 550

The revamped Eclipse is poised to begin deliveries. The revised $2.695 million design features upgrades over the original 500, including the Innovative Solutions & Support Avio IFMS avionics suite and new capabilities such as synthetic vision, enhanced vision, autothrottles, ADS-B OUT and Tcas. Compared with the 500, the 550's performance numbers will be unchanged: maximum cruise speed of 375 knots and a maximum range of 1,300 nm.

Cessna M2

Cessna expects certification of its M2 Citation before the end of this month. The M2 is basically a $4.395 million reincarnation of the CJ1+ with a revised interior that seats up to seven, Garmin G3000 touchscreen avionics, winglets and modified Williams FJ44-1AP engines (1,965 pounds of thrust each). The prototype aircraft first flew in March last year and the first production aircraft came together earlier this year. The M2 features a full-fuel payload (one pilot) of 500 pounds, a mtow of 10,700 pounds, maximum range of up to 1,300 nm, and a 400-knot maximum cruise speed. Cessna CEO Scott Ernest said production for the first two years is sold out.

Light Mediums

Bombardier Learjet 70/75

Problems with integrating the Garmin G5000 glass-panel avionics system have pushed back the anticipated certification of these new variants of the Learjet 40 and 45 until late this year. "Our supplier, Garmin, encountered some difficulties in delivering its avionics hardware and software," a Bombardier spokeswoman told **AIN**. Garmin is providing a short-term, interest-free loan of $173.7 million in cash "to assist Bombardier in connection with delayed cash flows from the program partially related to the certification of avionics for the program exceeding the planned delivery date."

The revised Learjets offer seating for up to seven passengers in the 70, nine in the 75, and include Wi-Fi, a state-of-the-art entertainment system, galleys, closet space, a range of just over 2,000 nm (with four passengers) and a brisk cruise speed of 465 knots.

The new Honeywell TFE731-40BRs in the back, at 3,850 pounds of thrust each, have 10 percent more takeoff power than the engines that powered the 40 and 45. That gives the 70 and 75, aided by new canted winglets, faster climb times, better short-field performance and improved high/hot capabilities. The engines also promise to be 4 percent more fuel efficient than the -20BRs they replace and likely will be more durable: they feature improved turbine sections and make innovative use of ceramic coatings on critical components such as ducts and turbine shrouds.

In the cabin, the 70 and 75 borrow innovations from the still-under-development, all-composite Learjet 85. They include sidewall cutouts for increased onboard personal storage, a smoother-looking headliner and revamped passenger service units. Seats have been refoamed and resculpted in two-tone leather for added comfort and a more modern appearance; however, they use the same frames as the seats on the 40 and 45. The 70 and 75 galleys are new, too. The Learjet 75 has a 30-percent-larger galley than the 45–enough room to serve eight passengers–thanks to elimination of the right-hand forward closet. The lavatory has been redesigned, yielding a more modern look and better functionality with more storage space. Compared with their progenitors, the 70 and 75 come with a wider selection of cabin materials and finishes.

The new Learjets sell for $11.1 million and $13.55 million (2012), respectively.

Mediums

Cessna Citation Sovereign

Cessna announced a major block change to its midsize Citation Sovereign last year and expects to have it certified before year-end. Range on the revised $17.895 million Sovereign increases by 150 nm to 3,000 nm thanks to a pair of new Pratt & Whitney Canada PW306D engines and the addition of winglets. In the cockpit, the new Sovereign features the Garmin G5000 avionics suite with integrated autothrottles. The nine-passenger cabin has been substantially upgraded with a better cooling system, the Clairity wireless cabin management system, and new and more comfortable seats with recessed armrests that increase aisle room.

Cessna Citation X

The refreshed $22.925 million Citation X (known initially as the Ten) should receive certification by year-end. Announced in 2010, it features many of the same avionics and cabin upgrades found in the new Sovereign as well as a 15-inch cabin stretch for better passenger legroom. The new X also includes new winglets and a pair of updated Rolls-Royce AE3007C2 engines rated at 7,034 pounds of thrust each for a 4-percent boost in takeoff thrust, 9 percent better climb performance, 7 percent more cruise thrust and a 1.4-percent improvement in specific fuel consumption.

The changes yield a variety of performance improvements for the X. Payload increases by 214 pounds, range at high-speed cruise increases by 211 nm to 3,107 nm and the initial cruise altitude increases to FL450 from FL430. Time to climb to FL450 is 23 minutes; to FL350 (anti-ice off) is 13 minutes. The X will have a higher initial maximum cruise altitude and be able to fly faster at various altitudes; cruise speeds will increase by between two and 19 knots, depending on altitude. At FL350 high-speed cruise increases to 527 ktas from 525 ktas, while at FL490 it bumps to 479 ktas from 460 ktas. However, you still have to step climb this airplane after that to reach its maximum cruise altitude of 51,000 feet.

The new X should also retain bragging rights as the world's fastest civil aircraft, with a new and quicker cruise speed of Mach 0.935.

Super Mediums

Bombardier Challenger 350

Bombardier announced the Challenger 350–a revised Challenger 300 with a new wing, more powerful engines, new cabin windows that are 20 percent larger, and redesigned interior–earlier this year and expects to make deliveries of the $25.8 million super-midsize by next May. The company also revealed that actor John Travolta was an active test pilot on the program.

The 350 has a new, longer wing with canted winglets and more fuel capacity that increases range to 3,200 nm and mtow to 40,600 pounds. Engine thrust is increased by 500 pounds from a pair of new Honeywell HTF7350 engines (7,323 pounds of thrust each). The cockpit features upgraded Rockwell Collins Pro Line 21 avionics.

Continues on page 40 ▶



Eclipse 550



Boeing BBJ Max

Large – *Airliner*

BBJ Max & Airbus Neo

Boeing Business Jets announced late last year that it will build the BBJ Max, an executive version of the 737 Max outfitted with CFM International Leap 1-B engines. Initial deliveries are expected in 2017 or 2018. Airbus also announced that it will make its re-engined "neo" (new engine option) A319, A320 and A321 available for the Airbus Corporate Jet (ACJ) program beginning in 2018. Neo customers have a choice of either the Leap-X engine or the Pratt & Whitney PurePower 1100G.

Uncertain

Dassault Falcon SMS

Odds are good that Dassault will finally announce something later this month at NBAA 2013 about its long-anticipated new twinjet known as the SMS or 5X. Virtually nothing concrete is known about this in-development aircraft, allegedly slated to enter service in 2016. Reports abound that Dassault is currently cutting metal for the aircraft, that more than 2,000 people are working on it, and that it will be powered by a pair of 10,000- to 12,000-pound-thrust Snecma Silvercrest turbofans, the same engine selected to power the Cessna Citation Longitude.

Learjet 80

Last year a senior Learjet executive hinted that the company was looking at offering a shorter version of its under-development Learjet 85. Then the company went mum on the subject.

Piaggio Aero P1XX

Various reports have trickled out over the years about Piaggio's attempt to develop a twinjet, including sightings of an engineering mock-up of a delta wing design.

Stratos 714

Despite proclaiming on its website that the aircraft is "getting closer all the time," there seems to be little evidence of progress for the development of this four- to five-seat single-engine jet and no one answered the phone last month at the company's Oregon office. Stratos announced the airplane in 2008 and conducted one-eighth-scale-model wind-tunnel testing in 2011. At last report, the company was seeking additional development financing.

Diamond D-Jet

Diamond Aircraft's tortuous, decade-long attempt to develop a single-engine jet has suffered from chronic under-financing and numerous fits and starts. The company shuttered the program again in February.

Aerostar Jet

Want an Aerostar with jet engines? Neither did anyone else.

Aerion

The supersonic dream lives on in Reno as Aerion continues its quest to find partners willing to build and/or finance its Mach 1.6 bizjet design. The engines appear to be the latest hurdle. The originally selected Pratt & Whitney JT8D-219s will not meet the upcoming Stage 5 noise requirements and there does not appear to be a readily available replacement.

HyperMach SonicStar

This sleek would-be Mach 4 design also lacks an engine. ■