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Hawker 200

Dual personality: sporty performance and commodious cabin

HBC

By Fred George

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Push up the throttles in the Hawker 200 on takeoff and you might think you're strapped in a Learjet 25, considering this aircraft's rapid runway acceleration, excellent climb performance and near Mach 0.80 cruise speeds in the mid-forties. That's to be expected. The Hawker 200 has the best thrust-to-weight ratio of any business aircraft in current production, even edging out the athletic Cessna Citation CJ4.

Clearly, this aircraft runs away from its predecessor, the Beechcraft Premier IA. When the Hawker 200 enters service in late 2012, pilots will be able to plan flights using Learjet-like 440 KTAS block speeds and file for direct climbs to altitudes as high as FL 450. Trips between city pairs such as Seattle and Los Angeles, Houston and Chicago, or Toluca and Dallas will take little more than 2 hr. The only member of the Hawker family that can cruise faster is the $23 million super-midsize Hawker 4000 flagship.

The Hawker 200's boost in performance mainly comes from its Williams International FJ44-3AP turbofans. They provide almost one-third more thrust than the -2A engines that power the Premier IA and they give the aircraft much improved hot-and-high airport performance. Winglets also contribute by cutting lift-induced drag, thereby helping to improve runway performance and enabling it to cruise higher, faster and more economically. Maximum operating altitude is increased by 4,000 ft., to 45,000 ft., further improving fuel efficiency and helping the aircraft top more weather buildups. Just as importantly, the Hawker 200 can climb directly to FL 450 in 26 min., or less, as we recorded when we flew it.

The empty weight of the new Hawker went up by 720 lb., compared to the Premier IA, but its maximum takeoff weight increased 1,300 lb. Thus it can lift almost three times the payload with full fuel. The Hawker 200 can carry four adults, one child and baggage with the tanks topped. A typically equipped Premier IA has a 320-lb. tanks-full payload.

The Hawker 200 is built on the same factory tooling as its predecessor, and thus their interior shell dimensions are identical. These two aircraft have the largest cross section of any in the light jet class.

Thought was given to stretching the aircraft and adding more fuel, but that would have required a costly investment in new factory tooling and a considerably more extensive recertification program. Keeping a tight rein on development costs enabled Hawker Beechcraft to hold down the price increase to less than $600,000 compared to the Premier IA.

The overall cabin volume is 315 cu. ft. and there is an 85-cu.-ft. cockpit. Its interior height and width actually rival that of some midsize aircraft, including legacy Hawkers. Capitalizing on that sizable asset, the aircraft, which was to be called the Premier II, was renamed the Hawker 200.

Reflecting the new name, the cabin was rearranged to improve passenger comfort and utility. Since most operators will carry no more than four passengers, the main four-seat club section has increased legroom and the two forward-facing seats in the aft cabin have been removed. For the occasional fifth passenger, engineers installed a single side-facing chair on the left rear side. The side-facing aft chair allows a vertical aft partition to be fitted to the cabin, thus opening up space in the aft lavatory and also providing room for an optional belted potty seat to carry an extra passenger.

The Hawker 200 still falls short in maximum range, some Premier IA operators say. With two occupants on board, it can't fly much farther than the Premier IA at high-speed cruise. Admittedly, it can fly four passengers 265 mi. farther, reflecting its much-improved tanks-full payload. Even so, some were hoping the Hawker 200 would have 400 mi. more range, especially because some competitive light jets can fly 150 nm to 500 nm farther with four passengers at long-range cruise.

Hawker Beechcraft officials counter that the new aircraft flies routine missions 15- to 20- kt. faster than the Premier IA, making it the fastest light jet outside of the diminutive SyberJet SJ30-2, which has the smallest cabin outside of the out-of-production Eclipse 500. Moreover, if most competitive light jets are flown at its 440- to 450-KTAS cruise speeds, the Hawker 200 has far more range because it flies considerably higher and thus gets better fuel economy.

If operators want to fly farther than 1,370 nm with four passengers, they need only slow down to Mach 0.72 to stretch the range to 1,500 nm, as shown on the accompanying Time and Fuel Versus Distance Chart. Slowing down further to typical straight-wing light jet cruise speeds of Mach 0.68 to 0.70 extends the four-passenger range to 1,545 nm.

Performance statistics and cabin measurements alone do not tell the whole story. The Hawker 200, along with its predecessor Premier I, is the first business jet to have a composite fuselage. The carbon fiber and honeycomb structure is immune to corrosion and has excellent fatigue resistance. The aircraft has a mildly swept wing and complex aero contours that give it exceptional fuel efficiency, considering its relatively high cruise speed and class-leading cabin comfort.

Modified Airframe and Improved Systems

The Hawker 200's elliptical winglets, developed in partnership with Wichita-based Winglet Technology LLC, are the most obvious aerodynamic change to the aircraft from its predecessor. There are two more subtle changes that enhance performance. Anhedral strakes were added to the tail to improve directional and pitch stability. Aerodynamic fairings were added to the aft fuselage below the engine pylons to reduce Mach-induced shock drag in that area.

The composite fuselage shell has virtually the same barrel size as the composite Beech BE-2000 Starship. Hawker Beechcraft claims that the composite fuselage is 20% lighter than aluminum as well as being three times stronger and 70% stiffer. It also has no published life limit.

Composites also give aero engineers the flexibility to shape the exterior for the lowest transonic drag, capitalizing on Richard Whitcomb's (cross section) area rule theory. The aft fuselage has deep recesses inboard of the engine nacelles, for instance, to reduce Mach-induced shock drag. The aircraft has a large composite fairing that extends from the nosewheel well back to the aft fuselage, thereby helping to make the changes in cross section from nose to tail as even as possible, the fundamental principle of area rule design.

Most of the lay-up work is performed by computer controlled "viper" fiber-placement machines that wind carbon fiber tape, impregnated with epoxy resin, around a mandrel. After the viper completes the inner skin, technicians attach the honeycomb core by hand and then the viper applies the outer skin. The carbon fiber skins are thicker on the Hawker 200 than they were on the Premier I/IA to provide additional strength needed for the increased pressurization required for cruising 4,000 ft. higher.

The pressurized section of the fuselage shell, minus the unpressurized nose and tail sections, is fabricated as a single structure on the mandrel. After that, the carbon fiber/honeycomb sandwich structure is removed and cured in a high-pressure autoclave. The nose and tail sections, including the forward and aft pressure bulkheads, are built separately. They are attached to the pressurized section on the assembly line.

Composites also are used for the flaps, ailerons, horizontal stabilizer and winglets. The multifunction spoilers and vertical stabilizer spars are constructed from aluminum.

The wing is all aluminum and it has 20 deg. of sweep back at quarter chord. That's about all it has in common with the wings of legacy Hawker jets. The Hawker 200's airfoil is a high-speed, natural laminar flow design that maintains laminar flow for the first 30% of the chord. Long-range cruise speed is Mach 0.72 and high-speed cruise is Mach 0.78. The winglets, which add less than 50 lb. to the empty structure of the aircraft, extend tip-to-tip span by 1.1 ft. and reduce drag up to 3-4% in cruise. Larger winglets would have further reduced drag, but they also would have required more structural reinforcement to the wings, thus increasing empty weight.

The wing structure is complex, robust and reinforced for the Hawker 200 to handle the 1,300-lb. takeoff weight increase and increased aero loads imposed by the winglets. There are six single-piece, machined-milled spars, plus a seventh, aft sub-spar that provides the rear mounting point for the main landing gear. Intercostal ribs, attached to the wing spars, form an internal ladder structure. Single-piece, milled upper and lower wing skins are riveted onto the ladder structure forming semi-monocoque wing boxes.

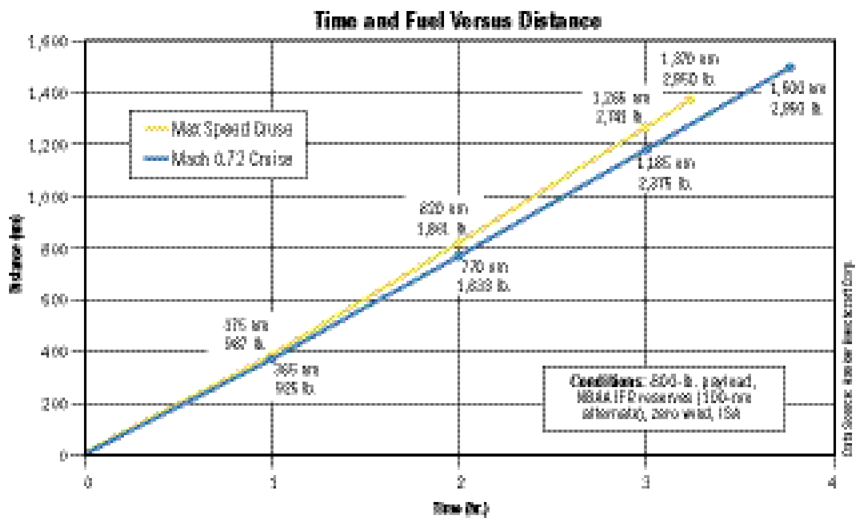
Raising the maximum ramp weight to 13,800 lb. from 12,590 lb. resulted in a more restricted c.g. range, as often is the case with derivative aircraft. The new model has a forward limit of 27.7% MAC at MTOW compared with a 24.0% forward limit for the Premier IA. The aft limit remains 32.5-38.5% depending upon aircraft weight. In everyday operations, the narrowed loading envelope should pose no problems.

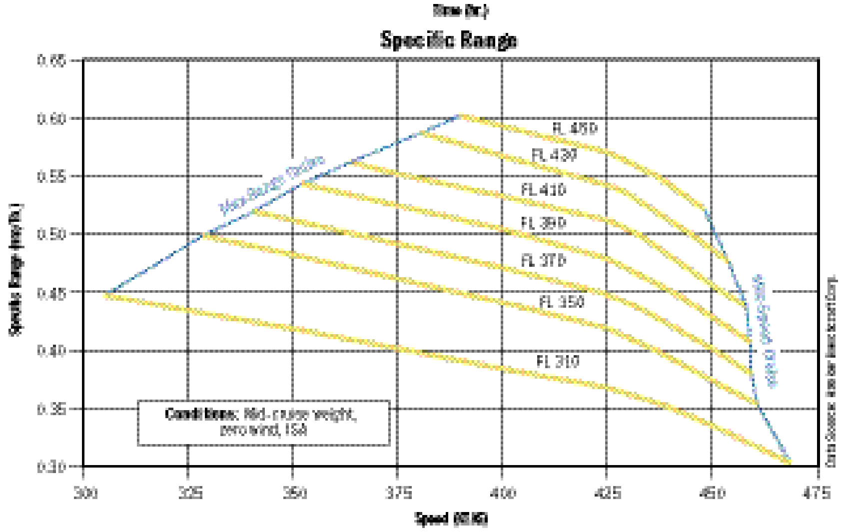
Most of the Premier IA's systems are carried over, but some have been upgraded. The right side emergency exit is larger, carbon/carbon brakes replace the steel discs and steel braces replace aluminum braces on the landing gear. The engine mounting system is strengthened to handle the additional thrust, pressurization is increased and twin ventral strakes have been added underneath the tail to improve stability.

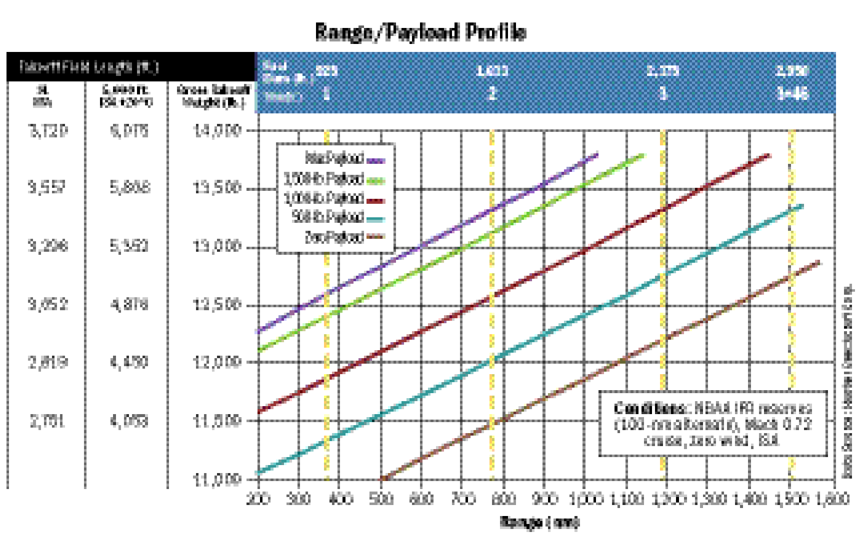
As with its predecessor, the Hawker 200 has mechanically actuated primary flight controls. Rudder travel has been increased to 29 deg. from 25 deg. to handle the greater thrust. A rudder boost system reduces pedal effort in proportion to thrust asymmetry. Digital fly-by-wire, hydraulically actuated multifunction spoilers augment roll control authority. The spoilers also have speed brake and lift dump functions. Electric trim is provided in the pitch, roll and yaw axes. The left aileron and rudder have trim tabs. The horizontal stab is trimmable and its movement also actuates trim tabs on each elevator.

Inboard and outboard trailing-edge, single-slotted Fowler flaps extend to 75% chord, thereby making possible relatively low V speeds and good short-field performance. The flaps may be extended to 10 deg. or 20 deg. for takeoff and approach, and 30 deg. for landing. The winglets and

Hawker 200







NOTE: Do not use these data for flight planning purposes because they do not take into account ATC delays and less than optimum routings and altitudes, along with other factors that can alter actual aircraft performance.

These graphs are designed to illustrate the performance of the Hawker 200 in a variety of range, payload, speed and density altitude conditions. Hawker Beechcraft's chief sales engineer, Martin Tuck, provided the chart data. Please note: These data are preliminary and are subject to change as a result of flight tests leading up to aircraft certification, now slated for the first half of 2012. Do not use these data for flight planning purposes because they do not take into account ATC delays, and less-than-optimum routings and altitudes, along with other factors that can alter actual aircraft performance.

Time and Fuel Versus Distance — This graph shows the relationship among distance flown, block time and fuel consumption for a typically equipped aircraft having a 9,320-lb. BOW and carrying four passengers. The fuel and distance points were individually computed by Hawker Beechcraft for each hourly mission. Normal cruise speed is Mach 0.75 to 0.79 at FL 450. Long-range cruise speed is Mach 0.72, as illustrated on this chart. Maximum range speed, which varies from Mach 0.68 to 0.70, depending upon aircraft weight, extends range to 1,545 nm.

Specific Range (Mid-Range Weight, ISA) — This graph shows the relationship between cruise speed and fuel consumption for the Hawker 200 at representative cruise altitudes for a mid-weight aircraft. The data indicate that FL 450 is the optimum for fuel efficiency. At mid-cruise weight, maximum range speed is Mach 0.68 and maximum cruise speed is Mach 0.78 at this altitude. We had no opportunity to verify these data at mid-cruise weight during our brief intro flight.

Range/Payload Profile — The purpose of this graph is to provide simulations of various trips under a variety of payload and two airport density altitude conditions, with the goal of flying the longest distance at Mach 0.72. Each of the five payload/range lines simply was plotted from beginning and ending data points. Do not use these for flight planning as they are gross approximations of actual aircraft performance. The dashed hourly cruise lines are taken from the long-range cruise line of the Time and Fuel Versus Distance chart. They assume a four-passenger (800-lb.) payload. The takeoff field lengths all were computed, assuming flaps 20 deg. Unlike the Premier IA, the Hawker 200 doesn't have to use a reduced flap setting to achieve OEI second-segment climb gradient requirements under *BCA*'s hot-and-high airport conditions. Range when departing from *BCA*'s 5,000-ft. elevation airport is slightly greater than when departing from sea-level because their aircraft has a 5,000-ft. head start on the climb to FL 450.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Each club seat has pitch, recline, lateral track and swivel adjustments, plus a retractable aisle-side armrest.

a 1,400-lb. boost in engine thrust also improve runway and climb performance.

The aircraft has an angle-of-attack stall-barrier system, including a stick pusher, that ensures it will exhibit positive stability at low speeds within the normal flight envelope.

The landing gear has been beefed up to handle the added weight. The carbon brakes both increase stopping power and reduce empty weight. The brake pedals are connected directly to the brake control valves, providing crisp response. An emergency accumulator provides brake power in the event of a hydraulic system failure. Nosewheel steering is controlled by mechanical links to the rudder pedals.

Toss out those Prist cans. Fuel heaters eliminate the need for anti-icing inhibitor additives. The wet wings hold all 3,650 lb. of fuel, down 20 lb. from the Premier IA. Over-wing refueling ports are standard. The optional single-point pressure refueling system adds 33.6 lb. to empty weight. Jet pumps normally feed fuel to the engines. Boost pumps provide fuel pressure for engine start and transfer. They're also backups for the jet pumps.

Left and right engine-driven hydraulic pumps supply 3,000 psi pressure to actuate the landing gear, multifunction spoilers and anti-skid wheel brakes. Conventional MIL-H-5606 red fluid fills the 1.7 gal. reservoir.

Each engine also has a 28-VDC, 325-amp starter generator that supplies the parallel-bus electrical system that powers the wing flaps, air-conditioning system and lights, along with windshield and probe anti-ice heaters, and other equipment. A 24-volt, 42-amp-hour lead-acid battery provides power for engine start and emergency electrical power. There is a separate standby 3.5-amp-hour battery for the emergency standby instrument system and other essential gear.

Engine bleed air is used for cabin heating and pressurization. Pressurization is scheduled by a stand-alone automatic controller that isn't linked to the FMS. Maximum cabin altitude is 8,000 ft. at FL 450. There is a 50-cu.-ft. emergency oxygen system. An electrically powered vapor cycle system provides air-conditioning. The cockpit and cabin have individual temperature controls.

The wing leading edges and engine nacelle lips also use engine bleed air for anti-ice heating. The horizontal tail uses an electrically heated parting strip to soften ice accretion and an electro-magnetic expulsive icing system that thumps the leading edge to shatter ice and allow it to be carried away by the slipstream.

Midsize Jet Passenger Comfort for Four

Hawker Beechcraft interior designers embraced the current European trend towards minimalist décor. In keeping with the euro-style, frills are out and function is in. Color contrasts are prominent, including contrasting leather inserts in the seat backs and bottoms, along with the piping on the chair seams. Dark, high-gloss wood veneers on cabinets and sidewall ledges contrast with lighter colors used on leathers, sidewalls and overhead panels.

The main seating area of the cabin is 11.2-ft. long. Manually operated window shades are provided for the three passenger windows on each side. Three seating configurations will be offered, each of which still are being defined. The first layout has a forward right refreshment center and storage cabinet, four club seats, the single side-facing seat on the left aft side of the cabin and a hanging clothes closet on the right. The refreshment center includes two hot beverage carafes; extendable work board; storage room for cold beverages, small catering trays and ice; and general storage and trash container drawers.

The second configuration has a side-facing chair in place of the refreshment center. The third floor plan essentially copies the Premier IA's six-chair layout with a forward four-seat club section and two forward-facing chairs in the aft cabin.

The two new configurations afford 4 in. more legroom for each passenger in the club section than the six-seat configuration of the Premier IA. Each club seat has pitch, recline, lateral track and swivel adjustments, plus a retractable aisle-side armrest. Leather-covered, foldout worktables and 117-VAC power outlets are provided for each pair of facing seats. The other seats are intended only for occasional use.

The cockpit/cabin bulkhead divider has a sliding door that isolates the passengers from the crew as required for sterile cockpit operations or passenger privacy. There is a second sliding door in the aft cabin/lavatory bulkhead divider to close off the lav.

An Aircell Axxess Iridium satellite phone is available as an option. Once that's installed, operators also may upgrade to an optional Aircell ATG-4000 air-to-ground data link that provides operators in the U.S. with high-speed Internet access. For international operations, an Aircell SwiftBroadband satellite Internet system by Thrane & Thrane is available. It provides Internet speed similar to a land-based DSL connection. The Iridium phone and air-to-ground data link each weigh 20 lb. The Inmarsat data link adds 30 lb. to aircraft empty weight.

Baggage capacity is more in line with light jets than midsize aircraft. There is a 10-cu.-ft. baggage bay on the left side of the nose that is handy for duct covers, loose equipment and pilot gear. The main aft external baggage compartment has a 44-cu.ft., 400-lb. storage capacity that is sufficient to hold 210-cm skis or golf bags. It's heated, but unpressurized. Another 19.9 cu. ft. of gear can be stowed in the aft lavatory, but that blocks access to the loo.

Flying Impressions

The Hawker 200 flies a lot like the Premier IA, as we discovered when we strapped into the left seat of RD-1, the first Hawker 200, for the aircraft's 198th flight. It is one of four aircraft in the flight test program, which was about 50% complete in late June. We were accompanied by experimental test pilot Peter Gracey. The familiar cockpit includes removable, lighted, yoke-mounted approach plate holders, amply sized pockets for nav publication storage, cup holders and emergency O_2 masks. Considering recent advances in cockpit display technology, the Hawker 200's stand-alone annunciator panel in lieu of a fourth LCD screen seems a bit dated.

Start up and taxi checks are virtually identical to those of the Premier IA. They're comparatively lengthy, except that the FADECs eliminate the need for fuel computer checks. Among the items are pressurization, fuel transfer, roll spoiler, stall warning and rudder boost system checks. With practice, though, all checks can be completed reasonably quickly.

The airplane's ramp weight was 13,850 lb., just 50 lb. shy of its maximum, when certified in 2012. Airport performance testing was not yet complete, so we used conservative V speeds and runway requirements. Departing Beech Field (elevation 1,408 ft.) in Wichita on the 15C day at the aircraft's MTOW of 13,800 lb. and flaps 10 deg., Gracey set bug speeds of 110 KIAS for the V1 decision speed, 116 KIAS for rotation and 132 KTAS for the OEI takeoff safety speed. The computed takeoff field was 4,250 ft. These numbers could improve pending completion of flight tests.

Gracey explained that the aircraft will be certified for airports with elevations up to 12,000 ft. The Premier IA was limited to 9,400-ft. elevation airports. Preliminary performance data, however, suggest that the Hawker 200's operations will be quite restricted at 12,000-ft. elevation airports by weight/altitude/temperature limits.

Rolling out of the chocks, the nosewheel steering was precise and braking action was smooth and responsive even though flight test engineers still were fine-tuning the brake system.

Cleared for takeoff, we made a quick note. Pilots may want to advise passengers to tighten their seat belts aboard the Hawker 200 before departure. This is no matron from Hatfield. Once we pushed up the throttles, acceleration on takeoff was spirited. One minute after leaving Beech Field, we were passing through 5,000 ft. Climbing in mostly ISA+2C conditions, the aircraft reached FL 450 in 22 min. in spite of two short intermediate level-offs imposed by Kansas City Center for air traffic control. Based upon that impressive time to climb, Hawker Beechcraft's climb performance predictions appear to be conservative.

On the way up, we noted that the aircraft has the control feel of a midsize Hawker as well as nice stability, with relatively hefty stick force increase per g that helps to prevent over control. At FL 450, buffet margins at a weight of 13,000 lb. were robust up to 1.55 g, based upon first encountering light buffet at 50 deg. in a wind-up turn. Disconnecting the yaw damper, we observed that yaw roll coupling, or Dutch roll, was neutral and easily controllable with aileron and rudder inputs. For normal operations, the yaw damper is quite effective.

When we checked high-speed cruise performance, the flight test aircraft appeared to have higher drag than production aircraft. For a 13,000-lb. airplane cruising at 45,000 ft., ISA conditions, the preliminary flight planning guide predicted a top cruise speed of 443 KTAS while burning 853 pph. At that weight and altitude, our aircraft managed 429 KTAS while burning 840 pph at ISA+1C.

Descending to 33,000 ft., we again checked high-speed cruise performance. At that test point, the aircraft beat book numbers. At 13,000 lb., it cruised at 467 KTAS, or 2-kt. faster than predicted, and burned 1,440 pph, which was about 10 pph less than forecast.

Down at 15,000 ft., we evaluated low-speed handling qualities. We could easily maneuver the aircraft in the clean configuration down to 115 KIAS even in 30-deg. turns. With gear and flaps extended, we slowed to 110 KIAS, observing that the aircraft remained stable and very responsive in roll, in large part due to the effectiveness of the roll spoilers that augment the ailerons with 10 or more degrees of control wheel rotation.

We didn't fly approaches to stalls, let alone full aerodynamic stalls, because Hawker Beechcraft test pilots have not cleared that part of the flight envelope for certification. However, we expect the Hawker 200 to have better aerodynamic stall recovery characteristics than the Premier IA because of greater nose-down pitching moments caused by the addition of winglets and aft fuselage ventral fins. Nonetheless, the aircraft will be certified with a stall warning stick-pusher.

In the landing pattern, the Hawker 200 has docile manners in spite of its added muscle. It's easy to fly by hand on approach. Our VREF speed at 12,500 lb. with landing flaps was 121 KIAS. We found it advisable to pull back the thrust to idle at 50 ft. AGL to allow time for the aircraft to decelerate in ground effect. If VREF is maintained to the flare, the aircraft will float excessively, a predictable characteristic of aircraft with relatively light wing loading, and no high-lift devices on the leading edges and winglets.

Facing Tough Competition in Light Jet Market

The accompanying Comparison Profile illustrates that the Hawker 200 is a full-fledged member of the Hawker product family, considering its roomy cross section and relatively high tanks-full payload. Because of its 20 deg. of wing sweep, runway performance is not as good as most straight-wing light jets. The payback comes with cruise performance. Long-range and high-speed cruise speeds are faster than straight-wing aircraft and because of its high-altitude capabilities, fuel efficiency

Rockwell Collins Pro Line 21 Avionics

The Hawker 200's Rockwell Collins Pro Line 21 cockpit looks a lot like that of the Premier IA, with its three 10-in. by 8-in. AFD-3010E LCD screens, stand-alone annunciator light panel and dual multifunction CDUs in the center console. The most obvious difference is the Meggitt EPD-40002 integrated electronic standby instrument system that replaces the cluster of three standby instruments aboard the Premier IA.

Major changes were made to the remote boxes. Rockwell Collins' RTA-4112 Multi-Scan weather radar replaces the WXR-800 and the TSS-4100 hybrid TCASADS-B traffic surveillance system replaces one of the TDR-94D Mode S diversity transponders. An IMF-3500 wireless information management server enables the crew to update navigation databases and electronic charts anytime a Wi-Fi, ground-based cellular phone or Aircell air-to-ground Internet connection is available. The databases also may be updated using a USB thumb stick or USB laptop connection.

The standard package includes an integrated flight information file server that supports electronic charts with geo-referenced aircraft position, enhanced map graphics and 3-D mapping. The FGC-3000 digital flight guidance system is standard, along with a single FMS with WAAS/LPV receiver, an ALT-4000 radio altimeter, three-band Wolfsburg ELT and ACSS TAWS+. Dual RVSM-capable ADS-3000 digital air data computers, dual AHS-3000 AHRS, dual digital VHF comm transceivers and dual VHF nav receivers, plus a single DME, single ADF receiver, solid-state Universal Avionics CVR and maintenance diagnostic computer, along with TDR-94D as the second transponder, are standard.

Options include XM satellite radio or worldwide ACARS data link with graphical weather, second FMS with WAAS and LPV, Rockwell Collins HF-8000 HF transceiver, second DME, second ADF receiver and extended frequency range comm transceivers.

Williams International FJ44-3AP Turbofans

The FADEC-equipped -3AP is one of Williams most advanced versions of the FJ44 turbofan family, producing 3,050-lb. thrust for takeoff and weighing only 528 lb. Compared to earlier -3 engines, the -3AP incorporates many aerodynamic, weight reduction and durability improvements. The two-spool engine features a wide-chord fan, three axial-flow compressor stages, a single centrifugal high-pressure compressor powered by a single stage high-pressure turbine and a two-stage low pressure turbine that powers the axial compressor and fan. A deep fluted exhaust mixer nozzle both increases high altitude thrust output and reduces exhaust noise.

A moderate bypass ratio and robust core enable the engine to produce 786 lb. thrust at 40,000 ft., ISA, uninstalled with a thrust specific fuel consumption of .726 lb/lb thrust. Up at 45,000 ft., the uninstalled engine is able to produce 620 lb. thrust with a .735 lb./lb. thrust specific fuel consumption.

Based upon flying at high-speed cruise, fuel consumption for a typical 600 nm mission is 1,511 lb. and 2,373 lb. for a 1,000-nm trip. Engine reserves for two engines should be less than $500 per hour.

is superior. That's an important asset in an increasingly eco-conscious world.

Range performance isn't this aircraft's best feature, even though it can fly four passengers 1,500 nm. Range competition is tough in the light jet class. Some operators hope that an auxiliary fuel system will be developed for the aircraft that will enable them to trade payload for more miles.

Hawker Beechcraft officials have no immediate plans for such a modification. They point out that the aircraft can fly coast-to-coast, eastbound or westbound, in the U.S. with one refueling stop. All other light jet competitors, except for the compact SJ30-2, also have to stop for fuel on that mission. The difference is that four passengers aboard the Hawker 200 will climb above the weather faster and make the journey in less time, in a more comfortable cabin and while consuming less fuel than most aircraft in this class.

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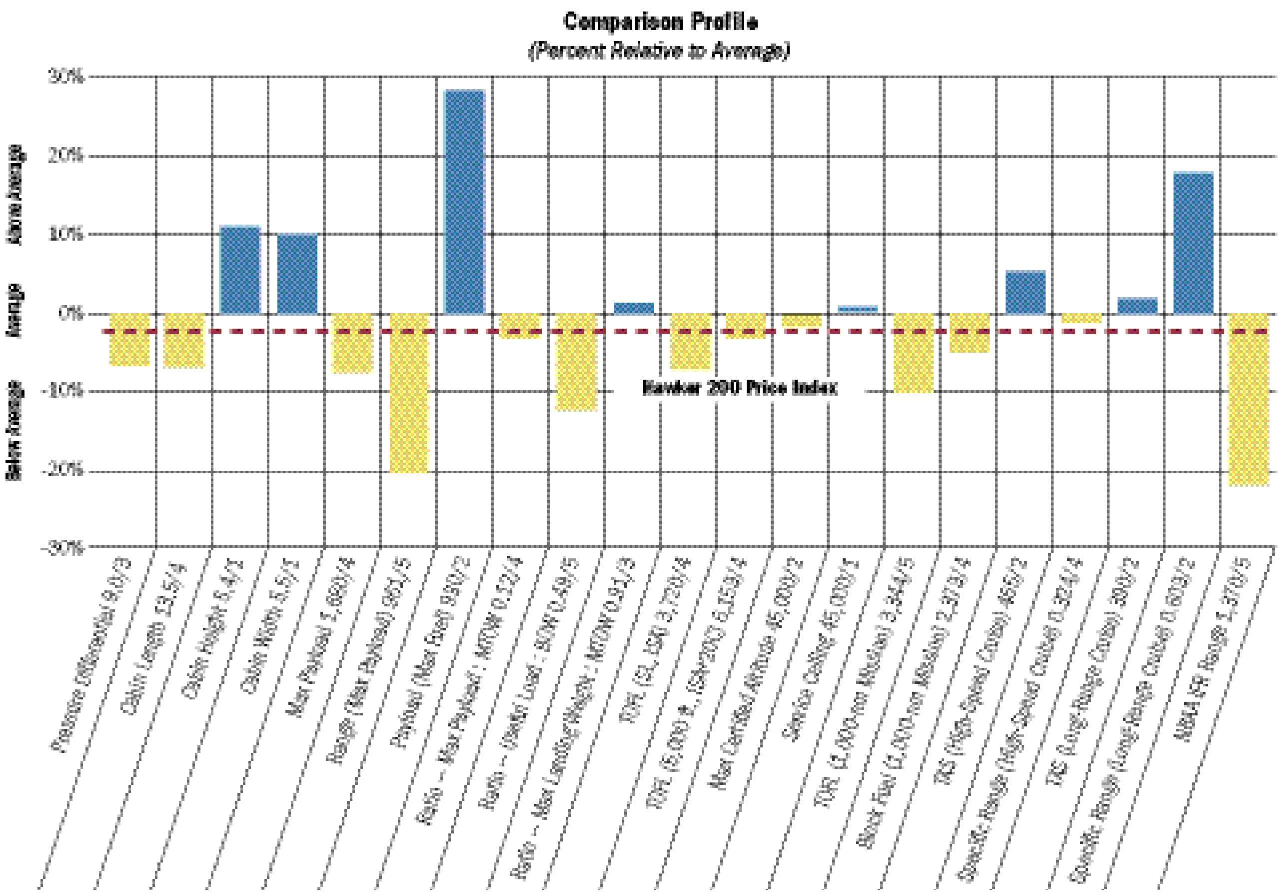
The Hawker 200's elliptical winglets, developed in partnership with Wichita-based Winglet Technology LLC, are the most obvious aerodynamic change to the aircraft from its predecessor.

The Premier IA offered ample cabin comfort, but its girth outgrew its engines during development and performance suffered as a result. Hot-and-high takeoff performance was anemic. With stiff winter headwinds, it might have to stop twice for fuel en route from New York to San Diego.

The Hawker 200 remedies those performance shortcomings and it offers an even more comfortable cabin for four passengers. With this dual personality aircraft, light jet operators no longer have to choose between cabin comfort and strong performance. **BCA**



Designers attempt to give exceptional capabilities in all areas, including price, but the laws of physics, thermodynamics and aerodynamics do not allow one aircraft to do all missions with equal efficiency. Tradeoffs are a reality of aircraft design. In order to obtain a feeling for the strengths and compromises of a particular aircraft, we compare the subject aircraft's specifications and performance attributes to the composite characteristics of other aircraft in its class. We average parameters of interest for the aircraft that are most likely to be considered as competitive with the subject of our report, and then we compute the percentage differences between the parameters of the subject aircraft and the composite numbers for the competitive group as a whole. Those differences are presented in bar-graph form along with the absolute value of the specific parameter for the subject aircraft and its ranking relative to others in the composite group. For the Hawker 200 Comparison Profile, we compared it to a composite group of five aircraft including it, the Cessna Citation CJ2+ and CJ3, Embraer Phenom 300 and SyberJet SJ30-2. Please note that the Comparison Profile is meant to compare the relative strengths and compromises of the subject aircraft to a composite average, rather than being a means of comparing specific aircraft models to each other.