



*At its unveiling during NBAA '98, the Century Jet attracted hundreds of customers and press, resulting in 18 additional orders during the three-day convention. Total orders for the Century Jet now number over 50 aircraft. As the march toward certification continues, CAC engineers have been busy putting their final touches on the design prior to wind tunnel testing and tooling work on the first conformal prototype.*

## Century Jet 100 refined prior to testing.

Following a highly successful unveiling of the Century Jet 100 at last year's NBAA Convention, engineers at Century Aerospace Corporation have been busy refining the design in preparation for wind tunnel testing and tooling work for the first conformal prototype aircraft.

Several of the aircraft's systems are undergoing significant improvements. In the fuel system, the fuselage-mounted header tank was removed and the fuel has been relocated to two fuel cells located in the forward portion of the wing/fuselage fillet. The total fuel capacity remains the same at 330 gallons and the system has been greatly simplified, eliminating the need for dual pumping systems. A bleed air, anti-ice system is replacing wing leading edge de-ice boots, and redundancy was added in the hydraulic, electrical and bleed air systems to complement the twin-engine configuration.

All enhancements to the CA-100's systems are being conducted under the leadership of Bill Ackerman, head of CAC's systems engineering and former head of systems engineering for the Cessna Citation 500.

"We've seen a vast improvement in functionality and redundancy in the aircraft systems' twin-engine configuration," Ackerman said. "The design of the systems are now much cleaner and safer, easily able to handle situations such as engine-out through the additional redundancy. We also are making significant strides in designing for ease of maintenance. Our systems bay is being redesigned with the mechanic in mind and will make the airplane very simple to maintain."

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# You talk...we listen.

*Once again, Century listens to customer input and implements changes that exceed expectations.*

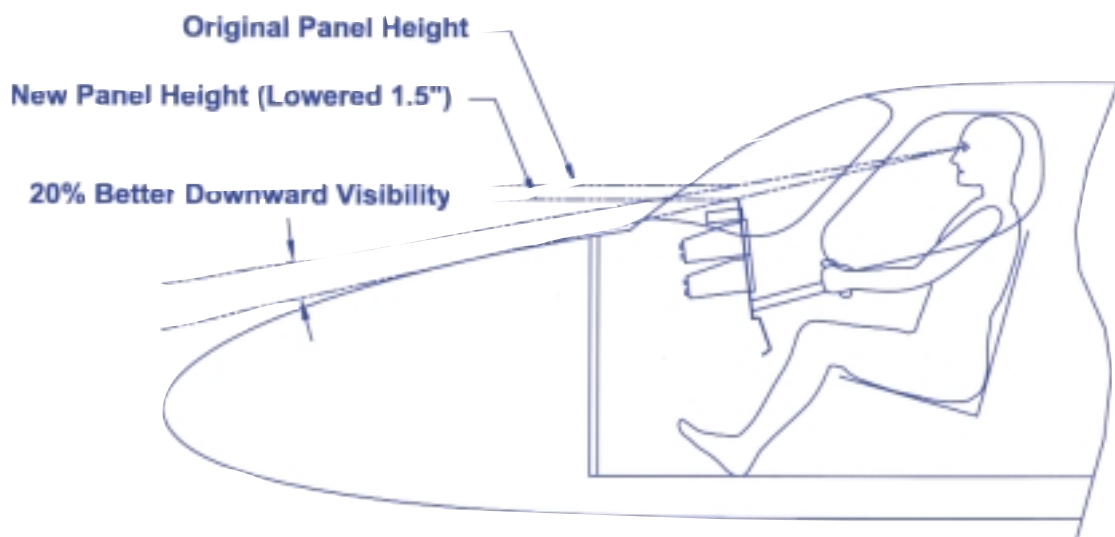


Century Aerospace Corporation already has a history as a customer-driven company, always lending an attentive ear to its customers and doing its best to deliver on their requests. At the first public showing of the new Century Jet CA-100 at NBAA '98, customers and press praised every aspect of the design inside and out – with only one exception. Several pilots who sat in the front seat of the mock-up, while enthused about the instrument panel layout and excellent overall ergonomics, asked for slightly better downward (forward) visibility.

In typical fashion, CAC engineers returned with a “let’s try” attitude and began to evaluate ways to make improvements to satisfy this request.

“The challenge we faced in the cockpit from the beginning was our priority to design for the best ingress/egress possible,” said CAC engineer Dan Apel. “We designed the cockpit with the pilot in mind and felt that just because the aircraft was a jet, it shouldn’t require the pilot to perform acrobatics just to get situated up front. This point was very important to our customers, many of whom will fly their own CA-100. So, CAC designed the console to be as compact and unobtrusive as possible and also used a yoke control rather than a column control, typically found in jets. Although the yoke control frees up significant leg room, it does force the instrument stack higher on the panel and requires that the panel be slightly taller than normal.”

After careful analysis and redesign of the windshield lines, instrument panel and fuselage nose contours, CAC engineers came up with a solution that maintained the desired clean entrance to the cockpit, while improving downward visibility by 20 percent (see illustration). This is just another example of how Century not only listens to its customers, it delivers. ■



**Cockpit & Instrument Panel Modification**

Century Jet 100 refined prior to testing.  
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*“We’ve seen a vast improvement in functionality and redundancy in the aircraft systems...”*

Bill Ackerman  
CAC Lead Systems Engineer / DER

Improvements in the control system have been made as well, including the removal of the roll augmenting spoilers. Through detailed flying quality analysis, it was discovered that the Century Jet could achieve its roll performance objectives with slightly longer ailerons and without the added complexity and cost of the spoilers.

Other changes in the Century Jet’s stability and control include an increase in the size and aspect ratio of the vertical tail and a repositioning of the wing several inches forward. No changes were required in the longitudinal stability and control.

Dale Ruhmel, CAC vice president of engineering, oversees all decisions related to stability and control and flying qualities. Ruhmel has worked on the design and certification of more than 26 different aircraft, including the Cessna Citation II and III. Previously, Ruhmel was chief of the DC-10 Stability and Control at McDonnell Douglas, and also the group leader of the DC-8 series 61, 62, 63 Stability and Control Group.

With such an impressive background, Ruhmel has understandably placed a large emphasis on flying qualities.

“An aircraft can meet all of the FAA requirements in the flight test program and still have relatively poor flying qualities, as many aircraft do,” Ruhmel said. “We are taking extra measures to ensure that the Century Jet will be a pleasure to fly in all portions of the flight envelope. I personally will see to it that the Century Jet not only meets the requirements, but that it also has superb flying qualities.” ■



*“I personally will see to it that the Century Jet...has superb flying qualities.”*

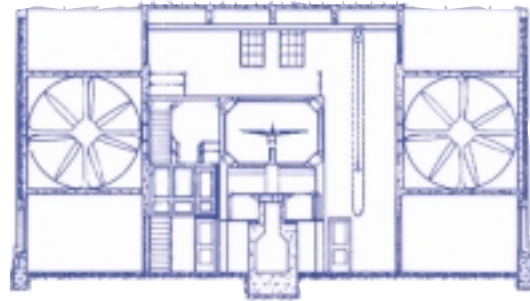
Dale Ruhmel  
CAC Vice President of Engineering / DER



# Century Jet begins final wind tunnel testing.



*The 8' x 12' x 10' test section can provide airspeeds of 200 mph for a typical-sized wind tunnel model.*



Having completed its refinements to the design of the Century Jet 100, Century Aerospace Corporation begins its final wind tunnel test program to confirm and validate low speed stability and control characteristics of the Century Jet. Construction of a one-fifth-scale wind tunnel model has begun and testing will take place at the University of Washington Kirsten Wind Tunnel Facility in Seattle, Washington.

The Kirsten Wind Tunnel Facility at the University of Washington is a world-class facility that has been heavily used and subsidized by the Boeing Company. The facility is a double-return, closed circuit wind tunnel with a 8' x 12' x 10' test section and can provide airspeeds of 200 mph for a typical-sized wind tunnel model.

"The Kirsten Wind Tunnel is one of the finest in the country, used for testing by companies such as Boeing, Raytheon, Sino-Swearingen and Ayres," said CAC aerodynamicist, Ian Gilchrist. "The tunnel has

excellent flow quality, a highly accurate external balance and a state-of-the-art, real-time data acquisition system. We look forward to confirming the basic aerodynamics and stability and control of the Century Jet in the tunnel. We are confident, based on our computational and empirical analysis, that we can rapidly converge on a certifiable configuration with outstanding performance and handling qualities."

As of press time of this newsletter, the one-fifth-scale wind tunnel model of the Century Jet was half-completed and expected to begin testing early this fall. ■

*"The tunnel has excellent flow quality, a highly accurate external balance and a state-of-the-art, real-time data acquisition system".*

*- Ian Gilchrist  
CAC Aerodynamicist*



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