

Sleeping Giants
A TOUR OF AIRPLANE BONEYARDS

Tough Turns
HANDLING NONSTANDARD INTERCEPTS

FLY-IN
BREMERTON, WA
August 20, 2016
page 55

AOPA PILOT

The Voice of General Aviation

www.aopa.org/pilot | August 2016 | \$6.95

HondaJet

FinishLine

FAST, FUN, AND FINALLY HERE p. 60

Untamed Alaska
A FLIGHT'S FICKLE FORTUNES p. 70

Roughing It
BACKCOUNTRY
FLYING BASICS p. 96

CONTENTS

August 2016 | Volume 59 | Number 8 | www.aopa.org/pilot

82

FEATURES

60

A Matter of Speed

With the HondaJet, a powerful brand noses into the light jet category.

By Thomas B. Haines

Seeker and Ye Shall Find

With helicopter-like performance, the Seeker searches for bad guys and lost children.

By Alton K. Marsh

70

Alaska Misadventure

Lunar landscapes, towering mountains, and fickle weather characterize the Alaska coast.

By Dave Hirschman

76

Top Twin

One tricked-out Twin Comanche.

By Steve Zaboji

88

A Tale of Two Boneyards

Vintage military and commercial aircraft treasures are preserved in the Arizona desert.

By Mike Collins

ON THIS PAGE:
AOPA Pilot Senior Editor Alton Marsh and Seeker Aircraft's David Pohlman fly the Seeker light observation aircraft northeast of New Mexico's Moriarty Airport. Photography by Mike Fizer

CONTENTS

August 2016



COMMENTARY DEPARTMENTS

6 President's Position

Why we fly.

16 Waypoints

An airplane in the family.

18 Proficient Pilot

Flying behind the mental power curve.

20 Safety Spotlight

Hangin' on the stabs.

22 License to Learn

Risky business.

24 Pilot Counsel

What is a 'landing'?

26 Fly Well

The living daylights.

4 AOPA Online

Take your reading beyond these pages.

12 Letters

Farewell to a friend.

131 Fly by Wire

Index of advertisers.

132 Answers for Pilots

AOPA webinars.

136 Pilots

Gary Jones.



43

TEST PILOT
Jet-powered
biplane

SECTIONS



PILOT BRIEFING

29 Photo Contest

Ready, set, shoot.

32 AOPA News

AOPA issues call to action.

34 Action in the States

This month's focus:
Northwest Mountain Region.

36 Budget Buy

Trusty trainer.

39 AOPA News

2016 Flight Training
poll open.

40 Pilot Products

L3's Lynx gets
eTAWs, ATAS.

42 News

Piper M600 earns
FAA type certification.

43 Test Pilot

Jet-powered biplane.

44 FAA News

FAA releases small
drone rules.

45 ASI Chart Challenge

Don't hit the Class ceiling.

46 AOPA 172 Sweepstakes

Fire in the belly.

50 Musings

When the stars align.

55 Fly-Ins

Bremerton's
breathtaking beauty.

PROFICIENCY & EFFICIENCY

96 Proficiency

Into the wilderness.

102 ADS-B

Seeing clear benefits.

106 Technology

Solo, or in tandem.

108 On Instruments

Vector-to-final insights.

111 Savvy Maintenance

Whom should you trust?

106 Never Again

Slip slidin' away.

MEMBERSHIP NEWS & NOTES

120 Member Products

Flight planning keeps
getting easier.

122 Products and Services

Do you have enough?

124 AOPA Foundation

Don't make the
same mistake twice.

126 Member Benefits

AOPA scholarships
top \$156,000.



FINISH LINE

The HondaJet delivers performance across the spectrum. Thomas B. Haines' story starts on page 60. Photography by Chris Rose.



Contact us at 800-USA-AOPA (872-2672)

AOPA ONLINE

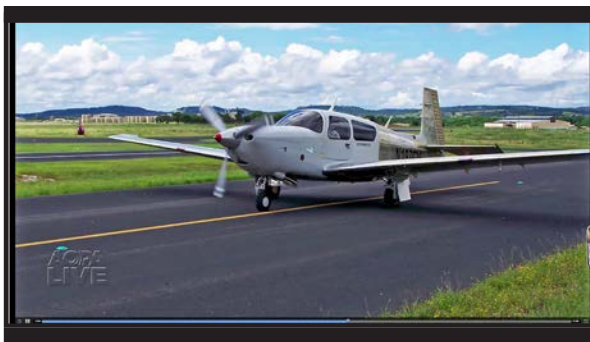
Take your reading experience beyond these pages | www.aopa.org/pilot

VIEW THE VIDEO

These and other great videos can be accessed in the AOPA Pilot Enhanced Digital Edition
WWW.AOPA.ORG/DIGITALEDITIONS

AOPA LIVE THIS WEEK

Third class medical reform, father and son sharing memories, and a flyover with the Canadian Snowbirds. These are a few of the many stories you'll see on aviation's premier weekly news and entertainment show.
www.aopa.org/thisweek



FLY YOUR PLAN

Have you used AOPA's improved online flight planner? If not, you're missing features not found anywhere else. Find fuel-related alerts, filters for airport restaurants, and much more. And when you're done, send the plan to your favorite EFB.

www.aopa.org/go-fly

SLEEPING GIANTS

Arizona's commercial and military aircraft boneyards hold many vintage treasures. See a few in our expanded slideshow.

www.aopa.org/pilot/boneyard



SHARE YOUR SHOTS

Half the fun of flying is sharing your passion with others. Join AOPA on social media sites, such as Instagram. Get a behind-the-scenes look as we gather the stories for *AOPA Pilot*. And make sure to share your shots with us.

www.instagram.com/flywithaopa

HERE COMES HONDA

It's been a decade in the making, but the HondaJet is finally here. And it's worth the wait. With great speed, innovative efficiency gains, and a unique look, the HondaJet is like nothing we've seen. Take a flight with Editor in Chief Tom Haines and see this newcomer in action.

www.aopa.org/pilot/HondaJet



SOMEWHERE BELOW YOU,
THERE'S A WORLD FULL OF SPEED LIMITS.

Leave everything else behind. The HondaJet won't just get you there faster; it will do it with a level of comfort that makes getting there as exciting as the destination. Escape the gridlock. hondajet.com



HONDA



A matter of *SPEED*

The HondaJet delivers performance across the spectrum

SHOVING THE THRUST LEVERS forward on the new HondaJet, one is reminded of the recent Honda Racing IndyCar successes. Although small, the all-new wing-mounted GE Honda engines deliver a punch in a hurry, and we're soon racing toward 43,000 feet. Twenty-six minutes and 13 seconds later we level off at FL430, a remarkably quick climb for a light jet. With a certified top speed of 422 knots true, the HondaJet is best in class, beating the Cessna Citation M2 by some 20 knots and the Embraer Phenom 100 by more than 30 knots.

BY THOMAS B. HAINES
PHOTOGRAPHY BY CHRIS ROSE





While HondaJet designer Michimasa Fujino put speed as a top item on his list of goals more than a decade ago, there's more to this sportster than just get up and go. A larger cabin and lower fuel consumption rounded out his top three when he first shared his vision with *AOPA Pilot* in 2005, about 18 months after the proof-of-concept airplane made its maiden flight in secret.

More than a decade later, with Fujino now the president and CEO of Honda Aircraft, he has realized those goals and built an impressive company to manufacture the innovative jet. Touring the sprawling R&D, manufacturing, service, training, and delivery complex in Greensboro, North Carolina, you get the feeling he's only just begun.

Certified in December 2015, more than a dozen HondaJets have been delivered as of mid-2016, mostly to dealers around the world, and to a few retail customers. Use by those customers will be limited for a bit longer, though, as flight into known icing certification will not be approved until later this summer. While certification was several years behind the original schedule, the model made it to market during a decade of economic uncertainty, when half a

Through it all, Fujino soldiered on, delivering on his dream of a more efficient design.

dozen or more light and very light jets faltered. Here, the Japanese tradition of long business horizons served the company well.

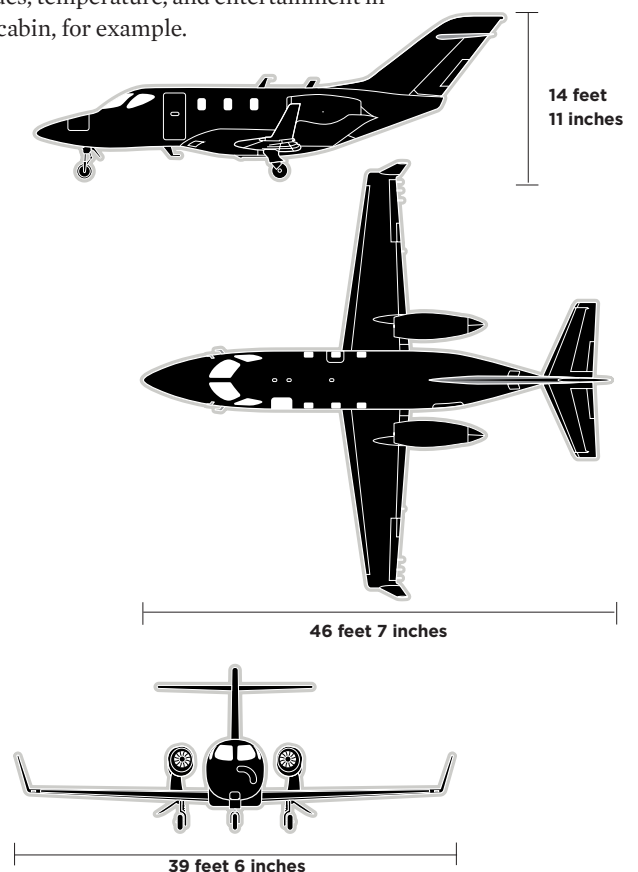
Through it all, Fujino soldiered on, delivering on his dream of a more efficient design. While today's airplane looks remarkably like the 2005 proof of concept, there are subtle differences—a few air-flow strips on the surfaces and vortex generators on the winglets, for example. Not surprisingly, the max takeoff weight was increased from 9,200 pounds to 10,600, providing for a little more fuel—up by 545 pounds to 2,845, but resulting in an IFR range about 100 nautical miles farther than originally estimated. Of course, to handle the extra weight and to therefore meet (or in this case, beat) the top speed demands, the engine thrust has been increased from 1,670 pounds to 2,050 pounds—the sort of circular performance changes necessary as weight increases during the certification process.

With typical cruise fuel burns of only around 610 pounds per hour total (about 91 gallons)—lower than most others in the category—the HondaJet also meets Fujino's efficiency goals. Part of that efficiency comes from the completely new engines, designed as a partnership between Honda and GE and built just down the road in Burlington, North Carolina. The balance of the efficiency comes from the aerodynamic design. The HondaJet's unusually shaped honeycomb composite cockpit area provides for natural laminar flow, reducing drag. Similarly, the aluminum wings provide a high degree of natural laminar flow. Most radical, though, are the over-the-wing engine mounts, OTWEM in Honda parlance. The wing-mounted engine pylons themselves reduce drag compared to conventional tailcone-mounted engines, according to Fujino. The byproduct of putting the engines on the wing is the ability to have

THREE 14-INCH Garmin G3000 displays dominate the HondaJet cockpit. In the Honda configuration, the two primary flight displays are in a permanent 40/60 split, allowing the pilot to configure in a number of ways. Dual touchscreens (bottom left) manage all manner of inputs for navigation, communication, and system control. Throughout, switch controls in the Norm position indicate automatic control (bottom right).

a constant contour to the composite fuselage, providing for more cabin space. Honda leverages that space for more knee room, a larger aft lavatory than you'd expect in an airplane of this size (including optional running water in the basin and externally serviced potty), and a large baggage compartment in the tail. Those sitting in the club seats have more knee room than in any other similarly sized airplane. In addition to the four seats, Honda offers an optional side-facing seat opposite the door.

As well as benefiting from the latest aerodynamics, engines, and manufacturing techniques, the HondaJet also comes with fresh thinking regarding technology in the cockpit and cabin. A smartphone app allows passengers to control the window shades, temperature, and entertainment in the cabin, for example.



SPEC SHEET

HondaJet HA-420

BASE PRICE: \$4.85 million

PRICE AS TESTED: \$5 million

SPECIFICATIONS

Powerplants | **2 GE Honda Aero HF120, 2,095 lbst derated to 2,050 lbst**

Recommended TBO | **5,000 hr**

Length | **46 ft 6 in**

Height | **14 ft 9 in**

Wingspan | **39 ft 8 in**

Wing area | **176.6 sq ft**

Wing loading | **60 lb/sq ft**

Power loading | **2.6 lb/lbst**

Seats | **1+5/6**

Cabin length | **12 ft 1 in**

Cabin width | **5 ft**

Cabin height | **4 ft 8.3 in**

Basic operating weight | **7,279 lb**

Maximum ramp weight | **10,680 lb**

Maximum takeoff weight | **10,600 lb**

Zero fuel weight | **8,800 lb**

Max payload | **1,521 lb**

Fuel with max payload | **1,880 lb**

Useful load | **3,401 lb**

Payload w/max fuel | **551 lb**

Maximum landing weight | **9,860 lb**

Fuel capacity | **2,850 lb, 425 gal**

Baggage capacity, nose | **100 lb, 9 cu ft**

Aft | **400 lb, 57 cu ft**

PERFORMANCE

Maximum cruise speed, FL310 | **422 KTAS**

High-speed cruise, FL310 | **422 KTAS, 1,110 lb/hour total**

Long-range cruise, FL430 | **368 KTAS/607 lb/hour total**

Range (1 pilot + 3 pax, NBAA IFR reserves) |

1,206 nm

Maximum operating altitude | **43,000 ft**

Sea-level cabin | **23,000 ft**

Landing distance | **3,678 ft**

LIMITING AND RECOMMENDED AIRSPEEDS

V_1 (takeoff decision speed) | **110 KIAS**

V_R (rotation) | **115 KIAS**

V_2 (takeoff safety speed) | **120 KIAS**

V_{FE} (max flap extension)

Takeoff/approach | **200 KIAS**

Landing | **160 KIAS**

V_{LE} (max gear extended) | **200 KIAS**

V_{LO} (max gear operating)

Extend | **200 KIAS**

Retract | **200 KIAS**

V_{REF} (reference speed, final approach) |

112 KIAS

V_{MO} (max operating speed) at FL302 |

270 KIAS

M_{MO} (max Mach number) | **0.72 Mach**

FOR MORE INFORMATION

Honda Aircraft Company, 6430 Ballinger Road, Greensboro, North Carolina 27410; 888-453-5937; www.hondajet.com

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.



Up front, the Garmin G3000 with its touchscreen controllers integrates and automates most system functions. In the cockpit, a Norm setting equates to automatic. Release the parking brake and the taxi light comes on. Advance the throttle on the runway, and the pitot heat and strobe lights turn on. Wherever you are, an hour before sunset until an hour after sunrise, the navigation lights are automatically illuminated. Enter your destination in the flight plan and the landing elevation and pressurization schedule are automatically

set. Don the oxygen mask and the system automatically switches to the mask microphone. The ice detection system automatically turns on the wing and tail deicing systems; the pilot must manually turn on the engine heat. They're all small things, but important aids in a cockpit designed for single-pilot operations.

Of course, the G3000's autopilot system also provides a great deal of assistance to the pilot, changing pitch to prevent over- and underspeeds. Even if not engaged, the flight control system tries to nudge the pilot back to safety when straying too close to the edge of the envelope. Ultimately a stick shaker and then stick pusher will prevent a stall. In the case of a depressurization, which might result in pilot incapacitation, the system will turn the airplane 90 degrees to exit an airway and descend to 15,000 feet, where it will level off.



While the automation is helpful, it doesn't take away from the fun of flying this new airplane. Thanks to the modern design, cockpit set-up is quick, as Honda demo pilot Tim Frazier demonstrates from the right seat. Digital checklists appear on the multifunction display, managed through a yoke-mounted scroll wheel. Surprisingly, one area where automation has not yet caught up is determining V speeds. Similarly equipped airplanes will automatically calculate the V speeds for takeoff and landing and share them with the flight management system for display on the primary flight display. That feature is a software update away, according to Frazier. Today we look them up and manually enter them.

Engine starts, monitored by the full-authority digital engine controls (FADEC), are a simple touch of a button, and we're ready to taxi. Frazier suggests we make a couple of circles on the ramp to get me used to the nose gear steering system, which is electrically controlled and hydraulically actuated. That, combined with the electrically controlled brakes, makes for some jerky movements right out of the box. However, by the time we've made a circle on the ramp and taxied to the runway, I've mostly mastered the nuances—and our photographers in the back are no longer bouncing their heads off the sidewalls.

With four on board, we weigh 10,300 pounds, about 300 pounds below max takeoff. Our balanced field length is 3,300 feet. Hand flying up to 29,000 feet, I find the HondaJet pleasurable and predictable. Thanks to FAA certification standards, jets in this category will handle quite similarly. This one is balanced nicely. Leveling off at FL430, our speed after a few minutes settles at about 365 KTAS burning 610 pounds an hour total. Like other jets, the max

THE WING-MOUNTED ENGINES allow for a constant-contour fuselage, providing more cabin space than similarly sized airplanes. Cabin audio, entertainment, environment, and window shade control can be managed with an app (top left). Designer, CEO, and President Michimasa Fujino (bottom left) has spent more than 25 years developing aircraft concepts for Honda—concepts that evolved into the HondaJet.

speed of 422 KTAS will occur only in the mid-30s, where almost no one flies a business jet. Fuel burn there will increase by more than 50 percent, providing owners a real incentive to go higher—not to mention the ability to get more direct routings and stay above almost all of the weather.

The fun begins when we practice an emergency descent, slamming the thrust levers back, speed brakes (an option) deployed, roll into a turn, and push the nose over to more than 10 degrees down. Like some fighters, the speed brakes are a



THE HONDAJET lavatory (top) includes a real sink and mirror—unusual in this size of aircraft. The large baggage door pivots along the fuselage to avoid striking the engine pylons (above). Despite the unusual position of the engines (right), V_{REF} cuts, practiced in the simulator, proved to be predictable and quite manageable. The HondaJet includes a rudder bias system, unusual in light jets.

clamshell design on the tail, as opposed to the more traditional wing-mounted brakes. There is very little bump when the brakes are deployed and no limit on airspeed. “They don’t startle the passengers,” says Frazier. With the North Carolina countryside filling the windscreen, we soon level off at FL240 and then continue a more gradual descent to 11,000 feet to check out some maneuvers. But first I try out the cruise speed control. Dial a speed into the autopilot and the FADEC will modulate fuel flow to maintain the speed. It’s not quite auto-throttles, but you can see them from there.

TRAIN LIKE YOU FLY

FlightSafety has Honda pilots ‘flying’ on day one.

Building and certifying an airplane and building a factory are just a part of what an all-new aviation company must do to compete. Honda Aircraft has done all of that. It has dealers in many parts of the world and is working on a service network, the anchor of which is at the Greensboro, North Carolina, factory. Training, of course, is another requirement for a jet manufacturer, since a type rating and recurrent training are required by the FAA to fly a jet.

Not surprisingly, Honda partnered with another well-known brand for that function. FlightSafety International delivered a Level D simulator to the factory training center in February 2015 and was training pilots only a few months later. The Level D simulator allows pilots to get the type rating without ever touching the real airplane.

As flashy as the sim is, it is only a part of the training, reminds Eric Dixon, FlightSafety’s training center manager. With the ability to start from scratch, the FSI team developed a new process for HondaJet pilots, which starts on day one in the Operational Day Flow classroom. There, pilots are “in the cockpit” from the beginning of the 15- to 16-day course, Dixon explains. By that he means the pilots’ heads are in the cockpit on day one, planning a mission and executing it while being introduced to systems as they would be encountered during a flight. The old-school method would have students spending a week or more on nothing but systems before ever considering what it takes to fly the airplane. The new approach has them start with a checklist and begin to understand the systems as they’re needed. Each student has a “graphical flight deck” simulator next to him or her, which allows the students to step through system controls just as they would in the Garmin G3000 cockpit. Students then master the skills in avionics training suites and then finally begin training in the sim, where by then the systems are second nature and the student can focus on actually flying the airplane and making in-flight decisions. “The operational day flow process makes the transition to the cockpit simple,” says Dixon.

—TBH

With thrust pulled back and holding altitude, I soon feel the stick shaker alert me that we’re straying into the stall zone. I ignore it and soon the pusher takes charge, pushing the nose over to maintain flying speed. The pusher is unusual but not unheard of in light jets. Frazier says it is an aid to single pilots, not a device to mask any bad manners in a full stall.

Anyone who has flown a Garmin GTN 750 will be comfortable loading a procedure in the FMS; the navigation pages are nearly identical. We choose an ILS to Runway 23L at Greensboro. I hand-fly the final segment. Trimmed up, the airplane is remarkably stable. Crossing the fence, I’m slowing through the V_{REF} of 108 KIAS and touch down very gently, if I do say so myself. Frazier resets the flaps and I add the thrust for a touch and go, reminding myself about the touchy nose gear steering. The thrust takes a second to kick in but when it does, I’m pressed into the seat.

“That was really good,” says Frazier, as surprised as I am. “Beginner’s luck,” I deflect, really feeling the pressure now for the second one. A normal pattern yields another really nice touchdown and more congratulations from Frazier as we do another touch and go. The third one, a full stop, is just as nice. I’m usually my own worst critic, especially regarding landings. But they were three good ones. I’d like to think it’s some exceptional talent on my part, but I know the reality is that the Honda wing and the trailing-link landing gear simply make for nice landings.

My toes find the sweet spot quickly and we’re taxiing back to the Honda ramp without any jerkiness.



Not surprisingly, Honda—a company with a global reputation for quality across its broad product line—has built a fine airplane that can compete well in the category. The company claims an order book of more than 100 and has plans to deliver some 40 aircraft this year and 60 next year.

Its challenges are those facing any new entrant: established competition that can afford to undercut it in pricing, which Cessna has certainly been doing with the M2; building a service, parts, and training network that meets the needs of today's demanding customers; and building brand loyalty for the next Honda aircraft—again something Cessna has in spades and Embraer is beginning to develop.

Fortunately, Honda is at least a well-known brand, if not in the airplane business.

The light jet market these past few years has been soft. Cessna and Embraer

have airplanes available now. Those just now placing an order for a HondaJet are going to wait years, in most cases.

On the other hand, Honda is one of the largest companies in the world, so it certainly has the staying power. And, given the campus Honda built in Greensboro, it's clear the Model HA-420 isn't the only model we can expect from the company. Fujino, of course, won't confirm anything, but after years of being asked "will there be a family of airplanes?" he replied recently with a smile and a polite nod, "I like family." Stay tuned.

AOPA

EMAIL thomas.haines@aopa.org

THE OPTIONAL speed brakes deploy from the tailcone (right) and stow automatically when advancing the thrust levers. Low angles accentuate the laminar flow nose (below). The gold triangles on the windshield are part of the electric heating system. As with most light jets, single-point refueling is not an option. However, in an unusual move, refueling is through a single *port* just behind the right wing. An optional fuel panel at the port shows fuel on board. Fuel is stored in four tanks: wings, fuselage bladder behind the aft pressure bulkhead, and a carry-through tank under the fuselage.

