Education





Helped raise funds for and led construction of Lehigh's engine testing lab



Developed thermodynamic models for LENS metal 3D printing technology

Honda R&D



Responsible for design, supplier management, and production startup for exterior components on several Honda vehicles, including the wiper, washer, sunroof, tailgate, and portions of the door systems for the Honda Ridgeline

• Similar responsibilities on other Honda and Acura models (Acura TL, Element, etc.)

How does the Honda Ridgeline Dual-Action Tailgate work?

The dual-action tailgate that comes standard on the 2017 Honda Ridgeline can either fold down like a traditional pickup's tailgate, or it can open outward on the driver's side more like a door. This can make it easier to load the pickup bed with cargo. In order to switch between the traditional up and down bed opening and the outward door, driver hits a switch under the edge of the tailgate, and the specialized joints will allow the door to swing open.







This practical feature is class-exclusive to the 2017 Honda Ridgeline, and is just another good reason to explore this truck if you are looking for a new midsize pickup. The available safety features and general capability are a couple of other good reasons.

Left – Current Honda Ridgeline, Center – Honda Element, Right – Dealer website explanation of Ridgeline Tailgate system



2000-2004

Boeing 787 Flight Deck





- Designed, developed requirements for 787 cockpit systems, built test hardware and software (via Labview) and conducted flight tests to validate function
- Built 787 flight deck mockup (CAD, fabrication, electronics) used for airline demos, FAA evaluations



At Boeing's 787 Dreamliner Gallery in Everett, Wash., airline customers can explore various interior options for the new aircraft.





Left – marketing image of 787 flight deck, Center – physical mockup of in 787 Gallery, 787 on typical flight test day



cnet

Boeing Flight Deck R&D



Flight Risks: How Scientists Are Combatting Sleep at 30,000 Feet

I'm sitting in a 777 flight simulator at the Boeing's research facility south of downtown Seattle, and I'm exhausted.

- Subject matter expert on human factors issues for flight crews including cosmic radiation, human fatigue/tiredness vs. performance
- Assisted in the development of new flight and duty time regulations for pilots in support of FAA, NTSB and their international equivalents

AeroSafety

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Industry Undates

HUMAN FACTOR

FLIGHT 4

SAFETY V

FOUNDATION

The Best Rest

A comparison of differing regulatory efforts to control pilot fatigue

oy David Hellerström, Hans Eriksson, Emma Romig and Tomas Klemets | July 12, 2010

In commercial aviation, crew schedules are regulated by duty time limits, flight time limits, minimum rest rules and other constraints. These rules and limits, collectively referred to as flight time limitations (FTLs), originally were conceived as a simple scheme for limiting fatigue among flight crewmembers.

Over time, FTLs have evolved, driven by industrial pressures or new scientific data, or to cope with changing aircraft capabilities. Today, there are major differences among FTL schemes in different parts of the world affecting crew productivity, crew alertness – and airline competitiveness.

With the results of new research on sleep and work-related fatigue in hand, it becomes useful to compare existing regulations with the new findings.



Left – Wired magazine article on pilot fatigue experiment, Center – example of article on physiological modeling for improved flight & duty times, Right – explanation of physiological measurements on pilots



Boeing Flight Deck R&D



Improving Runway Safety with Flight Deck Enhancements



Flight deck design improvements can reduce the risk of runway incursion, confusion, and excursion, resulting in safer and more efficient taxi, takeoff, approach, and landing operations.

By Sam Clark, Flight Deck Research Engineer, and George Trampus, Flight Deck Crew Operations Integration Engineer

Boeing's goal is gate-to-gate enhanced crew awareness that promotes safety and efficiency.

Runway safety enhancements range from enhanced airport signage and markings, to improved procedures and training, and new flight deck displays, controls, and alerting. This article discusses Boeing's runway safety strategy and the flight deck design solutions being researched and developed to provide crew information and awareness that promote runway safety and operational efficiency.

- Lead engineer for new flight deck (cockpit) technologies focused on improving aviation safety including runway collision avoidance, flight management, and human factors improvements
- Represented Boeing to industry groups, standards bodies, and international regulators





Left, Center – implementation of runway collision avoidance on Boeing's airplanes, Right, lower portion of image shows implementation of Vertical Situation Display (VSD)



Boeing Advanced Manufacturing



Engineering Manager, Advanced Manufacturing Product Development/777X

- Leased, outfitted, and staffed an off-site R&D center to test automation and airplane build concepts, including robotics cells, 3D printing/additive fab, manual and CNC prototyping capability
- - Led the retrofitting of production facility at Boeing's Everett site to produce "80' box", trial of 777X Wing production system
- - During this period achieved a 4:1 ratio of booked manufacturing improvements to dollars invested.





Left – 777X wing factory implementation of developed technology, Right 777X roll-out



Boeing Advanced Manufacturing



Engineering Manager, Advanced Manufacturing Product Development/777X

- Defined and executed ~100M/yr of BCA's Manufacturing Technology investment including allocation of budget, selection of projects via a disciplined value-based approach
- Led planning and execution of multiple pilot manufacturing projects and prototype demonstration articles including design, fabrication, and assembly of full-scale airplane fuselages and wings for Boeing's next family of aircraft
- Developed new technologies and IP in composites manufacturing, automation/robotics, and assembly/modularity (~25 inventions, ~15M/unit savings vs. business case)







Left – Boeing factory implementation of wing fab/assy technology, Center – Student project at Olin College for creating aircraft wire bundles, Right – example of enhanced airplane livery enabled by developed inkjet printing technology



BeerandBots.com



Owner Beerandbots.com

- Hosted "Battlebots" style robot fighting events at Seattle-area breweries (limited to 1lb 3D printed bots)
- Built LEGO compatible robots with "Micro:Bit" microcontrollers (STEMfriendly drag-and-drop coding) for kid's events







Left – towable/trailer-based arena at Oregon Museum of Science & Industry, Center – example of 1 lb bot for competition, Right – "brixbot" for STEM events



Boeing Additive Manufacturing



- Established Boeing's first industrial 3D Printing/Additive Manufacturing factory in Auburn,
- Washington with capabilities in metal, polymer, and large volume (20+ feet) printing technology
- Responsible for all operations staffing, initial facility design, production system planning for
- 150K sq ft facility and direct team of ~30 + support and maintenance staff
- Fulfilled ~500 unique orders of printed parts and production tools between Feb 2019 (first production employee start date) and 2019 EOY
- Developed and implemented enterprise strategies for 3D printing, including facility safety SOPs, staffing, and IIOT/Digital Thread





As it ramps up its 3D printing capability at a number of sites across the United States, Boeing has shipped We use cookles to enhance your experience. By continuing to visit this site you agree



Left – LSAM (Large-Scale Additive Manufacturing) machine at Boeing producing tooling, Center – Article about early COVID-PPE development efforts in collaboration with Design That Matters, Right – First metal additive part on Boeing's commercial airplane fleet



AMPD.CAMP

Owner AMPD.CAMP

- Started RV company with long term goal of developing modular electrical systems for RVs, over-the-road trucks, and other vehicles (solar, power management, electric vehicle infrastructure)
- Initially focusing on ambulance to RV conversions







Left-to-Right – Renderings of Ambulance to RV conversion, Seattle FD ambulance pre-conversion



2020-Current