

**AVIATION WEEK**  
& SPACE TECHNOLOGY

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**24**

*The growing capability of cubesats is drawing interest from scientists and entrepreneurs. The 3U cubesat in this artist's concept is in low-orbit checkout with a magnet-helicon-generated plasma thruster that could send it to the Moon and beyond.*



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- 15 **Iberia plans** to renew its widebody fleet with a total of 16 new Airbus A350s and A330s between 2015-20
- 15 **Cockpit voice** recorder damage hindering efforts to discover why an MD-83 crashed in Mali last month
- 16 **Ten years later**, Rosetta arrives at destination to become first spacecraft to rendezvous with a comet

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**AIR TRANSPORT**

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**PILOT REPORT**

- 37 **Eclipse VLJ** finally is maturing into a full-fledged business jet, albeit the smallest now in production

**AEROSPACE'S NEW FRONTIERS**

- 40 **How aircraft** are flown and air traffic is managed could change dramatically as unmanned flight grows
- 44 **Autonomous technology** certain to be required if aviation is to become a ubiquitous mode of transport



**ON THE COVER**

Advances in autonomy, robotics, supercomputing and neuroscience could change the face of aerospace over the coming decades if technology, societal, regulatory and other challenges can be overcome. Our special report on innovation begins on page 40. The cover design by Aviation Week's Art Department features the Atlas robot developed for the Defense Advanced Research Projects Agency by Boston Dynamics. Elsewhere is a report on friction among NTSB members on aircraft automation issues in the wake of the Asiana Flight 214 crash (page 34).



37 *The upgraded Eclipse 550 is approaching the very-light-jet's potential*

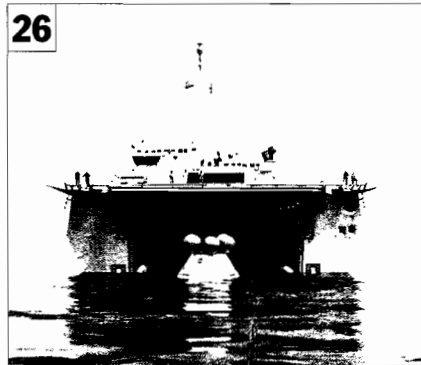
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under  
**Forty**

57 *Members of Aviation Week's 40 Under Forty stand out for their multifaceted excellence*

**45 Neurotechnology advances** affecting performance of pilots, air traffic controllers and system operators

**48 Semiconductor technology** is reaching fundamental limits, and the next step is not yet clear

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**53 New approach** to supercomputing could be required to tackle aerospace's hard problems

**WORKFORCE**

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**55 It's still a white man's world** in U.S. aerospace and defense, and probably will be for a while longer

**56 Prospect of hands-on, leading-edge work** continues to be a key factor for A&D in attracting new employees

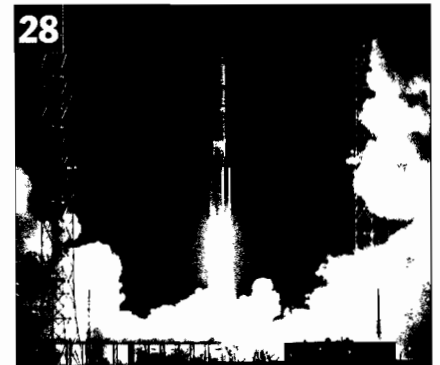
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**57 Talent runs deep** in A&D, with some exhibiting strong leadership and a smart, fearless approach to business

**EDITORIAL**

**74 JSF program** must explain how engine failures have been addressed, how overruns will be avoided

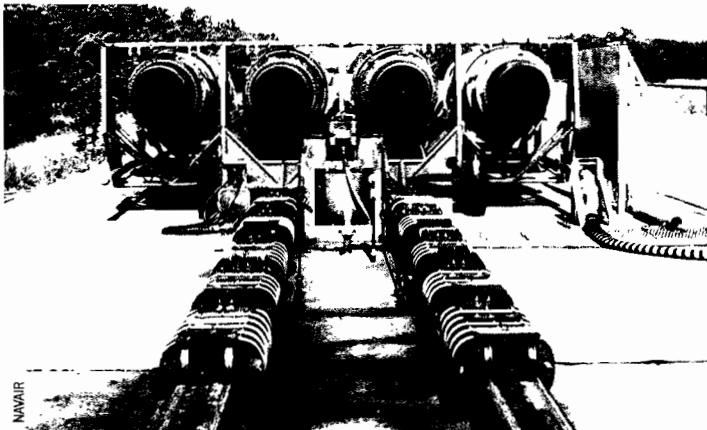


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**On the Web**

**A round-up of what you're reading on AviationWeek.com**

Senior Naval Editor Michael Fabey filed an Ares blog post from He describes air ops on the carrier — Read his post and see photos. [ow.ly/A4eHy](http://ow.ly/A4eHy)



The Naval Air Warfare Center Aircraft Div. (Navair) is considering electromagnetic rails to replace or augment two legacy thrusting systems used to test arresting gear. See more photos and read about Navair's effort. [ow.ly/A4eUg](http://ow.ly/A4eUg)

**ENGINE PRESSURE**

Core assembly of the first pair of CFM International Leap-1A engines is underway, marking the start of a production run that has already amassed across three variants. Read our story on page 33, then listen to Senior Propulsion Editor Guy Norris and Aviation Week Intelligence Network Executive Editor Jim Mathews as —and the business imperative for CFM to get it right.

On Pierre Sparaco's opinion column on the Airbus A320neo, user M\_Steve wrote: "Is driving down prices and reacting to every whim of the market a sound strategy, or

to define the market—knowing that lower prices and overcapacity will hurt both of them in the medium- to long-term?" [ow.ly/A4gFM](http://ow.ly/A4gFM)

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