

Cut away

In the world of cutaway illustrations, caution is the word of the day

By Sean Griffin

Beneath the stark fluorescent glare of a new but as-yet unoccupied building at a Boeing site in Irvine, Calif., technical illustrator Tim Hall is working across a brown veneer-surfaced table from A160T Hummingbird engineer Andy Noble. Except for the occasional restroom break or lunch, they have been at it for about 32 hours.

The information Noble is making available to Hall is technical data, and—per federal International Trade in Arms Regulations (ITAR)—that constitutes an export. Why? Both Hall and his client publication, *Flight International*, are based in the United Kingdom. America's national security is the foundation for ITAR. The aim is to prevent advanced technologies and information from falling into an adversary's hands.

Noble can only provide information he has been authorized to provide.

That authorization was granted by the U.S. Department of State in a technical assistance agreement three years earlier, detailing everything from the types of Boeing products that could be illustrated, to the kinds of components and systems that could be shared, and even the specific *Flight International* artists it could be shared with.

"We had to be careful during the whole process to ensure we did not have any issues with export control," Boeing's Noble would later explain.

Welcome to the work of producing technical cutaway drawings—a process that can take years to bring about and yields highly detailed and annotated illustrations of Boeing products and those of other manufacturers in *Flight International* magazine, and on its Flightglobal website.

The manufacturer contracts for the work, and once the drawings are complete, the manufacturer is authorized to reproduce them for a period of time on coffee cups or PowerPoint presentations. They may become framed posters or wall murals or handouts—especially at air shows such as those in Paris, Farnborough, Dubai or Singapore—and at myriad trade shows throughout the industry.

Who picks them up? Existing customers, potential customers, news media, trade media, analysts, employees. Aviation and space buffs. The drawings also can be downloaded at www.flightglobal.com/cutaways; more than a million cutaways have

been downloaded. Boeing's 787 Dreamliner cutaway from 2008 has been the most popular, with more than 50,000 downloads.

For the Hummingbird cutaway, Boeing's Global Trade Controls and Security mapped out the specific areas on site that Hall was restricted to. Hence the unoccupied building, where there was no chance of seeing a drawing or piece of hardware that was not authorized for disclosure.

Then, on Hall's fifth and final day, every A160T Hummingbird drawing, document and photograph had to be carefully reviewed by Boeing Export to ensure compliance with the State Department agreement. Forms had to be filled out. Labels with precise wording attached. Logs of all information maintained.

Only then could Hall begin work on the drawing, which was submitted for a review by the program, by Export and by the customer. Any changes were incorporated, and at long last the illustration could be submitted to the publisher.

Hall then had one more task—destroy all the data Boeing provided to him.

His Hummingbird cutaway was subsequently featured in a special issue of *Flight* for the 2010 Farnborough International Airshow. Hundreds of copies were given away at the show itself.

"The return on the investment is far in excess of what we pay for the cutaways," said Paul Lewis, director of International Communications for Boeing Defense, Space & Security and a former *Flight* bureau chief.

Compared with magazine ads, which have a shelf life of a week or so, "a cutaway has a shelf life of years," Lewis said. "You go into the Pentagon, you often see them on the wall. You go into an airline, you often see them on the wall. You go into a manufacturer, you'll see them on the wall. They're prolific in where they show up."

Over the years, 84 Boeing, Douglas, McDonnell Douglas and North American products have been illustrated, as well as most of their competitors' products. While new products and derivatives ripe for cutaway illustrations are in development all the time, the ranks of independent cutaway illustrators in aerospace have dwindled to just Hall and fellow *Flight* artist Joe Picarilla.

So there's no lack of business to keep them busy—especially since each cutaway takes from 800 to 1,000 hours to create. ■

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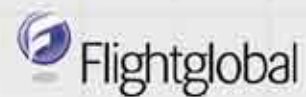


PHOTO: Boeing engineer Andy Noble is shown with the cutaway drawing of the Boeing A160T Hummingbird he helped coordinate.

PAUL PINNER/BOEING
ILLUSTRATION BY TIM HALL