



400 Collins Road NE
Cedar Rapids, Iowa 52498

News Feature

UNDER EMBARGO until Feb. 1 at 10 pm SGT

HGS gives Shandong Airlines a lift in heavy fog

Travel delays due to fog are not an uncommon occurrence in China. Weather is always volatile there given the size and number of micro-climates, often causing transportation delays across the board. What **IS** unusual, though, is an airline being able to take off and land aircraft when bullet trains, airports and other public transportation are unable to operate due to intense fog. What could make such a difference? In this case, a very special technology from Rockwell Collins called a Head-Up Guidance System (HGS) which displays critical flight information in the pilot's forward field-of-view, eliminating the need for the pilot to transition to the head-down instruments.

On the morning of Dec. 29, 2017, Shandong Airlines Flight SC1181 — equipped with HGS — safely took off from Jinan Yaoqiang International Airport under the orange alert of fog when other flights had to be delayed. In the meantime, other airlines (without HGS capabilities) sat idle waiting for the fog to dissipate.

The visibility on that particular day went as low as 50 meters due to thick fog. With the airport's support and that of the Shandong Air Traffic Management Bureau, Shandong Airlines was granted permission to take off when visibility was under 150 meters because they were equipped with HGS.

"This was the the first Low-Visibility Take-off (LVTO) in the Chinese civil aviation industry that operated under 150-meter Runway Visual Range (RVR)," said Jim Walker, vice president and managing director, Asia Pacific for Rockwell Collins.

The milestone was even recorded by several Chinese media outlets, including this [video story](#) by The Beijing News.

In total, 15 Shandong Airlines flights equipped with HGS were dispatched as scheduled on that foggy morning while another eight Shandong Airlines flights landed on time — thus saving both the airline and its passenger's costly delays. During that same two hours when the airport was at CAT II conditions with RVR at less than 200 meters, 36 other flights had delayed landings and 45 others had delayed takeoffs.

The benefits of Head-Up Displays (HUD), such as Rockwell Collins' HGS, are of critical importance in China. Not only is it projected that China will become the world's largest air passenger market over the next few decades, but China has seen increasing numbers of flight delays due to weather-related factors — especially in the winter and spring when fog and haze are more prevalent.

In response, the Civil Aviation Authority of China (CAAC) announced in 2012 that it was implementing avionics equipage requirements for its domestic airlines. In its "Head up Display Application Roadmap," CAAC required airlines to equip 10 percent of their fleet with HUDs by 2015. That figure increases to 50 percent for 2020, and then 100 percent by 2025. As the number of HUD-equipped aircraft increases each year, the goal is to see an ever-increasing contribution to flight regularity.

"With more than 9,000 Head-up Guidance Systems delivered to date, Rockwell Collins leads the commercial HUD market segment," Walker said. "More than 80 airlines across all regions of the world operate the company's HGS every day, along with hundreds of corporate and military transport aircraft operators. We are proud of our efforts to help passengers and crews worldwide travel more safely."

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