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Top Stories

Beating Corrosion is Vital at Patrick Air Force Base

Coastal-Area Program Does Away with Flight Safety Risk

By Cynthia Greenwood

Seven years ago, Patrick Air Force Base (AFB) didn't have much of a corrosion control program. To take care of its fleet of six C-130s and nine H-60 Blackhawks, the fabrication flight crew mostly did things by the book, based on the Air Force technical orders. But these data offered limited guidelines for preventive maintenance. "In the mid-90s, the Air Force's foresight was to detect and repair corrosion, instead of to prevent and detect it," said Chief M. Sgt. Tim Tomasko, the Fabrication Flight Chief at Patrick AFB.



Patrick Air Force Base's fleet of C-130s is used for civilian and military rescues around the world. Photo courtesy of Patrick AFB.

place to protect their fleet. He believes the Air Force also has acquired a much broader awareness of the importance of preventive maintenance. "After I attended that conference, I curtailed our existing program, took new ideas, and incorporated them into our local program," he said. Sergeant Tomasko credits corrosion veterans such as Wilson and Dick Kinzie, the chief engineer in the AF Corrosion Office (now retired), for setting him on the right track.

"Wilson gave us the idea to take a de-icing truck and put fresh water in it and spray the C-130s and H-60s every day," Sergeant Tomasko said. "Every aircraft that is left un-hangared overnight is now freshwater-rinsed first thing the next morning to get rid of the saltwater residue and sand. That practice alone set us on the right path."

At the same time Patrick AFB started the daily rinsing, the maintenance team built a bird bath and used it to fresh-water rinse all aircraft that had just been flown. The base's C-130s are used to refuel the H-60s for long-range operations in military conflict zones such as Iraq and Afghanistan. "We specialize in combat search-and-rescue, but we're not bound by

To take care of their fleet, Sergeant Tomasko and his maintenance crew needed more. "The environment that our aircraft live in is similar to that surrounding an aircraft carrier—we're between an ocean and a river—and the salt spray is relentless," he said. Around this time, Sergeant Tomasko attended a global Air Force Corrosion Conference and met some of the agency's best corrosion experts, headquartered at the Air Force Corrosion Office at Warner Robins AFB. He talked to Dave Wilson, Fabrication Functional Manager at AF Reserve Command headquarters, among others, about the severe corrosion problems plaguing his aircraft.

Since that time Sergeant Tomasko and his team have put serious corrosion prevention measures in

any one location. We deploy over water, over the desert and the jungle, from tropical areas to the icy interior of northern Canada," Sergeant Tomasko said.

"The more we learned about our options for good maintenance, the more we were determined to build a corrosion program based on our environment, our conditions, and our mission," he said. First, the team got serious about using corrosion prevention compounds (CPCs). Tomasko got the idea to use CPCs after realizing that American Airlines were using them.

"I started applying CPCs to my planes after every wash, and then I made a checklist of specific corrosion-prone areas under the floor, in the flog wells and the wheel wells, and many other areas," he recalled. "We decided to 'fog' these areas with CPC-meaning we sprayed it in a cloudlike mass inside an enclosed area-on a routine basis. Then, after the wash, we did a corrosion inspection, which has made a big difference."



The Patrick AFB maintenance crew uses a fogging applicator to apply corrosion prevention compounds inside a C-130 wheel well. Photo courtesy of Patrick AFB.

Today, the Patrick AFB maintenance crew rinses the planes every day and after each flight, and they also wash them every 30 days (see "[Sensor Data Helps Air Force Improve Wash-Rinse Cycles](#)"). These measures ensure the base fleet is safe as it conducts civilian and military rescues. To support government-sponsored search-and-rescue missions across the continent, Patrick's aircraft are deployed across the Gulf Coast 24/7. They stay particularly busy during the hurricane season, Sergeant Tomasko said. While deployed along the Gulf Coast for two weeks after Hurricane Katrina in 2005, they made 1,015 saves. The base fleet also engages in recovery deployments for the NASA shuttle and rocket launches.



Chief M. Sgt. Tim Tomasko manages the team who maintains Patrick AFB's fleet of C-130s and H-60s. Photo courtesy of Patrick AFB.

After adopting new practices for rinsing, CPCs, and inspection, the Patrick AFB maintenance crew got the attention of Kinzie and others who ran the AF Corrosion Program. In Florida's humid climate, the H-60s are especially prone to attracting mold and fungus in sealed, confined areas like the tail. "By accident, Kinzie noticed we didn't have any fungus or mold in these areas and asked us how we managed it," Sergeant Tomasko said.

In 1999, to further enhance its corrosion program, the maintenance team began using a special floorboard tape manufactured by an aviation and electronic parts manufacturer. It turned out to be a worthwhile experiment. "The tape worked well," he said. "Six months after we put it on, we pulled up the floorboards and there was no dirt and no corrosion. Another six months after that, we still found no evidence of dirt or corrosion."

More recently, the fabrication flight team began using sensor technology, on the advice of Bill Abbott from Battelle Laboratories (see "[Sensor Technology Helps Crews Maintain C-130s](#)"). "Since we installed the sensors in 2004, they've helped us measure everyday maintenance on the aircraft, and so far they have made a big difference," Sergeant Tomasko said. With the help of the sensors, the maintenance team has the ability to calculate where and when corrosion is likely to start, enabling the base's corrosion prevention to be taken to a higher level. "So far, the sensors are proving to be a tool that allows us to measure not just our effectiveness, but also our maintenance shortcomings," he added.

Before Patrick AFB built its corrosion program, Sergeant Tomasko was concerned about safety. "There was a significant trend here in aircraft downtime due to corrosion. Before we made a concerted effort at targeted preventive maintenance, grounding aircraft from corrosion problems was common, though preventable. Since we've created this program, I have a good sense of what a mission-capable aircraft is."

"The bottom line is," he added, "our current program has given us the ability to perform our job at a level that wasn't possible before. I don't have to worry anymore about having a wing fall off. Unequivocally, I can honestly say, there is no way one of our planes will crash because of corrosion."

"It doesn't matter what system you work on, corrosion detection is every mechanic's responsibility! Our program has helped our mechanics by reducing our overall corrosion, which in-turn has reduced write-ups, shortened the aircrafts' extensive down time, and has enabled the mechanics to focus more on their specific jobs. It all boils down to pride of ownership. If I can get the mechanics to have some pride of ownership in their aircraft, I've done my job."

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***Chief M. Sgt. Tim Tomasko, Fabrication Flight Chief,
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