



New depainting process proves worth in test run

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TINKER AIR FORCE BASE, Okla. (AFMCNS) — Tinker experts recently cut B-1 bomber depainting time in half and delivered a lighter and potentially more efficient aircraft as they gave their new dry media depainting process a test run.

Tinker experts shed layer after layer of paint from the first B-1 bomber to be assaulted with pressurized tiny bits of plastic from their high-tech depainting facility which opened this spring. All aircraft going through programmed depot maintenance at the Oklahoma City Air Logistics Center here are required to have the paint removed before starting maintenance work.



The dry medium, according to Brian Koehl, B-1 structural engineer, is Magic 2 — a nano-composite mix of blended plastics, each having different densities and cutting qualities. He said the texture is like sand grains.

Koehl said dry media are safe to use on both aluminum and composite parts — important since the B-1's 10,500 square feet of surface area is 10 percent composite.

Previously, workers would "scuff sand" the bomber's skin to remove enough of the existing coating to create a surface to which new paint could adhere. During the course of multiple programmed depot maintenance cycles, however, that became more difficult to do.

"We had to find some way to get the paint off," he said.

The B-1 test subject for the dry media stripping was built in 1986 and underwent its first PDM in 1990. By 2003, its multiple paint coatings were 15 mils thick. The norm is a 1-mil primer and 2 mils of top coat.

Two years ago, ALC experts chemically stripped a B-1. Not only was the process time consuming — three weeks to mask the aircraft and two weeks to strip it — but the chemicals couldn't be used on the plane's composite parts.

David Painter, depainting facility first shift production supervisor, said the timeline for masking and stripping the B-1 using the dry media process is 18 days, but their goal is 12 days.

"That aircraft was weighed before and after the chemical stripping, and a comparison of those weights showed the bomber was carrying 1,800 pounds of paint before the chemical strip," Koehl said.

Such weight, he pointed out, "potentially could reduce the [bomber's] range or increase fuel usage."

Painter said the dry media stripping is both a prototype for the B-1 and a shakedown for Tinker's new facility.

The dry medium, he said, is performing up to expectations, although there have been a few mechanical

problems with equipment in the new building.

"As far as the process, how the blaster removes the paint, everything looks great," Koehl said. "The B-1 program has been looking at processes to remove paint since the early '90s. Media blasting has been around a number of years, but it just now got to the point it's safe on composites."

Painter said the depaint facility operates around the clock five days a week and seems fairly efficient. The spent media is swept up and put into a recovery system, where a series of shakers filter out dust and paint chips. The media can be cleaned and reused an estimated 10 times.

In addition to being reusable, Painter said most workers prefer the dry media stripping because there's no chemical smell.

"But this [dry media stripping] is labor intensive," Painter said, explaining that the workers must hold a hose discharging Magic 2 at 30 pounds psi for "four to five hours at a time."

In addition to the B-1, Koehl said both the B-52 and KC-135 are approved for dry media stripping. The B-1, he added, was "kind of unique" in that time constraints and the potential for damaging composite parts made chemical strippers unfeasible.

Painter believes the dry media is a "real good option to try to do away" with pollution caused by chemical strippers.

Twelve B-1 aircraft come through the ALC each year for PDM, the engineer said.

"If we want their workload, we've got to be able to depaint their airplanes," Painter added. "We're in a real learning curve and manpower curve."

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