Engineers Perfect Software for Special Ops Aircraft

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ROBINS AIR FORCE BASE, Ga. -- A C-130 gunship can lay down fearsome firepower in close support of ground operations, firing sensor-targeted ammo from 105mm and 40mm cannons while circling thousands of feet above combat area's. The gunship crews, however, saw a way to improve their capability through dual targeting.

Previously, the crews had only been able to target one gun at a time, but in combat they saw the benefits of being able to target both guns at once.

It was then they turned to the C-130 gunship lab here, where engineers test improvements in avionics and targeting software in a virtual environment.
"The way they described it is 'We want to be able to shoot the ant hill, and then kill all the ants as they leave the ant hill,'" said Steve Pollard, the lead C-130 gunship test engineer.

After months of work and close contact with combat flight crews about how they wanted it to work, software engineers in the 402nd Software Maintenance Group did just that. After testing it successfully in the lab, the new capability was put to use.

For those who were involved, it was immense satisfaction to know they had done something to significantly improve the firepower of the crews, and potentially save the lives of U.S. troops.

"To turn on the news at night and see something, and know that three months ago I was working on that piece of equipment, there's no way to describe that for job satisfaction," Pollard said. "Everyone who works in here can tell you a similar story."

Although he called the dual-targeting achievement their "pride and joy" it's really what the unit does on a daily basis. They are constantly working to perfect the software on AC-130 H gunships used by Air Force Special Operations. Special Operations, based at Hurlburt Field, Fla., uses the AC-130 H gunships and the C-130 Combat Talon.

The gunship lab is a part of the Extendable Integrated Support Environment Lab, or EISE, pronounced "easy."

What they do there is far from easy, however. They operate what are essentially flight simulators, although not the kind used for crew training. The simulators do not resemble a cockpit, but it has all the capability needed to make the software think it is actually on a plane.

EISE also includes labs to test Combat Talon software as well as software for the Self Contained Navigation System used on many C-130s.

EISE is part of 580th Software Maintenance Squadron. Squadron director Keith Atkinson said the purpose of the lab is to test the software as thoroughly as possible to identify any problems before going to the expense of putting it through an actual test flight.

The lab, he said, does a good job of finding those problems before the software reaches a plane. The

squadron is made up of 180 people, and most are software engineers or computer scientists. Although the squadron responds to specific requests from flight crews for software changes, about every 18 months it does a complete update of the software.

The software engineers maintain close contact with the flight crews so that they will know how the software should be perfected.

Once they are ready to try new software on a plane, engineers from the squadron will go to Hurlburt Field and fly with the crews so that they can see how it works in live action.

Unlike at Robins where flight tests are done by designated crews, at Hurlburt the engineers fly with the actual combat crews.

That's important to making sure the job gets done right, said Pollard.

"We have a tremendous amount of direct contact with the air crew," he said. "To me, that's one of the most important pieces of it because it gives the air crew a recognizable face. If they see something they don't like or they see something they want to change they can pick up the phone and call us."

Source: http://www.afmc.af.mil/news/story.asp?id=123175298