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Randy Horrell, left, and Dave Hixenbaugh, from the B-1 Lancer system support management division at Tinker Air Force Base, Okla., are under careful scrutiny as they test electronic equipment designed to provide technical orders at the touch of a button. People from Tinker tested various devices, including TO visors, chest screens and hip units. (Photo by Margo Wright) | High-res version of this photo

Maintainers test new electronic technical orders

by Ron Mullan
Oklahoma City Air Logistics Center

09/17/02 - **TINKER AIR FORCE BASE, Okla. (AFPN)** -- Maintenance personnel here had a glimpse of the future recently when the Air Force tested a portable electronic technical orders system that will eventually replace the current paper system.

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Officials from the human effectiveness logistics research branch of the Air Force Research Laboratory at Wright-Patterson Air Force Base, Ohio, selected the B-1 Lancer system support management division here for testing. Lab people conducted a usability study of Xybernaut Systems' Mobile Assistant V, a computer fitted to a harness that a maintainer wears like a vest.

"The MA V system provides maintainers with the ability to access tech data through a virtual means, replacing paper products and the entire

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sustainment system that goes with that," said Rick Cantwell, an equipment specialist in the B-1 management division.

According to Cantwell, this new system will keep the Air Force on the cutting edge of technology, and save significant production time.

Under the current paper system, maintainers carry binders out to the aircraft to work on specific tasks.

"Many times maintainers will run into other problems that require additional tech data," said Cantwell. "When that happens, they have to stop what they're doing, go back to the maintenance complex and find the new TOs and bring them out to the aircraft. With the MA V, an entire set of TOs is available at their fingertips."

The long-term goal of the Air Force, said Cantwell, is to have mobile assistants transmit and receive data from a central server on base.

"That way, regardless of the type of aircraft being worked on, a technician can access the complete set of TOs for that aircraft 24 hours a day, 365 days a year," he said.

Cantwell said he thinks the MA V will have a positive impact on maintainers.

"I think when maintainers see how easy it is to use, they are going to be clamoring for this to be fielded soon."

Dave Hixenbaugh and Randy Horrell, B-1 aircraft mechanics taking part in the study, echoed Cantwell's enthusiasm.

"Normally, we have to carry at least three or four binders of TOs to handle most jobs," said Hixenbaugh. "They get strung out all over the place and get dirty or pages get torn out. With this portable system, about 95 percent of the information you're looking for is right there and to me that's a great advantage."

Horrell sees a definite benefit to the Air Force.

"It's light and easy to use, has lots of information and saves a lot of time," he said. "I like it."

According to Allen Revels, senior human factors research engineer at the University of Dayton Research Institute, Tinker was an obvious choice to be the test bed.

"We've been working with Tinker on developing electronic TOs for many years," said Revels.

"About a year ago, Tinker was looking for electronic tools to display technical orders on, but the events of (Sept. 11) pushed things back."

In the interim, Department of Defense officials came up with funds to find out how wearable systems can be used in different aspects of maintenance. Flightline testing of wearable mobile systems has been completed, which leaves two areas to be explored: back shop and depot-level operations.

"We chose Tinker for depot-level testing because of the contacts we had and we knew where they were at with their electronic TOs," Revels said.

B-1 depot maintainers wore the MA V harness while conducting normal maintenance tasks on the aircraft under field conditions. People from the Boeing technical publications section loaded TOs from compact discs for particular tasks to the hard drive of the MA V.

The study focuses on two variations of the mobile system. One version uses a hand-held mouse and the other a stylus like ones used with personal data assistants.

"Our goal in the laboratory and the logistics research branch is to find a tool that the maintainer can use to make the job easier," said Revels. "The end game is to make sure that we have the operational jets ready when we need them as quickly as possible.

"If we can make the job just a little more efficient, that means that the jets get out of here and back to their home station quicker."

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