Tobyhanna overhauls Air Force training tool

By Jacqueline Boucher

It was 20 degrees below zero when personnel fielded Tobyhanna Army Depot's first overhauled Unmanned Threat Emitter training system at Eielson Air Force Base, Alaska.

Overhaul work on the Air Force UMTE systems began in November 2011, with the first system being completed in February. Personnel are working on three more systems, each at different phases of the repair process, in the Tactical End Item Repair Facility.

The UMTE is an U.S. Air Force aircrew training system that is environmentally rugged, unmanned and remotely operable. It is capable of radiating threat signals that simulate surface-to-air missiles and anti-aircraft artillery radar, and can be airlifted to various training sites. There are 35 systems in the inventory, 16 of which reside on the Joint Pacific Alaska Range Complex. The JPARC is the world's largest instrumented air combat training range with over 67,000 square miles of airspace and is the venue for RED FLAG-Alaska.

The UMTE and other systems overhauled by Tobyhanna are an important part of providing realistic Electronic Warfare training to all branches of the U.S. military and our Allies, according to John Karish, range engineer assigned to Eielson's 353

(Photo by Steve Grzezdzinski)

Electronics mechanics Anthony Dennis (left) and Robert Slater conduct a system performance check on a Air Force Unmanned Threat Emitter training system after it was overhauled and reassembled. Site acceptance testing for the first overhaul was performed at a remote training range in the Alaska wilderness.

Combat Training Squadron.

Overhaul has two main components – electrical and mechanical. Electrical repairs include diagnosing equipment failures and replacing defective components. Mechanical repairs include full restoration to like-new condition. The repair process includes sandblasting, cleaning, priming and repainting of an asset.

Employees also remove all the system components and test and repair all internal wiring and cable harnesses.

"The overhauled system must not just transmit signals," Karish said. "The system must transmit very closely defined signals in order to provide aircrews a realistic EW environment." According to Frank Wanat, the support from a number of depot shops has been "outstanding." He explained that the new workload started with a repair cycle time of 365 days with the goal of decreasing it to 200 days. In addition, projected figures indicate the Air Force will cut their overhaul costs considerably by transitioning from the original equipment manufacturer to organic sustainment at Tobyhanna.

Teamwork is the key to the continuing success of this program, Wanat explained.

"If the work performed on this first system is any indication of what we can expect in the future, we'll be able to reach our goal in no time," he said, adding that the shops are working well together getting things through the process quickly and efficiently. Wanat is a logistics management specialist in the Production Management Directorate's Surveillance, Threat Emitter Branch.

Charles Bartleson, former Threat Simulation and Analysis Systems Branch chief, took the lead on this program until retiring, according to Joe Lynott, chief of the Intelligence, Surveillance and Reconnaissance Directorate's Range Threat Systems Division. He tasked two depot employees to become UMTE subject matter experts; they joined forces with Tobyhanna's engineering representatives to develop this new depot-level capability. Electronic Integrated Systems Mechanic Eduardo Estrada and Electronics Mechanic Robert Slater played a vital role in each phase of this program, Lynott said.

(Photo by Sean Bovier)

Members of Team Tobyhanna worked in frigid temperatures at a remote location in the Alaska wilderness while completing the final phase of the first overhaul of the Air Force UMTE training system.

"Training received by the manufacturer to operate the system remotely was useful in performing the first sight acceptance test," Slater said. Depot employees have received positive feedback from Air Force personnel supporting the fielding event.

SSG Derek McCarty, 353rd Combat Training Squadron quality assurance evaluator, remarked that Team Tobyhanna members were very knowledgeable. In addition, if they didn't know something, they looked it up and worked diligently to correct the issue, he added.

Personnel here faced a few challenges while working on the aircrew training system. It was necessary to design new test fixtures and test boxes used to check different components, plus deal with a software problem.

"Each radar system typically

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has different test fixtures and test boxes," said Bill Moser, electronics engineer, Production Engineering Directorate's Surveillance/ Range Systems Engineering Branch. "It's been a learning experience working on the UMTE, and everyone stepped up to the challenge."

Software issues came to light near the end of the overhaul process. A testing device called the jammer emulator needed reprogramming so the UMTE would operate properly prior to final acceptance testing. Unable to acquire necessary software, through combined requests from the Special Program Office, Hill Air Force Base, Utah, and Tobyhanna, depot engineers resolved the problem by programming the software to meet customer requirements, according to Wanat.

Karish explained that the jammer emulator tests the Electronic Attack Receiver on the training system. It measures jamming signals employed by combat aircraft in defense against surface-to-air missiles being simulated by the UMTE.

"If the EAR doesn't work, we cannot use the UMTE during RED FLAG-Alaska exercises," said Karish. "There would be no way to determine if the aircrew responded correctly, therefore we couldn't include the jamming effects when calculating the outcome of the missile engagement."

The employees, who worked in Alaska's frigid temperatures to conduct the site acceptance tests, spoke highly of everyone who assisted with the final stage of the process. Air Force personnel received, delivered and set up the system at a remote location, miles from the installation prior to final testing.

"Everyone provided excellent support during the entire process," said Sean Bovier, electronics technician. "The system performed flawlessly and the Air Force was very happy with the results of our work."

The UMTE joins Tobyhanna's growing mission of radar support.

Tobyhanna Army Depot is the Defense Department's largest center for the repair, overhaul and fabrication of a wide variety of electronics systems and components, from tactical field radios to the ground terminals for the defense satellite communications network. Tobyhanna's missions support all branches of the Armed Forces.

About 4,500 personnel are employed at Tobyhanna, which is located in the Pocono Mountains of northeastern Pennsylvania. Tobyhanna Army Depot is part of the U.S. Army Communications-Electronics Command. Headquartered at Aberdeen Proving Ground, Md., the command's mission is to research, develop, acquire, field and sustain communications, command, control computer, intelligence, electronic warfare and sensors capabilities for the Armed Forces.

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Acronym QuickScan

EAR - Electronic Attack Receiver
EW - Electronic Warfare
JPARC - Joint Pacific Alaska Range Complex
UMTE - Unmanned Threat Emitter training system