

Soldier input aids Army researchers

U.S. Army

JOINT BASE LEWIS-MCCHORD, Wash. -- When Army researchers needed feedback on a new combat vehicle, they went to the real experts -- the users.

They visited experienced brigades -- including 3rd Brigade, 2nd Infantry Division, a Stryker brigade combat team at Joint Base Lewis-McChord -- to get the opinions of Soldiers whose lives could depend on the new vehicles and equipment.

"We're engineers," said Dawn Woods, human factors engineer with the Army's Natick Soldier Research, Development & Engineering Center. "We do the best we can, but we're not Soldiers. The purpose here is to bring Soldiers in and say, 'What do you think of this? Are we going in the right direction?' None of those 'design (it), throw it over the fence and hope they can use it' things."

It's the basis of the Occupant Centric Platform program, a joint project between the Army's Natick Soldier Research, Development and Engineering Center; Tank Automotive RD&E Center, the Army Research Laboratory and engineering firm Pratt & Miller.

Woods emphasized the program isn't developing a direct replacement for the storied Stryker series, or the Bradley Fighting Vehicle. Instead, she and her team of contractors and government employees are working on developing technologies to be incorporated into future combat vehicles.

Those technologies, simulated inside a demo unit at a 3rd Brigade, 2nd Infantry Division, motor pool, include things large and small: from the size of future transports to their hatch sizes and shapes; from 360-degree view systems to enhanced seat belts.

Cpl. Kyle Lynch was one of the Soldiers who got to experience the demo unit, a metal chamber on stilts with the new technologies inside.

"It's nice to be able to have input ... to give feedback on what we think is good," said Lynch, a Soldier with 1st Battalion, 23rd Infantry Regiment.

The Squad Automatic Weapon, known as a SAW, gunner last deployed to Afghanistan, and said he had no problems with Strykers, but storage always was a challenge. The vehicles commonly had to carry food, water and ammunition on the outside of the vehicle. It was difficult to fit two fully equipped fire teams inside a Stryker.

Lynch said he liked the demo's increased internal storage and the redesigned seating. He also appreciated the larger hatch designs.

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So did Spc. Kyle Moschner, also with the 3rd Briage, 2nd Infantry Division. Another SAW gunner, he has experience with mine-resistant, ambush-protected vehicles, known as MRAPS, MRAP-All Terrain Vehicles and Stryker vehicles from Afghanistan.

"You're cramped in any other vehicle I've been in so far," he said, then glanced at the demo unit. "That was very spacious."

Woods said the platform design accommodates 11 Soldiers -- two fire teams of four, a squad leader, a vehicle commander and a driver. Everyone who sat in the demo wore full kit and carried a weapon.

Researchers took detailed measurements of each Soldier, with kit and without, to see how their measurements compared to the rest of the Army's population. The goal, Woods said, is to comfortably fit the maximum number of Soldiers.

Fit mattered most during the redesigned hatch demonstrations.

Researchers constructed a series of painted plywood boxes, one bigger than the rest and with a large hole in its top. A slot above the hole allowed plywood boards with hatch shapes cut into them to be slipped above the big hole.

Soldiers then scrambled into the box from an open side, with full gear and weapons, and tried to exit out the "hatch." The redesigned hatches, in the shapes of a near square and a circle, were wide enough that Soldiers tumbled from them with relative ease and speed.

The smallest was the command hatch for a Bradley.

"Everybody was able to get out when we ran the drill," Woods said, "but it took a while."

Moschner said he ran the drill about 20 times, fast-paced for time. He weighs 205 pounds unburdened, and estimated he was close to 290 pounds with gear, body armor, weapon and ammunition.

"Being able to move in and out of a vehicle a lot easier, not having to trip up on people ... being able to see outside without ever having to step foot outside will be a big advantage," he said.

The contoured, cushioned seats and added internal space drew the gratitude of Sgt. Richard Kvinge of 1st Battalion, 37th Field Artillery Regiment.

"It's like a vacation in there," said the tanker formerly assigned to the 1st Armored Division.

The seat belts got attention, too. TARDEC Senior Mechanical Engineer Katrina Harris showed how new "ready reach restraints" were designed with the Soldier in mind. The first part of the over-the-shoulder belt is stiff, sticking out like a long tab that a Soldier can reach even when fully equipped.

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Cargo retention systems are being examined too, thanks to Soldier input, Harris said. If a vehicle is hit by an explosive device, seemingly secure cargo can transform into multiple projectiles, flying around inside a vehicle and threatening the lives of Soldiers.

A lot more testing lies ahead in a process already four years old. Pratt & Miller will analyze detailed surveys with Soldiers' likes and dislikes about the demo, which moves on to more bases and eventual testing for its resistance to explosions.

Lynch is glad they're taking the feedback seriously.

"I'm just hoping it'll shape the next generation of those vehicles," he said, glancing at the rows of Strykers across the motor pool.

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