Army displays future of ground-vehicle technologies

U.S. Army

SAN ANTONIO (Jan. 14, 2013) -- While the Army All-American Bowl showcased the talents of top-ranked high school football players from across the nation, the Army displayed its top technologies and innovations in the Army Strong Zone just outside the Alamodome, here, Jan. 4-5.

One of those innovations is the FED, which stands for fuel efficient demonstrator.

"We are proudly supporting the Army's All-American Bowl efforts again this year," said Derhun Sanders, communications and outreach director at the Army's Tank Automotive Research, Development and Engineering Center, known as TARDEC. "It is an honor to show off the art of the possible with our demonstrator vehicle."

TARDEC has two versions of the vehicle, known as FED Alpha and FED Bravo. The Alpha version was on display in the Army Strong Zone.

"The FED does the same mission as an up-armored Humvee," said Rachel Agusti, lead project engineer. "It's a little more current because it has v-body hulls, underbody shaping for blasts as well as export power and it does that mission 70 percent more fuel efficient."

The vehicle features a number of fuel-saving technologies including:

-- Goodyear low-rolling-resistance tires which minimize the energy wasted as heat between the tire and the road

-- optimized Cummins super/turbocharged 200-horsepower, 4.5-liter, inline 4-cylinder diesel engine

-- Alcoa Defense lightweight aluminum monocoque armored cab with underbody blast shield

-- performance friction low-drag aluminum brake calipers

-- REM Chemical Isotropic Superfinishing gears -- a finishing process often used in racing vehicles to reduce friction and vibration and improve shifting

-- Continental Teves accelerator force feedback pedal, which cues the drive to accelerate the vehicle for optimal efficiency

-- carbon fiber body panels, which reduce weight and increase rigidity

"Those technologies can be used on current platforms and future platforms to help increase their fuel efficiency," Agusti said. "So this [demonstrator vehicle] isn't something that will go into production, it's something that is furthering technology."

One of the goals of the Army All-American Bowl is encourage students to consider studying the science, technology, engineering or mathematics fields, known as STEM.

"Even as a [civilian] engineer, I get to work on really cool projects," Agusti said. "So, do really good in school and really study your mathematics, your engineering principles and you can work on cool projects like this."

The FED concept vehicle was just one of several technology demonstrations provided by the U.S. Army Research, Development and Engineering Command in the Army Strong Zone. Representing RDECOM were the Army Research Laboratory; the Communications-Electronics Research, Development and Engineering Center; the Natick Soldier Research, Development and Engineering Center; and TARDEC.

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