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The new forged ball joint for the High Mobility Multipurpose Wheeled Vehicle, or HMMWV, is in the foreground. The new ball joint is expected to last more than three times longer than the stamped version seen in the background.

(DSCC photo)



A new, improved ball joint that DSCC helped procure for the U.S. Army is shown in use on a High Mobility Multipurpose Wheeled Vehicle, or Humvee.

(DSCC photo)



Shown is the Army's High Mobility Multipurpose Wheeled Vehicle, or Humvee.

# **DSCC's Land group finds better ball joints for Army vehicles**

*Solution cures quality, delivery problems*

By Tony D'Elia  
DSCC Public Affairs Office

The U.S. Army had a big problem with a part on a widely used military vehicle and Defense Supply Center Columbus was able to come to the rescue and solve the problem.

The two upper ball joints of the highly used High Mobility Multipurpose Wheeled Vehicle, or the Humvee, were causing logistical problems. The part was identified as a high priority part in support of the Global War on Terrorism since there are about 78,000 HMMWVs in use today.

Not only was there a design problem in the part, there was a limited amount of suppliers, and if that wasn't enough, the part was wearing out too quickly. They usually had to be replaced after only 12,000 miles of use.

"We found that the ball joint wasn't meeting all the specification requirements," said Laverne Johnson, a DSCC small business technical specialist. "It didn't allow the full range of motion called for in the specification."

A bad history of quality and delivery problems mandated that new sources for procurement be developed. With backorders mounting and technical problems continuing with the existing contracts, DSCC Land-based Weapon Systems Group director Army Col. Milton Lewis and unit logistics officer Tiffany Givens-Barnett assigned the project to Johnson. Working out of DSCC's Source Development Office, Johnson managed to find a company in Oregon that could help. This firm could forge new ball joints to replace the previous versions, which were stamped. Many times, the forging process can produce a stronger part than the stamping process.

Sample ball joints were supplied by the company and taken to the University of Dayton Research Institute for thorough performance testing. Not only did the new ball joints pass the test, but results showed that the forged joints are stronger. The forged part has no welds and testing showed that there was stress on the weld points of the stamped part. Other test results showed that the new forged ball joint has a service life of 35,000 to 45,000 miles. That's more than triple the service life of the old stamped part.

Armed with these results, the government signed a contract to purchase more than 74,000 of the newly designed ball joints.

Even though the new part is a bit more expensive, the enhanced service life of the forged ball joint will mean reduced vehicle downtime and diminished usage rates/demands, which will result in expected savings of \$1,175,405.