

"Customer Pay" Program Pays Off

Pentagon, Army, and Industry Program Reduces Costs in Rebuilding Military Trucks

Denise Richards



Wars eat machinery, and the military vehicles returning stateside after hard duty in Iraq and Afghanistan show severe bite marks. Battle damage, transmissions worn by constant heavy use, cooling systems strained by desert heat, and springs and axles stressed by heavy payloads and armor take their toll. While industry organizations have responded by producing new vehicles in record numbers, the military also wants to make use of older, existing vehicles for training, readiness, and other domestic missions.

Meeting these multiple demands means that in addition to buying new trucks, the military must refurbish and rebuild the trucks that return from the battlefield. Fortunately, a pilot program designed to combine the best features of government logistical expertise and private industry's knowledge of inventory management and just-in-time delivery has set a new standard for speed

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and quality in the rebuilding of thousands of the Army's high-mobility multipurpose wheeled vehicles—the famous HMMWV, or Humvee.

Dubbed “Customer Pay”—a reference to the procedure in which the government (the customer) pays the contractor only when a part is delivered to a military assembly line—the program has teamed the Defense Logistics Agency (DLA), the Army's Tank-Automotive and Armaments Command (TACOM), and three military maintenance depots with Humvee manufacturer AM General to streamline the production of remanufactured vehicles.

“Nobody had ever done it before. We designed, developed and implemented this in six to nine months,” said Pat Dempsey-Klott, a TACOM executive who played the key role in initial development of the program.

The Customer Pay System

Under Customer Pay, AM General, not the government, takes responsibility for getting the right number of parts to military depot assembly lines at the right time so that refurbished and rebuilt Humvees come off the line 100 percent complete—something that was not always the case under the old system. While this may seem a simple enough task, it is an extraordinarily complex industrial enterprise. In fact, it can be more complex than managing the flow of parts required for new vehicles. For unlike new production, each Humvee returning from duty has a different set of parts needs. While some parts replacements are mandatory, most of the parts that need to be replaced on Humvees vary depending on the widely varying condition of the battle-weary vehicles when they come in.

To grasp the nature of Customer Pay, it is important to visualize what is happening at the Letterkenny Army

Depot in Chambersburg, Pa.; Red River Army Depot in Texas; and, on a smaller scale, the Maine Military Authority in Limestone, Maine. Those locations are not mere repair bays where damaged vehicles come in for an overhaul. The depots are involved in full-up vehicle remanufacturing that has much more in common with an automotive assembly line than with a maintenance shop. Incoming Humvees are stripped down to the frames. Parts that can be reused are cleaned and refurbished while new parts queue up for assembly. The queuing process is where Customer Pay comes in.

When You Need a Whole Truck

Before Customer Pay began as a pilot program in January 2006, the military depots were struggling with the high volumes of work brought on by wars in Iraq and Afghanistan. Too many vehicles were coming off the line “G-coded,” meaning they were missing parts and could not be accepted back into the military inventory. Production line stoppages due to incomplete vehicles were becoming a daily problem, at one point creating a backlog of some 1,300 trucks that had to be sent through the line a second time, according to information provided by John R. Gray, Letterkenny’s deputy commander.

“Just imagine you have a factory making Toyotas, and it runs out of seats for about three hours, and the line keeps going. Then maybe it’s seat-belts or the glove-box doors,” Gray explained. “Pretty soon, you have a whole field missing two to 20 parts, but they’re not all the same parts.”

As Mark Whalen, AM General vice president for service parts logistics operations, put it, “ninety-five percent [of a truck] when you need a whole truck doesn’t work.”

In some cases, installing the missing part required taking a truck apart, to some degree, to get at the problem area. The solution most immediately available to the government was boosting its parts inventory at depot warehouses. That decreased the chances of problems arising on the line, but sharply increased costs as the overhead associated with remanufacturing the trucks spiked.

A Solution Pays Off

Developed in cooperation with the Army and depots by the DLA’s Defense Supply Center Columbus, Customer Pay responded to the problem by turning over the entire management of parts supply to AM General.

“Customer Pay is a collective effort of government and industry partners dedicated to achieving excellence in Army recapitalization of the HMMWV weapon system,” said Brig. Gen. Patricia E. McQuiston, commander of Defense Supply Center Columbus. The key to Customer Pay’s success, she said, lies in “the flexibility provided by having both a commercial and a government supply chain available to back up each other.” Second, she added, is the “cooperation and in-

tense dedication” of the government/industry team. “These two factors provide nearly seamless support, at significantly reduced costs.”

An Industry and Government Partnership

At its South Bend, Ind., headquarters; its Mishawaka, Ind., assembly plant; and its engineering center in Livonia, Mich., AM General employees had extensive expertise in just this sort of inventory management problem.

The company developed a transparent system of inventory management. AM General would be responsible for some parts through its huge network of suppliers, such as General Engine Products, which is the maker of the Humvee engine. DLA and TACOM would supply other parts. AM General chose subcontractor W.W. Williams for the task of transporting parts and partial assemblies from depot warehouses to the assembly floor in the proper sequence.

The system requires AM General to find the lowest available price, which might, at times, mean using government inventory rather than buying from subcontractors. And if for some reason one responsible supplier runs short of a needed part, the Customer Pay system enables AM General to move easily to other options. In that way, the key participants—AM General, DLA, and TACOM—backed each other up in supporting the flow of parts to the line.

AM General partnered with the government to drastically reduce inventory. The result was performance-based logistics to the nth-degree, in which the company does not get paid until it delivers the parts to the line.

The Need for Flexibility

The hard part lies in forecasting what the company calls “average daily use” of certain parts on the line. While some parts such as drive train and suspension must be replaced, greatly simplifying planning, others are replaced as needed. These are what AM General calls “unpredictable parts.” Some of these calculations require deep knowledge of ongoing operations. Here, AM General’s connections to the warfighter through the various acquisition and supply commands—connections that help the company understand what is happening to Humvees in the field—are critical.

Parts needs on the line vary from week to week. In 2007, the logistics operations saw a sudden need for body and frame parts because of the kind of damage the two wars were inflicting on the trucks. That type of damage increased the support needed to sustain production because up until this point, the depots had not seen vehicle assets from theater. More recently, the depots have seen less of that kind of damage, and the Customer Pay system has adjusted accordingly by reducing inventories to match demand and to get the right combination of parts to the depot floors when needed.

The variety of problems can be daunting. Not all the Humvees that feed into the depots for remanufacturing come from desert war zones. "We've gotten vehicles from Hawaii that were tremendously rusted," Chris Emery noted. "You don't get that in the desert." Emery works for W.W. Williams, a company whose main business is servicing interstate trucking and an industry partner in Customer Pay.

The depots group Humvees into two categories, "recapitalization" and "reset." Letterkenny does recapitalization. Whatever model Humvee comes in, the vehicle goes out of the depot a 1097 model—the basic unarmored Humvee. Red River does both recapitalization and reset. The latter involves rebuilding a Humvee so it emerges from the depot as the same model that came in, which is a somewhat more challenging task because a greater variety of parts are involved. Because the Humvee rebuilding program currently supplies the non-frontline military, those vehicles are not being reconditioned with new armor for combat. Humvees destined for war zones are coming off the line brand new at AM General's assembly plant in Mishawaka, Ind. But later iterations of Customer Pay, beginning in January 2009 under a new, extended contract, will involve remanufacture of armored Humvees.

For the 1097 models, made of roughly 2,000 parts, 140 must be replaced with new parts. The rest use reclaimed or refurbished parts. If not enough of those are available, AM General supplies new parts. Letterkenny produces 342 vehicles per month, according to figures kept by TACOM. The Maine Military Authority produces 25 per month. The totals vary at Red River depending on incoming volumes, but the average has been 340 per month.

An Atmosphere of Cooperation

Critical to accomplishing the process improvements has been an atmosphere of cooperation and partnership between the government and the private sector.

"We were able to build avenues of trust, open communication, and sharing of data; and that's allowed for a quantum leap in cooperation," said Whalen.

Emery said a key to the success of the program is not only smart forecasting of spare parts needs at the high end, but also regular interaction with the workers doing the assembly.

"We have direct contact with what's happening on the floor," Emery said. Trends in spare parts needs, "right down to a bolt," come to light in this way and help provide critical information that feeds into the decisions about what parts of the returning trucks need to be replaced.

After some initial skepticism as to whether the program would work, the positive results are unambiguous.

After the first month of the Customer Pay program, there have been no G-coded vehicles coming off the depot lines.

Average parts inventories are running at less than \$25 million total at the two depot warehouses stocked by AM General under the program—enough for 30 days worth of assembly work. Prior to Customer Pay, the depots were maintaining roughly \$100 million in inventory combined.

Since Jan. 16, 2006, the production line partnership has provided more than 21 million parts for the recapitalization and reset of more than 20,000 Humvees. Today, the three depots combined put out 726 Humvees per month.

The Army has documented cost savings of \$3,414 per vehicle, or 6.6 percent, at Letterkenny, and \$4,520 per vehicle, or 8.7 percent, at Red River.

Compared to the daily production line interruptions prior to Customer Pay, there has been only one line stoppage, for 20 minutes, in more than 590 production days since the program began.

Value Engineering

According to Dempsey-Klott, Customer Pay saved taxpayers \$38 million in the past year by reducing unneeded spare parts purchases. Army Materiel Command recognized this success with the Value Engineering Award for 2007.

Letterkenny's Gray described it this way: "Before Customer Pay, we went for about three months without producing a single vehicle that had 100 percent parts. Today, we go about three months without a single vehicle missing a single part."

Gray said the success of the program lies in "letting industry do what it does best in terms of the supply chain, and letting the military do what it does best in terms of managing Army equipment."

After one year as a successful pilot program, the Defense Department twice approved one-year extensions with full program status. In January 2009, Customer Pay will be extended under a new, five-year contract between the government and AM General.

Customer Pay is not only a success story; it is also a prototype that the Pentagon now plans to apply to other vehicles and other types of military hardware.

"The program has been so successful," said McQuiston, "DLA plans to expand it to other areas under a broader scope that we term integrated logistics partnerships."

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