Maintaining Engineer Equipment

By Major Charles Radke

In his "State of the Engineer Branch 1997" (*The Army Engineer*, June 1997, page 20), MG Clair F. Gill, then commandant of the U.S. Army Engineer School, asked that we help move the branch forward into the next century. He presented seven challenges to remember as we go about our daily activities. Challenge number four was "Maintain your equipment to standard and train your soldiers to use it to its full effectiveness." MG Gill explained why this is important and tried to influence maneuver commanders to voice their concerns about engineer equipment.

Maintenance Imperatives

That challenge reminded me of my experiences as executive officer in an engineer battalion deployed to Bosnia and Herzegovina. The following information includes some of the items I believe are necessary for a successful maintenance program. The Army Maintenance Management System describes other requirements in DA Pamphlet 738-750, *Functional Users Manual for The Army Maintenance Management System (TAMMS)*. Additional requirements in local SOPs and regulations help ensure successful maintenance operations. The imperatives in this article were extracted from several of these documents.

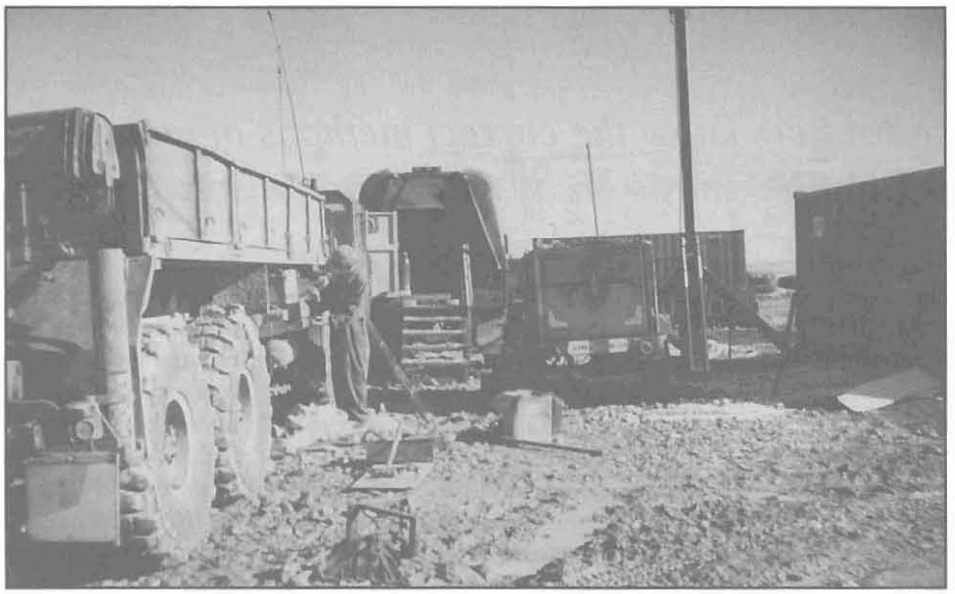
Manage repair parts load lists to maximize on-hand parts. Prescribed load lists (PLLs) are automated in the Unit-Level Logistics System (ULLS). Stockage is based on demands (as required by Army regulations) and on monthly inventories conducted by parts specialists. Insist that the PLL clerk record parts used and then double-check the availability of each part monthly. Parts that receive fairly regular demands must be stocked in the PLL. When authorized, keep on hand at least two of each item in the PLL to avoid a zero balance.

You must manage quick-service-supply, low-cost items (under $25) that can be retained and do not count against PLL ceilings. Know what you have on hand, organize it, and make it accessible to users. If small parts from a set, kit, or outfit are at zero balance, order replacements immediately. O-rings, bolts, connectors, and hardware are just as important to have on hand as new starters.

Participate in authorized stockage list (ASL) review boards and insist that



Instead of running this ACE to maintenance without its track, a plan was executed to move it as shown here and not cause additional damage.



Maintenance in the mud should be anticipated. Truck-mounted shop equipment and a trailer-mounted hydraulic fabrication set help accomplish the maintenance mission.

the ASL of the direct support unit (DSU) supports your repair parts stockage and is tailored to support engineer equipment. Army regulations allow ASLs to stock repair parts for low-density equipment (like engineer equipment) on the basis of "three demands to add and one to retain." Regulations require that "nine to add and three to retain" criteria be used for more common parts. Help the DSU identify the low-density equipment repair parts you need. Most major assemblies (such as engines, tracks, road wheels, and transmissions) are stocked and carried at the DSU. It took 25 to 30 days for parts to be shipped from CONUS to Bosnia. If the DSU did not have a major assembly on hand, we had at least a month of non-mission-capable (NMC) time.

Don't collect excess repair parts, whether serviceable or unserviceable, because they take up valuable space and require a separate management system. Turn in unserviceable parts and get them into the rebuild program. Also turn in unauthorized serviceable parts. You may need them someday, but let the system hold them until then.

Manage each part that makes a piece of equipment NMC—from diagnosis through installation. Order the right part the first time. In Bosnia we let organizational maintenance personnel identify deficiencies and establish requirements for parts. Then, we managed the required parts by exception. If parts requests were passed to the wholesale supply system, experienced personnel reviewed the problem to ensure that the correct part was ordered. Usually the battalion's maintenance technician, sergeant, or officer performed the task, but sometimes it was a technician from the Logistics Assistance Office, the DSU, or a contracted maintenance advisor.

Once a repair part is ordered, a record of the request is in the repair parts system. Important items to verify are stock numbers, nomenclature, quantity ordered, unit of issue, acquisition advice (one of the most commonly disregarded codes), urgency-of-need designator, and required delivery date. If the delivery date block is left blank, regardless of priority, there is no NMC request in the system.

Periodically check the status of the request at the unit and take the necessary action. Now that the entire Army operates on ULLS and the Standard Army Retail Supply System-Objective (SARSS-O), a maintenance supervisor can quickly determine if parts have been ordered and if requests have been passed to the next higher level of supply. The request is printed on the Maintenance Inspection Worksheet 5988-E and includes a list of parts on order for the equipment. Both the ULLS and SARSS-O must exchange information daily to ensure that valid requisitions get into the system. If the ULLS status is incorrect, something is wrong with the human side of the system and must be corrected.

Follow parts from the source of supply through delivery to the equipment. Requests are quickly established in the wholesale supply system, and the status is returned just as quickly. DSU operations personnel can determine the status of all requests and speed a shipment or solve problems. They also maintain contact with the entire supply infrastructure, which was developed to fix problems as they are identified. With modern tools such as "Total Asset Visibility" and "In-Transit Visibility," we can determine when a part arrives at the local parts warehouse. If necessary, means are available to quickly get the part from the warehouse to the equipment.

Train operators, maintenance and supply personnel, and supervisors on maintenance and operation of engineer equipment. Training operators saves time and saves equipment from operator-induced failures. Training is often performed at the unit level, but formal training elsewhere is available. Begin operator training with a well-structured drivers' training program. Once soldiers know the correct methods of maintenance and operation,

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they usually follow proper procedures.

Maintenance personnel in a division receive training from the Maintenance Assistance and Instruction Team and other sources. Logistics Assistance Office personnel, the local representatives from the Army Materiel Command, are positioned forward to provide training assistance.

Personnel who supply repair parts also require training. Regardless of their military occupational specialty, well-trained parts specialists and assistants are cornerstones of maintenance management.

Current engineer doctrine places the company first sergeant in the role of maintenance support supervisor. To perform this function, NCOs must be trained on the entire maintenance process as they move through the echelons of leadership. Training to go beyond the company and battalion to solve maintenance issues must be instilled early. Then, when small units are away from the parent unit, the NCO supervisor can continue a maintenance program.

Fabricate repair parts locally to save time and money. In Bosnia, the engineer battalion was the conduit for the fabrication of repair parts for the brigade combat team. A hydraulic shop and two machine shops were under contract. In addition, our fully stocked shop van, welding outfit, and hose-fabrication outfit made many items quickly, saving transportation costs. Nearby aviation maintenance units usually are an excellent source for hydraulic hose fabrication.

Perform periodic services on time and to standard. Technical manuals, lubrication orders, and regulations provide the standards. Don't forget to check out-of-sight items (such as weapons; night-vision devices; and nuclear, biological, and chemical equipment) when scheduling and completing services. Task organize maintenance and engineer units to complete a block of services. When one leader is given the responsibility, time, and tools to complete a service mission, the results are very close to optimal. The overarching goal of periodic service is to have equipment leave the service process in like-new condition. Make every effort to identify problems and institute corrective actions. Ensuring that parts are on hand for scheduled services requires a well-planned, systematic ordering process. If the wheel seal needed during scheduled services is not on hand, chances are it will never be installed.

Complete, document, and correct problems identified during periodic checks. Some maintenance checks are listed in technical manuals for the equipment, and others come from Army safety regulations. Each set of guidance specifies that checks be performed before, during, and after operations. Too often, maintenance checks consist of a quick walk around the equipment and starting the engine. It's better to put an entire weapon system together and run it through normal operation. Put the weapon on the vehicle, turn on the communication devices, and move the system to complete all required checks. If an operator identifies a problem during the checks, maintenance personnel must correct it without delay.

Exercise equipment to help identify problems and keep it fully mission capable (FMC). Equipment stored for any length of time begins to deteriorate. Seals lose resiliency, rubber rots, electrical connections corrode, and rust invades spaces that should be clean. Our equipment in Bosnia hit record highs in terms of miles and hours but continued to stay FMC. One reason was that by operating complete systems often enough to prevent deterioration, we helped prevent early component failure.

Plan well and consistently enforce standards to ensure safe maintenance operations. Planning ensures that standard procedures are in place to reinforce the safety program. Include detailed procedures for inflating split-ring wheels, backing vehicles, handling hazardous material, and operating the shop. After policies are established, enforce them. Also enforce common safety rules. Safety is a force multiplier, and maintenance operations are one of the biggest benefactors from this practice.

Maintenance Success

With successful maintenance practices established, our battalion followed the directive to deploy to Bosnia only equipment that could shoot, move, and communicate, and that could self-load onto the rail cars. After the equipment arrived in Hungary, we road marched to Croatia and drove every vehicle across the Sava River to a remote base camp. Our battalion accomplished this trip without leaving anything in Germany and without borrowing replacements from other units. In Bosnia, we enjoyed higher-than-average readiness rates even though we logged additional miles and hours.

Maintenance imperatives are long-term events. Getting started on them as soon as possible will lead to earlier success. Perhaps the imperatives described above will help satisfy MG Gill's challenge to "Maintain your equipment to standard and train your soldiers to use it to its full effectiveness."

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