



SKO

APPROVED
STANDARD
TOOLS

Sets Kits Outfits

By Alan Schlie

As the Cold War ended, Army Engineers were proponents for over 200 tool sets, kits and outfits (SKO). The Army had seen no real modernization of hand and power tools since the Vietnam War era. Procurement funding was very austere and the burden for replacing tools essentially belonged to individual engineer unit commanders. The situation improved significantly in 2001 when the Engineer School Assistant Commandant directed that standard tool sets be modernized and fielded at no cost to units.

FACING PAGE: Top photo of Vietnam era Soldiers standing inspection with some of their tools, ready to be loaded in their squad vehicle, a 5-ton dump truck. (Photo courtesy of the author, stylized by AE Magazine). Bottom photo of Soldiers using tools in Afghanistan on a rocky mountain top. (Photo from DefenseLink)

At the heart of every Engineer squad and section is a vehicle designated to transport Soldiers and their equipment. On-board is personal equipment, weaponry, ammunition, vision devices, protective gear, rations, smaller equipment (chain saws, mine detectors, radios) and an array of tool sets.

In many cases the Soldier forgets that their tools were stored in the boxes that functioned as passenger seats, or might have been carefully stowed according to the loading plan and available for immediate access when the need arose. But a Soldier never forgets the tools that required some hard physical work; caused blisters, cuts, scrapes and torn clothing; and were cumbersome to move, tedious to maintain and difficult to inventory. Soldiers, and their leaders, knew they were essential for mission accomplishment. When the “big stuff” wasn’t available or there wasn’t a “mechanical solution” to completing the task at hand, the squad opened the lid of the boxes to see what tools were available.

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The initial effort modernized the collection of construction (carpenter, mason, plumber, pipefitter and electrician) and pioneer tool sets to mirror tools currently in use by civilian counterparts, and available in the commercial marketplace. Items such as tool belts, tape measures and speed squares were provided for each Carpentry-Masonry Specialist, Plumber and Electrician. Ladders and scaffolding, cement mixers, nail drivers, tarps, tool bags, picket pounders, rappelling and fall protection gear, wire gauntlets, marking tapes, sewer pipe cameras and portable winches were added to appropriate sets to reflect technology and improve Soldier safety.

Tool Sets were modularized with incremental capabilities—for example; carpenter, carpenter support, then carpenter shop with hand operated, then battery operated and finally corded electric tools in respective sets. Older, less frequently used

items such as wooden mallets, handsaw sharpeners, rope and nail boxes were eliminated.

At the onset of the modernization effort, the Engineer School partnered with private industry to make the modernized sets available through GSA. There were a few fielding successes and significant operational results. However, without dedicated funding by Department of the Army, units would still have to use scarce operational funds to obtain the new sets.

As the pace of overseas deployments picked up, units did find the funding in some innovative ways to obtain new tool sets. For example, a unit deploying to Southeast Asia (SEA) used State Department funding and then almost didn’t get to bring the tools home when local government leaders threatened to confiscate them—seemed they were much better than anything the Engineers in their army were issued. New tool sets also went to Bosnia, Africa and Tibet where they proved their worth in both mission accomplishment and improved Soldier morale.

The Carpenter Tool Set, as a cornerstone, provided identical hand tools to each of the six Carpenters in an engineer vertical construction squad. It packaged the tools into three two-soldier teams and included tools not required as often in a fourth compartment. The foam padded trays could be removed and laid out for instant inventory, needing just a glance to see if a tool was missing. Tool belts and pouches were included as well as bags so that additional tools could be carried by each team without the need to take the entire box.

The Carpenter Support Tool Set (formerly Platoon Carpenter Tool Set) reflects a new identity where hand tools are replaced with battery operated saws, drills and nail drivers to support three squads. An engineer unit now has the capability to accomplish more at remote sites where electrical power is not available, or when working at heights or in confined spaces.

The required 18 volt batteries can be charged (and maintain the charge during storage) from numerous sources including military vehicles via the slave receptacle. The Carpenter Support Set being fielded to combat and vertical platoons contains industry rugged tools, accessories, power cords, battery belt packs and battery management capabilities.

The 20-year old radial arm saw in the Carpenter Wood Working Shop Set was replaced with a newer model and further surrounded by tools that would be the envy of any small construction business. The need for the purpose-built trailer (photo right) to haul the saw that had become a maintenance liability was eliminated since the tool boxes could now be transported on-board any vehicle or trailer. The single, large generator earlier required was replaced by four, smaller diesel generators as supporting items of equipment allowing tool operation at multiple sites.

Following the initial stages of Operation Iraqi Freedom, as modernized sets gained in popularity and density, and as leaders recognized the gains provided by increased production and improved morale, units purchased additional sets to replace



TOP: Carpenter Tool Set. **BOTTOM:** The purpose-built trailer once used to carry the old radial-arm saw and generator. The trailer was eliminated from the Army tool system as it had become a maintenance liability (All photos courtesy the author, unless noted otherwise)



their older sets and to meet operational needs. The Engineer School reviewed other sets for modernization or elimination. The 200-plus SKO of the Cold War were pared down to 63. To achieve this reduction, most bridging sets were transferred to depot stock, engineer equipment maintenance sets were transferred to the Ordnance, topographic support sets were eliminated by newer digital systems, redundant tool loads were combined, and obsolete sets were removed from the books.

Requirements for specific mission tool sets identified during operations in Iraq and Afghanistan eventually were satisfied in various ways. The Soldier Enhancement Program provided 750 belt-carried tool kits to Sappers deployed in 2006. The “Sapper Pac” contains a multi-function pliers with numerous tool points, a collapsible mine probe, flashlight with wand and stake ends, thumb saw, credit card sized tripwire grapnel, para-



TOP: Pioneer Support Tool Kit. **BOTTOM:** The Sapper Pac was deployed and provided to Sappers in 2006.



chute cord, seat belt cutter, and room for additional items such as memo books, pens, etc. A Squad Leader version includes a laser range finder, knife/saw and blade sharpener and a Platoon Leader version contains a thermal viewing device with integrated video recorder. The Urban Operations Set - Squad assembles a variety of Army approved items of personal equipment and team gear into a standard configuration, eliminating the need for internet shopping and piecemeal purchasing of nonstandard and untested equipment. The Urban Operations Set - Platoon provides enhanced surveillance, detection, recording, door-busting and urban assaulting gear in a comprehensive package to support the squads. Fielding of both sets is scheduled to begin once testing is complete.

The Field Sketching Set has undergone the greatest technological transfiguration of any set - from a box of pencils, sketching paper and a tripod mounted drawing board to a digital data collecting, reporting, and Maneuver Control System gateway built for today's computer-smart Soldier. ENFIRE (Instrument Set, Field Reconnaissance and Surveying) will be positioned at every Engineer platoon, recon team and operations center to provide instant messaging complete with GPS

location, video recording and reporting capabilities and map printing in the field. Soldiers will be able to point and click devices that automatically make calculations and then populate reporting forms, including recons, minefields and IEDs.

The Joint Hasty Hazard Marking Set replaces a WWII minefield fencing set, the more recent HEMMS, numerous local SOP directed sets, and fills the requirement for marking contaminated areas by the Chemical Corps as well as environmental and cultural sites. It includes poles, signs, and lights for temporary marking and increases visibility and recognition. The components can be erected by hand, integrated into more permanent fencing and deployed from reconnaissance vehicles.

Army Divers not been forgotten in relation to the tools they require. These modernized sets reflect current commercial items with some items modified for military use. Recent fieldings include the Open Circuit Set and the Underwater Photographic Set. Underwater transport and digital hydrographic surveying equipment are examples of the latest in high-tech items to be included in their tool load. Divers use the tools found in other standard sets for underwater demolition, construction and port rehabilitation tasks.

Likewise, Firefighters and Dog Handlers present unique challenges as the associations with individual clothing and equipment and technical systems that include numerous on-board tools have to be resolved. Firefighters have personal equipment as well as team equipment, and also unique equipment for their headquarters teams. Other firefighters reside in ammunition ordnance units with differing requirements. Dog handlers take their tool loads from the Air Force, but for Engineers this does not always fit the requirement. The tool and equipment list for our specialized dog teams, including handlers and training, is being reviewed and tool sets are being developed.

None of this could have been accomplished without materiel developers providing continuity, a continual presence, and a lead agency. As a result of numerous base realignments and closures (BRAC), Engineer tool sets now reside with the Program Manager (PM) for Sets, Kits, Outfits and Tools (PM-SKOT) at Rock Island Arsenal. This PM has been critical to the success of the SKO program from the very beginning.

If tool sets are designed for Soldiers, then it follows that Soldiers should be directly involved in that design. Soldiers have numerous ways to recommend changes to tools sets, from the formal request to Army Suggestion Programs which might result in cash awards based on merit.

Submitting a DA Form 2028, Recommended Changes to Army Publications, is the formal way. Suggesting a tool change at <https://armsuggestions.army.mil> is simple and could result in a cash award., or log onto the PM-SKOT web site to suggest changes and improvements. Also, the Assured Mobility Branch, Requirements Determination Division at MANSCEN (formerly Engineer School Directorate of Combat Developments) has employees dedicated to developing and modernizing engineer tool sets. **AE**

Mr. Alan Schlie enjoyed a 23-year career as a Combat Engineer. His last position was as CSM, 30th Engineer Battalion, Fort Belvoir, VA. Following military service he completed 22 years in government service as an Engineer organization and tool set developer. He continues to work with tool sets as a consultant for Kipper Tool Company. He and his wife reside near Fort Leonard Wood, MO.

ENFIRE (Instrument Set, Field Reconnaissance and Surveying) will be positioned at every Engineer platoon, reconnaissance team and operations center. The set was given approval by Army G3 and has been assigned its own LIN. Funding is in place with fielding on-going with the 19th Engineer Battalion at Fort Knox, KY.



PFC Andrew Seymour, a Carpentry/Masonry specialist, 46th Engineer Combat Battalion (Heavy), 225th Engineer Brigade, prepares an electrical outlet in the Aid Station at Patrol Base Yusufiyah in Iraq. Daily use of rechargeable battery-powered hand tools today in the Army has significantly improved task completion and Soldier morale compared to the type and number of tools Army engineers once utilized. (Photo by 2LT Brent Vance)