

FIELD LEVEL TOOLS - PACKAGING

3.2 The system. The Field level Tools will be packed in accordance with MIL-STD-2073, Appendix C.5, which shall be packed in accordance with best commercial practices. The exterior container(s) should be the most cost effective and be of minimum cube to contain and protect the items. The container(s) also serves as a long term storage container. If applicable due to the size of the tools included in the container(s), the inside of the container shall be a system of shelves, storage cabinetry with drawers and interior shelving, and possible or probable tie down points so that items can be tightly secured in place for shipment. The container(s) needs to provide weather tight security for when the container is on board a ship and stored on an open deck. The container(s) shall hold its contents so that when the cargo carrying ship encounters rough seas the contents of the container do not break through the container, thus preventing damage to the container as well as other containers stored next to it. The storage system needs to provide a combination of easy access for maintenance during long storage periods on a prepositioned stock ship, with easy inventory and a place for everything with everything in its place. If something is missing it shall be obvious by cursory inspection that a storage location is empty. All of the required tools need to fit into one container. If the weight of the container with the tools exceeds 75 pounds, the container shall have fork lift pockets and upper ISO corners for use with the Rough Terrain Container Handler (RTCH) when it is available.

3.2.1 The shipping container. The container(s) for the tools shall be a non-standard shipping container(s) that is weather tight that can accommodate holding all the field level tools.

3.2.1.2 Gross weight rating. Due to limitations of the intended prime mover for the field level tools container, the gross weight rating shall be no more 32,000 pounds. It will have other containers stacked on top of it during shipping and storage and needs to be strong enough to resist racking and crushing, etc.

3.2.1.3 Weather tightness. With doors closed, the field level tools container(s) shall be weather tight without the need for additional external sealing, caulking, taping, etc. applied by the user. Weather seals shall be designed to be an integral part of the field level tools container, and to be readily replaced by the user in the field without the use of field level tools.

3.2.1.3.1 Water tightness in transport mode. The container shall be watertight when closed up in shipping mode. Seals shall be applied during manufacturing as necessary to prevent the entry of water when the container is exposed to water delivered at a rate of 4 inches per hour in accordance with MIL-STD-810, test method 506.4, Procedure II- Exaggerated as described in Change Notice 3, dated 5 May 2003.

3.2.2 Transportation requirements.

3.2.2.1 Rail transport. The field level tools container(s), loaded to its gross mass rating, shall withstand without loss of serviceability the shock and vibration imparted by coupling rail

cars at impact speeds up to 8 miles per hour (mph), both when mounted on rail cars with ISO corner locks and when tied down on standard flatcars without ISO locks.

3.2.2.2 Standard flatcars restraint capability. The field level tools container(s) shall be capable of being restrained to flatcars in accordance with the standard loading methods shown in Section No. 6 of the Association of American Railroads (AAR) TM 55-2200-001-12, "Rules Governing the Loading of Department of Defense Materiel on Open Top Cars."

3.2.2.3 Tactical vehicle transport. When fully loaded the field level tools container shall have the ability to withstand being transported by truck or trailer over a variety of surfaces including 30% on primary roads, 50% on secondary roads, 15% trails, and 5% on open cross-country. The surfaces traversed shall include various states of disrepair that may be encountered worldwide, including bumps, cobblestone, and washboard. During or following the travel, there shall be no damage to or displacement of any component of the field level tools container. Maximum safe speed for the surface and conditions shall be maintained; not to exceed 55 mph on primary roads, 45 mph on secondary roads, 20 mph on trails, and 15 mph for travel cross-country.

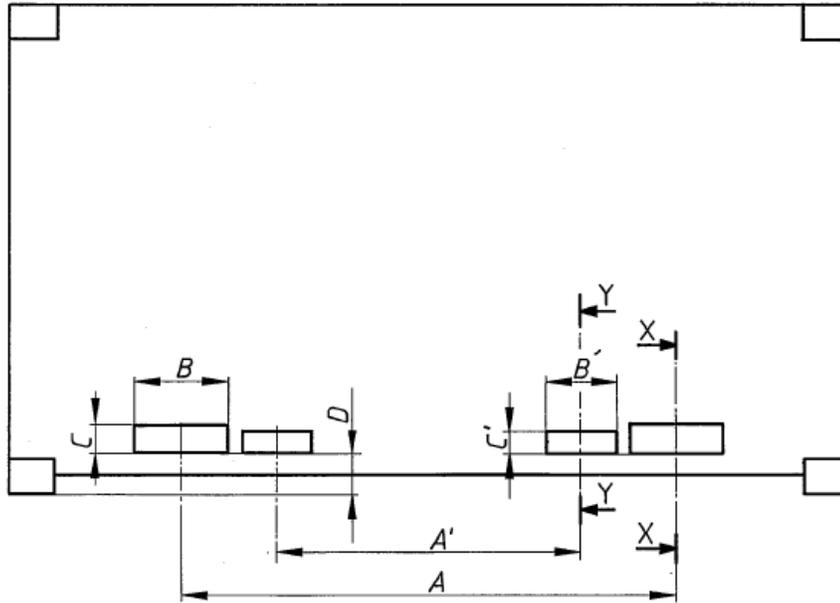
3.2.2.4 Air transport. The field level tools container(s) shall be provided with a vent to prevent damage due to emergency decompression of an aircraft during high altitude transport. Modifications to the container attendant to the installation of field level tools components shall neither alter nor interfere with the operation of this feature, and the vent shall not be blocked.

3.2.2.5 Container safety approval plate. Each field level tools shall have a US Coast Guard approved shipping safety approval plate applied in accordance with CFR Title 49 Parts 450-453 attached by a Coast Guard representative or other authorized approval entity.

3.2.3 Paint. The container(s), that have bare metal exposure shall be primed and painted in accordance with standard commercial practices. Final top coat color shall be 33446 in accordance with FED-STD-595

3.2.4 Forklift pockets. If required, see paragraph 3.2. The forklift pockets shall meet the requirements specified in SAE AS 5389, shall pass through both main rails of the frame and shall meet testing requirements of ISO 1496-1.

3.2.4.1 Forklift marking. If required, see paragraph 3.2. A mark indicating the position of both the inner and outer forklift pockets shall be painted on both sides of the field level tools container to aid the forklift operator. The mark shall indicate the center position for each pocket and shall be easily visible from a distance of 10 ft.



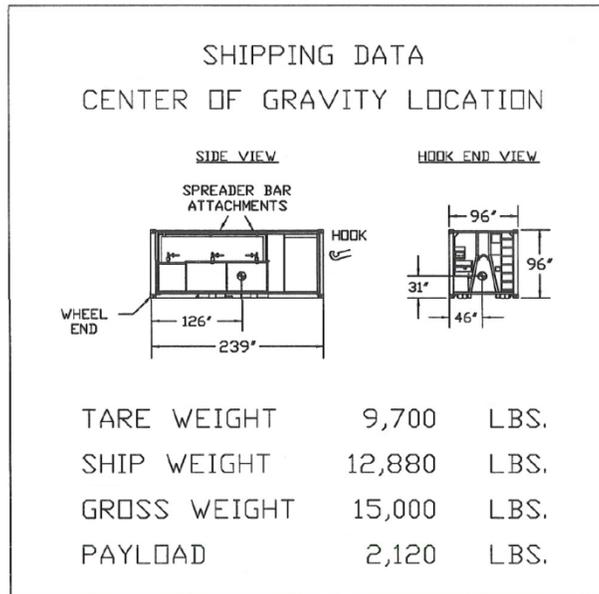
Container	Dimensions													
	Fork-lift pockets for loaded and unloaded containers								Fork-lift pockets for unloaded containers only					
	mm				in				mm			in		
	A	B	C	D	A	B	C	D	A'	B'	C'	A''	B''	C''
1CC, 1C and 1CX	2 050 ± 50	355 min.	115 min.	20 min.	81 ± 2	14 min.	4 1/2 min.	0,8 min.	900 ± 50	305 min.	102 min.	35 1/2 ± 2	12 min.	4 min.
1D and 1DX	900 ± 50	305 min.	102 min.	20 min.	35 1/2 ± 2	12 min.	4 min.	0,8 min.						

NOTE — C = Clear opening

3.2.5 Center of gravity. The center of gravity of the loaded container shall be determined in the X, Y and Z axis and shall be located between the forklift pockets that are used when moving the container in its fully loaded condition. When prepared for transport, the weight of field level tools container shall be properly balanced. The center of gravity (CG) shall be within 6 inches of the longitudinal centerline of the container. The CG of the loaded field level tools container in transport mode shall be at a height producing a trailer Static Stability Factor (one-half the track width divided by the height of the CG) of at least 0.75.

3.2.5.1 Shipping data plate and center of gravity markings. A shipping data plate shall be furnished for each field level tools container and shall conform to A-A-50271, Composition A, Class 2. Silhouettes of the container that indicate the center of gravity along each axis shall be included on the data plate with dimensions that can be used to accurately locate the CG by measurement in the event that the marking should become obscured beyond use. The shipping data plate shall be mounted in a location on the exterior of the shelter that is plainly visible. The shipping data plate shall include gross weight, tare weight, shipping weight, and payload weight. The shipping data plate shall also indicate the location of the forklift pockets and the end of the container that has the hook bar on it. The shipping data plate shall be placed in a location on the

exterior of the field level tools container that is plainly visible.



Shipping data example 3.2.7

3.2.6 Storage media. While selection and arrangement of storage media is left to the discretion of the contractor, the government anticipates that the majority of field level tools will be stored in containers, drawers or shelving. The configuration of drawer and shelving units are subject to the following specialized human engineering constraints for this application.

3.2.6.1 Cabinetry. If using Cabinetry, then it shall be chosen to serve the purpose of storing all the smaller items that do not have their own permanent exterior grade storage container. Cabinets shall be heavy duty and able to withstand the most rigorous transportation and handling conditions that the container will experience without suffering any damage or deformation that will render them inoperable or not suitable for continued service. Exterior surfaces of the cabinets shall be finished with industrial grade paint.

3.2.6.2 Drawers. If using Drawers, then it shall be configured with lock shut and lock open mechanisms so that each drawer can be locked open or closed independently of the other drawers. Each drawer shall have a pull handle on it and a location to list the contents of the drawer on the face of the drawer. The contents of the drawers shall be provided in this location and will be provided in a clearly read, permanent manner so that the contents list cannot be accidentally removed. The list shall be made so that as the tool load changes throughout the life cycle of the systems to be maintained, the list can be updated to reflect the new drawer contents. Drawers shall be rated to hold not less than 500 lbs when fully opened and shall be mounted on double hung glides that allow the drawer to be opened to the point that the back of the drawer is even with the face of the cabinet.

3.2.6.3 Drawer liners. Drawers shall be lined with abrasion resistant, non slip drawer liners that are installed in such a way that they will not slip or move while items are being placed in the drawer or removed from the drawer. Drawer liners shall be readily replaced when they are

finally worn beyond further useful life.

3.2.6.4 Foam drawer inserts. Foam drawer inserts shall be constructed to hold small items in place. The foam shall be ozone and UV resistant, contoured to help identify the item that belongs in the location, and be a color that contrasts with the drawer liner so that removed items become visually obvious.

3.2.6.5 Shelving. If using Shelving, then it shall be provided to store items that are not suitable for storage in a drawer. Each item chosen shall be provide with a definite location on a shelf, identified with a name stenciled onto the edge of the shelf next to the item, and tie down points and permanent blocking and bracing as required to hold items steady and secure.

3.2.6.6 Shelf stability. The storage shelf shall be integrally attached to the wall and to the floor. If the construction of the shelving unit requires that sway bars are installed at the rear, to ensure stability during installation, then the sway bars are required. If the shelving unit is stable (from the integral attachment to the shelter and the universal panels that are installed) and does not require additional support, then no sway bars are required. The overriding requirement is that the shelving be stable and even when the final product is delivered.

3.2.6.7 Shelf tie-down. Each shelf that could contain items, including the fixed panels on the bottom, shall include an adjustable bar across the rear and two ratchet style straps to aid in securing material to the shelf. The tie down bar and ratchet strap system shall be rated for at least a 700 lb. working load.

3.2.6.8 Tie-down straps. If using tie down straps, then they shall be used to hold large items stored on the floor as well as items stored on shelves. Tie down straps shall conform to MIL-PRF-27260. The ratchet style straps shall be fully adjustable for various sizes of items. The ratcheting mechanism shall allow the user to apply gradually increasing tension to the strap, without removing pressure from the load. One end of the ratchet strap shall be attached to the tie-down bar or ring bolt screwed into the hardwood floor material. Removal of the strap shall be prohibited while the bar is attached to the shelving unit. A manner of achieving this would be to have one end of the ratchet strap be a D-ring that slides around the tie-down bar, or a hook that attaches to the ring bolt.

3.2.7 Pallets. Some items are suited for shipment in a palletized configuration. Pallets shall be chosen that are corrosion and rot resistant, designed for permanent use and re-use, and made of materials that can be recycled at the end of their useful life. Pallets shall be configured for easy handling with a fork lift truck, providing entry points on all four sides. Wooden pallets that were provided by the original supplier shall be discarded and replaced with pallets that meet these requirements.

3.2.7.1 Pallet tie downs. Tie down onto pallets shall be by methods other than steel strapping that requires a banding machine and band cutter for removal. Tie down devices shall have built in tensioning features and shall be indefinitely reusable.

3.2.8 Plates and labels. If the container with the tools exceeds 75lbs, all identification,

warning, and instruction plates and labels shall be permanently affixed to the field level tools container(s) or individual components, as appropriate. They shall be resistant to deterioration caused by heat, cold, solar radiation, water, and petroleum products to the extent that they will remain intact and readily legible for the expected economic life of the field level tools. Marking shall be accomplished in a manner that does not adversely affect the life and utility of the field level tools or its equipment. All human readable plates and labels shall be printed in the English language, and may be supplemented by graphical symbols.

3.2.9 Item identification. A human readable information plate conforming to A-A-50271, Composition A, Class 2 or Composition D, and containing the following data shall identify each field level tools container (s). The item identification shall be placed in a location on the exterior of the field level tools container that is plainly visible when the field level tools container has been closed in preparation for transport or storage.

- a. Nomenclature: (system name – Field Level Tools)
- b. NSN: (to be identified by contract/delivery order)
- c. Manufacturer: CAGE or NSCM and PIN \*\*
- d. Container 1 of X

3.2.10 Hazard identification. Unguarded physical hazards shall be identified by human readable information plates. Unguarded physical hazard signs shall conform to ANSI Z535.4.

3.2.10.1 Lift hazards. Caution signs shall be provided for stored items that exceed the safe limits for a single person lift that instruct users to lift with two people or more as necessary and to use both hands when lifting. Lift hazard signs shall conform to ANSI Z535.4.

3.2.11 Unique Item Identification. In addition to the requirements stated above and those of DFARS clause 252.211-7003 incorporated elsewhere in the contract, each permanent container product exceeding \$5,000, or any tool exceeding \$5,000, shall be marked with a unique item identifier in accordance with MIL-STD-130 that has machine-readable data elements that will distinguish it from all other like and unlike items. Each unique item identifier shall be globally unique and unambiguous. The UID data elements shall be contained in a Data Matrix ECC200 symbol in accordance with ISO/IEC 16022. The required marking shall be applied to a label securely fastened to the exterior of the container, cases or chests. The identifier shall remain intact and readily human and machine readable for the expected life of the system. The unique item identifier shall not be repeated during the life of the contract. If construct number 2 is used (serialization within the original part number of the enterprise), the contractor shall maintain the original part number on the item for the life of the item. The contractor shall bear the responsibility to populate the UID registry with the parent UID and any children (components) relating to that parent UID. Further guidance on unique item identification may be found at <http://www.acq.osd.mil/dpap/UID/>.

### 3.3 The tool load.

3.3.1 Organized storage. Each item carried in the field level tools container shall have a

specifically designated storage location that is marked for rapid identification.

3.3.2 Proximate storage. Items normally used together shall be stored in the same area of the field level tools container. The field level tools consist of fully assembled kits stored in dedicated carrying containers and boxes as well as large components that must be disassembled to accommodate storage. These kits and items shall be stored so that they can be retrieved in their entirety as a kit, or readily retrieved in pieces so that large disassembled components can be recovered for re-assembly without having to disturb other unrelated items that are in storage.

3.3.3 Visual cues. The storage method used for each item shall provide the operator a visual cue when an item is not in its designated storage location. Visual cues may be silhouettes, graphic symbols, names or part numbers that will aid the user in identifying a tool that is missing from its location.