



3.4.98 WRENCH BOX/OPEN (.562). 9/16 IN WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 5.75 – 9.0" LONG



3.4.99 WRENCH BOX/OPEN (.625). 5/8 IN WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 6.125 – 10.0" LONG



3.4.100 WRENCH BOX/OPEN (.687). 11/16 IN WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 6.5 – 11.0" LONG



3.4.101 WRENCH BOX/OPEN (.750). 3/4 IN WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 6.813 – 12.0" LONG



3.4.102 WRENCH BOX/OPEN (.812). 13/16 IN WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 7.125 – 13.0" LONG



3.4.103 WRENCH BOX/OPEN (.875). 7/8 IN WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 9.688 – 14.0" long



3.4.104 WRENCH BOX/OPEN (.937). 15/16 IN WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 10.5 – 15.0" LONG



3.4.105 WRENCH BOX/OPEN (10). 10 MM WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 116 – 175MM LONG



3.4.106 WRENCH BOX/OPEN (13). 13MM WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 143 – 213MM LONG



3.4.107 WRENCH BOX/OPEN (14). 14MM WRENCHING SIZE, 12 PT OFFSET, CHROME OR SATIN, 148 – 229MM LONG



3.4.108 PLIERS, NEEDLE NOSE, ELECTRONIC. MIN LENGTH OF 8." LONG, MAX LENGTH OF 12" LONG. VINYL GRIPS, MINI NOSE, EXTRA LONG NECK



3.4.109 SCREWDRIVER, FLAT TIP, ELECTRONIC. 9" ± 1" OVERALL LENGTH, .025X3/16" MIN TO .040X3/16" MAX TIP, ELECTRONIC THIN BLADE



3.4.110 BIT SET, SCREWDRIVER. 20PCS CONSISTING OF THE FOLLOWING: RATCHET, 1/4" SQUARE DRIVE; EXTENSION, 1/4" SQUARE DRIVE; SCREWDRIVER HANDLE (extension fits into handle, bits fit on end of extension); 12 ALLEN HEX ADAPTERS .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16"; 2 SLOTTED HEAD ADAPTERS 1/4", 3/8"; 2 PHILLIPS HEAD ADAPTERS No 1, No 2; SQUARE DRIVE ADAPTER, 1/4" SQUARE DRIVE. (Known Source: Chapman Screwdriver Bit Set, Part Number 4320)



3.4.111 CROWFOOT ATTACHMENT, SOCKET WRENCH. 11/16" WRENCH SIZE, 1.9" LENGTH NOMINAL, 3/8" SQUARE DRIVE.



3.4.112 PLIERS, WIRE TWISTER, right hand twist, 12" ± 1" in length, with side cutters.



3.5 Interface dimensions. The exterior dimensions of the chest, including handles, feet, stacking features, etc., shall not exceed 18 inches in height, 15 inches in width and 24 inches in length. The interior of the chest shall be large enough to hold all of the items to be loaded and do so in an organized fashion that supports the rapid inventory capability and the position retention capability.

3.5.1 Specific tool locations. The task of organizing the tools within the drawer liners shall be performed in conjunction with a Government representative who will be present at the time the layout design is finalized. The Government's representative will provide guidance and approval of the layout configuration before the contractor commits additional resources to produce the layout. The contractor shall arrange for a convenient date with the contracting officer to accomplish this task. The contractor shall give notice that he is ready to perform the layout design.

3.5.2 Drawers. Drawers shall open to the front and shall be hung in such a manner that they will not sag into the path of other drawers or accidentally come out of the chest when fully opened. All tools in the drawer must be accessible when a drawer is opened to its full extension. Drawers shall be retained in their closed position while the chest is being moved around. Drawers shall be provided with a stop that prevents them from coming out of the chest by accident when pulled open. A method of defeating the stop action that does not require a tool shall be provided so that the drawers may be taken out of the chest intentionally.

3.5.3 Drawer organizers. Each drawer shall include a tool organizing liner that fills the drawer from side to side and front to back and that is contour to hold each tool in an individual pocket or retention feature. The tool organizing liner shall retain tools in position to provide for rapid inventory of the tool load, to prevent metal to metal contact between different tools in the drawers, and to maintain the position of tools under rough handling and shipping conditions. In the event that polyethylene foam inserts are used, the inserts shall be made from 4 pound density, closed cell, polyethylene foam. The organizing liner shall provide a dark colored surface with a contrasting bright color underneath the tools to aid in the rapid inventory function. In the event that some material other than polyethylene is used for the tool organizing liner, that material shall have the same or better chemical and physical stability as polyethylene when in contact with automotive oils, greases, lubricants, fuels, acids, bases, coolants and cleaning agents. Combinations of materials may be used, such as polyethylene foam with polyethylene solid sheets or thermoformed polyethylene product. Each contoured retention feature shall securely hold the tool in place so that when the tool chest is dropped as stated in paragraph 3.6.7, the tools will be retained in position. Each contoured retention feature shall allow easy removal of the tool and shall include as necessary pick holes, cut out or recessed areas or protrusion of tools above the tool organizing liner.

3.5.4 Top. The top of the chest shall open up to reveal a tool storage area that is not less than 3 inches deep when the lid is closed. The useable area of the tray shall be not less than 75% of the useable area of a single drawer. The useable area shall be made as large as is practicable.

3.5.5 Security. The chest shall be provided with a compartment to hold personal items that can be individually padlocked when the rest of the chest is open. (See 3.2.C above) The chest shall also include a locking feature for the entire chest that utilizes a padlock. Padlocks shall conform to the requirements of Commercial Item Description A-A-1927D dated July 1993 or later. Padlocks shall be Type II and shall be keyed individually. The key need not be captured in the lock tumbler when the padlock is open. Padlocks do not require chains. Padlocks shall be of solid construction, either brass or bronze, ¼" to 5/16" shackle diameter, and a minimum of 7/8" clearance between body and shackle. The same single padlock will be used to secure both the exterior and the interior compartment. (The padlock will be used to secure the outside of the chest when it is closed up for storage or transportation and will be used to secure the interior compartment when the chest is opened for use.) The padlock shall not interfere with the closure of the box when it is used to lock the interior personal items compartment. The chest shall also include a means to tether the chest to a post or pillar by means of a chain than can be run from chest to chest and then locked with a padlock. If a securely attached handle that can be used for this purpose is not included in the design of the chest, then another feature shall be provided that will serve this purpose.

3.5.6 Side handles. The chest shall include two handles, one on each end of the chest that shall be rated as a pair for not less than 150 pounds of weight. Side handles that are added to the chest, not molded as part of the chest, shall be affixed using fasteners that cannot be readily removed, i.e. rivets or screws that cannot be removed with a screwdriver. (Reason: The handle will be used to tie the chest to a fixed post or pillar with a cable and padlock for security. If the handle can be easily removed, then the chest can be carried away without having to defeat the cable or padlock.)

3.5.7 Movement aids. The chest shall include a set of permanently attached wheels and handle that will aid in moving the chest around.

3.5.7.1 Wheels. The wheels shall provide the ability to roll the chest around on paved or hard floor surfaces. The wheels shall be permanently attached to the chest. The wheels shall be rugged and shall withstand being rolled over bumps and cracks in pavement and shall withstand the shock incurred when the fully loaded tool chest is rolled over a 6 inch curb and subsequently dropped to pavement. (Wheels similar to those used in high quality skateboards or in-line skates may serve this purpose.) The presence of the wheels shall not interfere with the stacking ability. If two wheels are used they shall not be castor wheels. If four wheels are used then two of the wheels shall be swiveling castor wheels.

3.5.7.2 Handle. The handle shall be long enough to provide a user that is 6 feet 2 inches tall with the ability to pull the chest across a floor without having to stoop over to grip the handle. The handle used for this purpose will not be the same handle that is used for lifting and carrying the chest. If the chest is to move about on two wheels then the handle shall be rigid and shall provide complete and solid control of the direction of the chest as it moves about. The handle shall withstand repeated use with out deforming or becoming unstable. If four wheels are used then the handle may be rigid or may be a pull strap. If the handle is a pull strap, then it may attach to one of the handles used for lifting and carrying.

3.6 General performance.

3.6.1 Stack ability. The chest shall be designed for stack ability, avoiding the placement of handles, clasps, or other features in such a position as to interfere with stacking with themselves or other items of similar size.

3.6.2 Human engineering. The chest, including the handle and clasps, shall be designed so that the chest can be carried, opened, and closed by a person wearing insulated work gloves. If a bar type handle is

used the clearance for the hand inside the handle shall be not less than 2 inches by 4.25 inch. If a recessed, molded type handle is used the space provided for the hand shall be not less than 2 inches (from palm side to knuckle side) by 5.25 inches (thumb side to little finger side) and ¼ inch clearance for the finger tips.

3.6.3 Crush resistance. The chest, when closed, latched and in its normal resting position shall protect its contents from damage. It shall withstand, without damage or permanent deformation to itself, a load consisting of three other identical fully loaded tool chests stacked on top of it for one hour. After the removal of the three other chests the chest that was on the bottom shall retain its original shape.

3.6.4 Impact resistance. When fully loaded, closed, latched and placed in its normal resting position in a room temperature environment the chest shall withstand impacts from dropped objects. As a minimum it shall withstand an impact from a steel bar weighing at least 3 pounds, with a cross section no larger than 3/16 X 1 inch and with an edge radii no larger than 1/16 inch. This bar shall have been dropped in free fall from a height of 8 feet, and shall have landed narrow end down on the lid of the chest. The chest shall absorb this blow without suffering permanent deformation to its general overall configuration. The impact shall not cause penetration of the lid by the steel bar.

3.6.5 Cold temperature performance. When loaded with the specified tools, closed, latched, and stored for three hours at a temperature no warmer than -25F the chest shall withstand falls to a concrete floor surface from 24 inches without sustaining damage and continue to be operable with latches, handles and wheels working, lid opening and closing without difficulty and drawers opening and closing without difficulty. This requirement shall be supplemented by the requirement for warranty as stated in the contract.

3.6.6 Rain Resistance. When closed and fastened the chest shall shed rainwater in such a manner that it will not accumulate inside the case, the drawers or top compartment.

3.6.7 Ambient temperature rough handling resistance. A fully loaded chest, with the permanently attached wheels and handle in place for use, shall withstand being dropped from a height of 60 inches onto a concrete floor and being rolled over on the floor, 360 degrees, four times, once over each lower edge, without displacement of any of the retained tools and without sustaining any deformation or damage to the chest or its wheels and handle. This requirement shall be supplemented by the requirement for warranty as stated in the contract.

3.7 The chest shall be designed to compensate for differential pressures that may develop as a result of changes in temperature or in altitude. A device such as a pressure relief valve may serve this purpose.

3.8 Finish. The exterior surface finish shall be clean and corrosion resistant. The exterior of the chest shall have no sharp edges or projections.

3.9 Color. The color of the chest shall be olive Drab Green and the coring agent shall be part of the base material such that no painting is ever required to maintain the color.

3.10 Markings.

a. Tool Layout: A diagram showing the location of each component in its loaded position shall be provided with each chest and shall be permanently affixed to the inside of the lid.

b. Warranty information for the tools and the chest shall be permanently affixed to the inside of the lid of the chest. Warranty information shall include the following:

1. Government contract and delivery order number
2. Date of manufacture (month and year)

3. Instructions for submitting a claim including
 - (i) Preferred claim method – via Internet site at <http://aeprs.ria.army.mil>
 - (ii) Alternate claim method – via email to QAWQDRS@ria.army.mil or via fax to (309) 782-6653 or DSN 793-6653. Call (309) 782-7698 or DSN 793-7698 for verification or assistance.
 - (iii) Information required to submit a claim including –
 - Individual with responsibility to authorize claim
 - Date and location of incident
 - Unit location and DODAAC
 - Ship to address
 - Description of circumstances of component failure
4. Name and address of contractor, and any other means of contacting the contractor such as data fax number or e-mail address.
5. A complete list of warranties for each component including the nomenclature, manufacturer's part number and NSN, when known, shall also be permanently affixed to the inside of the lid.

3.11 Packing instructions. Pack each chest with the padlock inside the chest and inside the personal items storage compartment.

3.12 Weight. The weight of the fully assembled and loaded chest, including wheels and pull handle, shall not exceed 75 lbs.

4 Verifications.

4.1 Quality assurance. Product verification shall be performed in accordance with the following requirements.

4.2 Responsibility for verification. Unless otherwise specified in the contract, the contractor is responsible for the performance of all verification requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the verification requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the verifications set forth in the specifications where such verifications are deemed necessary to assure supplies and services conform to prescribed requirements.

4.3 Responsibility for compliance. All delivered items must meet all requirements of this contract. The absence of any verification requirements shall not relieve the contractor of the responsibility of assuring that all products submitted to the government for acceptance comply with all requirements of the contract.

4.4 Product examination. Visually, dimensionally, and manually examine each of three sample chests per lot to determine conformance with the requirements of 3.2 through 3.5.7 and 3.8, 3.9, 3.10 and 3.12. Visual examination shall include verification of completeness of manufacture and assembly, proper cleaning, and freedom from the identified defects. Dimensional examination includes measuring dimensions as specified and weighing the unit. Manual examinations shall include the operation of movable parts by hand to assure proper functioning. Failure of any sample unit to pass any examination shall result in the inspection of each unit of that lot for the failure. Units, which fail any examination, shall not be offered to the government for acceptance.

4.5 Performance verification. The performance verification procedures specified in paragraphs 4.5.1 through 4.5.7 shall be performed using four units randomly selected from the first month's delivery quantity. Failure of any of the four units to pass any of these verification procedures shall result in actions necessary to correct the failure, followed by re-performance of all verifications. Only units, which incorporate the necessary corrections, shall be offered to the government for acceptance. Necessary corrective actions shall not be construed as an excusable reason for extending delivery dates or restructuring the contract delivery schedule.

4.5.1 Stack ability verification. The four fully loaded chests, with wheels and handles, shall be stacked on top of each other, four high, to verify stack ability. Failure to stack securely, wobbling, or rocking shall constitute failure of this requirement (see 3.6.1).

4.5.2 Human engineering verification. A fully loaded tool chest shall be used by a person wearing insulated work gloves. Inability of the person to carry the fully loaded chest, unlock, open and close drawers, close, and re-lock the chest while wearing the gloves shall constitute failure of this requirement (see 3.6.2).

4.5.3 Crush resistance verification. The four fully loaded chests shall be stacked one upon the other for not less than one hour. Any damage to the chests, permanent deformation, or failure to retain shape shall constitute failure of this requirement (see 3.6.3).

4.5.4 Impact resistance verification. A fully loaded chest shall be inspected for resistance to damage from impacts with sharp falling objects. A steel bar weighing not less than 3.0 pounds, with a cross section no larger than 3/16 X 1 inch and with an edge radii no larger than 1/16 inch shall be dropped in free fall from a height of not less than 8 feet. The bar shall land narrow end down on the chest. Any damage or effect beyond minor denting of the exterior shall constitute failure of this requirement (see 3.6.4).

4.5.5 Cold temperature verification. One of the chests shall be loaded with its full complement of items and stored for 3 hours in a cold temperature environment no warmer than -25 degrees F. The chest shall then be removed from the cold temperature environment and all moving parts shall be operated. Within five minutes of being removed from the cold temperature environment the fully loaded chest shall then be dropped from a height of 24 inches onto a hard floor surface. Failure of the doors, drawers, locks and handles or wheels to operate properly or deformation or breakage of the chest shall constitute failure of this requirement (see 3.6.5).

4.5.6 Rain resistance verification. Close and fasten one of the chests without the tool load in it. Place the chest in a shower device for 5 minutes with water flowing directly at the chest from above and from all four sides at a 45 degree angle, in a sprinkle patter at a rate not less than 1 gallon per minute, per nozzle, totaling 25 gallons. At the end of the period turn off the water and towel dry the exterior of the chest. Open the chest and inspect the inside of the drawers and top compartment for the accumulation of water. The accumulation of water inside any of the drawers or the top compartment shall constitute failure of this requirement.

4.5.7 Ambient temperature rough handling verification. Load a chest that has permanently attached wheels and handle in place for use (handle retracted) with a full tool load, close and fasten. Drop the chest from a height of 60 inches onto a hard floor surface. Inspect the chest for cracks, breaks, dents or other damage that renders it less usable, including less transportable. Roll the chest over on the floor, 360 degrees, so that the chest becomes completely inverted, and do so four times, in the four different directions, going over each of the four lower edges. Set the chest upright. Use the pull handle to pull the chest such that it rolls on its wheels across 30 feet of packed dirt surface and then over a concrete curb that presents a drop of 6 inches or more such that the wheels land on a concrete surface. Open the chest. Open each drawer one at a time and inspect the tools to assure that all tools are still in their proper storage position. Failure of the chest to withstand being dropped without sustaining damage as described above, including damage to the wheels or pull handle, or failure of the tool organizing liner to retain the tools in position shall constitute failure of this requirement (see 3.6.7)

4.6 Changes to materials, processes, or configuration. The contracting officer shall be informed of any changes to the materials, processes, or configuration of any characteristic of the units. The contracting officer shall determine if the reported changes to materials, processes, or configuration shall require the verifications of paragraph 4.5 to be repeated.

4.7 Conformance of subsequent production quantity. All products offered for acceptance throughout the life of the contract shall conform to all of the requirements of the contract. The Government reserves the right to re-verify conformance with requirements, at its own facility and at its own expense, at any time during

the life of the contract and return to the contractor for warranty replacement such product that does not conform to the specified requirements and to require the contractor to implement actions to prevent the recurrence of any detected non-conformances in all future items.

4.8 Warranty. Each tool requiring a warranty as identified in Table I shall be provided with a lifetime warranty. In addition, the tool chest shall be provided with a five-year warranty.

5 PRESERVATION, PACKING, AND PACKAGING. Preservation, Packing and Packaging shall be in accordance with ASTM-D-3951 plus the following additional requirements.

5.1 The tools and the tool chest shall be blocked, braced and cushioned to withstand the rigors of the shipping and handling environment. The tools shall be protected from galvanic corrosion, denting, bumping, scratching or other detrimental effects that could impair the function or useful life of the tools.

5.2 If oak or chestnut wood products are used in the performance of this contract, these wood or wood products must be free of all bark. All non-manufactured wood used in packaging shall be heat-treated to a core temperature of 56 degrees Celsius for a minimum of 30 minutes. The box/pallet manufacturer and the manufacturer of wood used as inner packaging shall be affiliated with an inspection agency accredited by the Board of Review of the American Lumber Standard Committee. Each box/pallet shall be marked to show the conformance to the International Plant Protection Convention Standard. Boxes/pallets and any wood used as inner packaging made of non-manufactured wood shall be heat-treated. The quality mark shall be placed on both ends of the outer packaging, between the end cleats or end battens; on two sides of the pallet.

5.3 Unless otherwise specified herein, shipments to the same destination of identical items having a total packaged displacement exceeding 50 cubic feet shall be palletized unless forklift - handling features such as skids are included on containers.

5.4 Workmanship shall be such that when proper procedure is followed, materials and equipment being processed will be provided the maximum protection against corrosion, deterioration, and be suitable for storage to the level of packaging specified.

5.5 Each tool set and all of its parts shall be packed in one shipping container for shipment to its final destination.

5.6 Marking Requirements. Container markings shall be in capital letters of equal height, shall be proportionate to the available marking space and shall contain the following information (if applicable) in the order listed.

- a. NSN/NATO stock number.
- b. CAGE code of the company awarded the contract, and part number of the item as specified in the contract.
- c. Quantity and unit of issue (for this tool kit the unit of issue is 1 each).
- d. Level of protection and date packed.
- e. Contract or purchase order number.

5.6.1 Markings on the shipping container shall be grouped into three distinct categories: 1) identification markings, 2) contract data markings and 3) address markings.

5.6.1.1 Identification Markings: (as applicable)

- a. National Stock Number.
- b. CAGE code of the company awarded the contract and part number of the item in the container.
- c. Quantity and unit of issue (Qty -1 each / UOI – 1 each).
- d. Level of protection and date packed_____.

- e. Gross weight _____ and cube _____.
- f. Item description: ENGINEER, CONSTRUCTION, CARPENTER'S TOOL KIT

5.6.1.2 Contract Data Markings. The contract data marking placed under the identification markings, shall consist of the contract or purchase order number.

5.6.3 Address Markings. The address markings placed to the right of the identification and contract data markings (if space is available) shall consist of the following information in the order shown.

- a. Transportation Control Number (This shall serve as the single standard shipment identification number when a TCN is required.)
- b. FROM: Name and address of the contractor (including nine-digit zip code). When supplies are shipped from a subcontractor, only the name and address of the company awarded the contract shall be used.
- c. TO: Name and address of consignee (DOD Activity Address Code (DODAAC) and in the clear address if applicable

In addition to the above information, the NSN/NATO stock number shall be bar coded on the unit packs and intermediate containers. The following shall be bar coded on the shipping container. All bar coding shall use the 3 of 9 format in accordance with ANSI MH10.8.1-2000

NSN/NATO stock number.
Contract or order number.
CAGE code of the company awarded the contract.
Contract Line Item Number (CLIN) if applicable.