



Standard Performance Specification for Cargo Bed Cover (CBC) HMMWV, Type I¹

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1. Scope

1.1 *Scope*—This specification covers the performance requirements for the Type I Cargo Bed Cover (CBC). The Type I Cargo Bed Cover is a removable general purpose rigid enclosure for the cargo bed of the M1152A1, M1152A1 with B2 Armor Kit, M1037, M1042, M1097, and M1113 High-Mobility Multipurpose Wheeled Vehicle (HMMWV). The Type I CBC provides environmental protection and security for mission equipment and items of general transport.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to inch-pound units that are provided for information only and are not considered standard.

1.3 The following safety hazards caveat pertains only to the test required portion, Section 4, of this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

E1925 Specification for Engineering and Design Criteria for Rigid Wall Relocatable Structures

2.2 Army Standards:³

ARMY TM 9-2320-280-10 HMMWV'S Operator's Manual
ARMY TM 10-5411-231-13&P Technical Manual

¹ This specification is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.53 on Materials and Processes for Durable Rigidwall Relocatable Structures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Shelter Technology, Engineering & Fabrication Directorate, US Army Natick Soldier RD&E Center, ATTN: RDNS-ST, Kansas Street, Natick, MA 01760-5018, <http://www.natick.army.mil>.

2.3 Commercial Standards:

ANSI/ASQC Z1.4-2003 Sampling Procedures and Tables for Inspection by Attributes⁴

SAE AS8090 Mobility, Towed Aerospace Ground Equipment, General Requirements for⁵

2.4 Federal Standard:⁶

FED-STD-595 Colors Used in Government Procurement

2.5 Military Standards:⁶

MIL-STD-129 Military Marking For Shipment and Storage
MIL-STD-209 Interface Standard for Lifting and Tie-down Provisions

MIL-STD-810 Environmental Engineering Considerations and Laboratory Tests

MIL-STD-913 Requirements for the Certification of Sling Loaded Military Equipment for External Transportation by Department of Defense Helicopters

MIL-STD-1366 Transportability Criteria

MIL-PRF-22750 Coating, Epoxy, High Solids

MIL-C-46168 Coating, Aliphatic Polyurethane, Chemical Agent Resistant

MIL-C-53039 Coating, Aliphatic Polyurethane, Single Component, Chemical Agent Resistant

MIL-DTL-53072 Chemical Agent Resistant Coating (CARC) System Application Procedures and Quality Control Inspection

2.6 Military Handbook:⁶

MIL-HDBK-1791 Designing for Internal Aerial Delivery in Fixed Winged Aircraft

2.7 The American Conference of Governmental Industrial Hygienists (ACGIH):⁷

ACGIH Threshold Limit Values

2.8 Drawings:³

81337-103984 Cargo Bed Cover, Type I (1¼ Ton HMMWV)

⁴ Available from American Society for Quality (ASQ), 600 N. Plankinton Ave., Milwaukee, WI 53203, <http://www.asq.org>.

⁵ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.

⁶ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://dodssp.daps.dla.mil>.

⁷ Available from American Conference of Governmental Industrial Hygienists, Inc. (ACGIH), 1330 Kemper Meadow Dr., Cincinnati, OH 45240, <http://www.acgih.org>.

81337-103984-101 Cargo Bed Cover, Type I (1¼ Ton HMMWV), Camouflage

3. General Requirements

3.1 *Alternate Components and Construction*—The interface drawings referenced herein specify the use of specific components and construction of previously produced CBCs. Specific materials, components and construction methods shall be considered for reference only. Dimensional characteristics specified in the interface drawings that are required for spare part interchangeability and for operation and interoperability of the CBC with the vehicle shall be adhered to. When this specification or the referenced drawings specify use of a specific component, the contractor may substitute a component equal to the specified component provided that the contractor complies with the performance requirements specified herein.

3.2 *Design and Construction Requirements*—Design and construction of the Type I CBC shall meet all physical and environmental requirements herein and shall conform to the interface and interoperability requirements specified on the drawings, all subsidiary drawings, and parts lists.

3.2.1 *Dimensions, Weight and Payload*—The Type I CBC shall conform to the interface and interoperability dimensions of interface drawing 81337-103984. The Type I CBC including its mounting hardware, shall weigh no more than 450 lbs. The Type I CBC shall be capable of carrying 500 lbs of payload mounted to its interior payload provisions (see 3.4.2).

3.2.2 *Tailgate Operation*—The Type I CBC, when mounted on its carrier, shall not inhibit operation of the carrier’s tailgate.

3.2.3 *Blackout*—The Type I CBC/carrier combination, with the personnel door and ports closed, shall not permit a light source from within to emit detectable amounts of light.

3.2.4 *Parts Interchangeability*—The spare parts of the CBC produced under this specification shall be functionally and dimensionally interchangeable with parts specified below without modification or rework of the part or assembly.

NSN	Part Number	Description
1005-01-044-4555	700272	Handle, Chest
5410-00-984-5065	104055	Step, Folding
5411-01-481-5892	104050	Ventilator, 2 Way
2510-01-481-6056	104002	Door, Cab Access
5340-00-302-1840	104054	Holder, Door
5340-01-481-6506	104053	Lock, Door, 3 Point
5340-01-481-6503	104052	Lock, Door, 2 Point
2510-01-481-6049	103990	Panel, Door, Lower
2510-01-481-6054	103989	Panel, Door, Upper
5440-01-481-6010	104049	Ladder, 24 in.
Not available	103999-1	Panel Assembly, Storage Access
Not available	103999-3	Panel Assembly, Storage Access

3.2.5 *Mounting*—The Type I CBC shall be capable of multiple mounting and dismounting cycles from its carrier, in accordance with its technical manual, without damage or degradation to either the Type I CBC, its carrier or its mounting provisions and hardware. Any hardware required for mounting the CBC to the HMMWV shall be provided as part of the Type I CBC. Mounting and dismounting shall be accomplished using only those tools of the Basic Issue Items (BII) and the Additional Authorization List (AAL) as described in the HMMWV’S Operator’s Manual, ARMY TM 9-2320-280-10.

3.2.6 *Toxicity*—Materials used shall cause no skin irritations or other injuries and produce no vapor hazards, including the emission of toxic or noxious odors, to personnel, in or around the Type I CBC, under all environmental conditions. Exposure of personnel to toxic substances shall not be in excess of the threshold values contained in ACGIH Threshold Limit Values.

3.2.7 *Workmanship*—The Type I CBC, including all parts and accessories shall be constructed and finished in a workmanlike manner with particular attention given to removal of burrs and sharp edges, accuracy of dimensions, welding, painting, alignment of parts and assemblies, and the tightness of screws, bolts, and so forth. Cloth components shall be clean and free of holes, cuts, or tears. All components shall be properly adjusted before the Type I CBC is prepared for delivery to the purchaser.

3.3 *Components*—Components shall meet the following performance requirements.

3.3.1 *Personnel Door*—The Type I CBC shall be equipped with a personnel door as specified on the drawings. The door shall not interfere with the operation of the rear whip antennae located on the HMMWV’s rear fenders. A door stop, for securing the personnel door in its fully opened position, shall be provided. In its closed position the personnel door shall prevent the intrusion of driven rain and dust and shall provide blackout protection.

3.3.1.1 *Door Handle*—The personnel door shall be equipped with a door handle that provides positive closure. From either side, the door handle shall be capable of being moved to its opened or closed position with a maximum force of 10 lb applied to the door handle. The personnel door shall be capable of being padlocked from the outside securing the Type I CBC from the exterior.

3.3.1.2 *Secondary Exit*—A secondary exit shall be provided within the personnel door. The secondary exit shall be as specified on drawings. The secondary exit shall be capable of being opened with a maximum force of 10 lb applied to the release mechanism from inside of the Type I CBC with: (1) the tailgate closed and the personnel door locked (2) the tailgate closed and the personnel door unlocked and (3) the tailgate open and the personnel door locked. With the personnel door locked, the secondary exit shall not be capable of being opened from outside the Type I CBC. The secondary exit shall provide unobstructed egress for military personnel.

3.3.2 *Ladder*—A ladder shall be provided that is capable of supporting at least 400 lb applied to any individual step without damage or degradation to the Type I CBC, carrier or ladder. The ladder shall be capable of supporting at least 400 lb applied to any individual step without damage or degradation to the Type I CBC, carrier or ladder. The Type I CBC shall have a stowage location for the ladder capable of securely retaining the ladder in all transportation modes without impeding any operations of the Type I CBC or its carrier.

3.3.3 *Roof Access Steps/Handholds*—Roof access steps/handholds shall be provided in locations specified on the drawings for safe access from the ground to and from the roof when the Type I CBC is mounted on its carrier. Each roof access step/handhold shall be capable of supporting 400 lb

without damage or degradation to either the Type I CBC or the roof access step/handhold.

3.3.4 *Power and Signal Access Ports*—Two ports shall be provided in the front wall to permit the pass through of power and signal lines from the cab to the Type I CBC enclosed area. The power and signal access ports shall have provisions to prevent the intrusion of driven rain and dust and have provisions for blackout.

3.3.5 *Vents*—The Type I CBC shall include 2 vents for fresh air ventilation as specified on the drawings. The vents shall prevent intrusion of driven rain and have provisions for blackout. Vents shall be capable of providing ventilation when the vehicle is both stationary and on the move. The interior surface of the door shall have a warning in at least 1½-in. high letters contrasting the color of the door. The warning shall say “Warning: Suffocation hazard door must remain open while occupied.”

3.3.6 *Cab Access Port*—The Type I CBC, while mounted to the HMMWV, shall provide access for military personnel between the driver’s compartment and the Type I CBC without adversely affecting vehicle operations. The port opening shall be a minimum of 34.00 in. wide by 29.00 in. high. The port shall have a cover (door) centrally located on the front wall of the Type I CBC. The port shall be located as low as possible without compromising the structural integrity of the Type I CBC. The port shall permit access through the port without interference with the HMMWV’s “B” pillar. The access port cover (door) shall not open into the cab of the HMMWV and, in the open position, shall take up as little room as practicable. The cover (door) shall be capable of being opened from both the interior and exterior of the Type I CBC by applying no more than 10 lb of force and shall be capable of being locked from the interior.

3.4 *Structural Requirements:*

3.4.1 *Roof Loads*—The Type I CBC roof shall be capable of supporting, without structural damage, degradation or permanent deformation: (1) a uniformly distributed load of 40 lb/ft² over the entire surface and (2) a concentrated load of 660 lb over a 1 by 2 ft area applied anywhere on the roof.

3.4.2 *Interior Payload Provisions*—The Type I CBC shall be capable of accepting threaded fasteners such as rivnuts and inserts for mounting equipment to the interior of the Type I CBC in accordance with ARMY TM 10-5411-231-13&P. The Type I CBC and its Interior Payload Provisions shall be capable of supporting at least 500 lbs of payload during its stationary, rail transport, ground mobility, external air transport and crane lifting operation modes without damage or degradation to either the Type I CBC or its Interior Payload Provisions. The payload shall be attached to the interior surfaces using Interior Payload Provisions and shall be distributed as follows: 100 lbs mounted to each of the three wall surfaces, excluding the door surface, and 200 lbs mounted to the ceiling. The Contractor shall fashion an appropriate payload design to be used for all testing. This payload design shall be approved by the procuring agency prior to use.

3.4.3 *Personnel Door Loads:*

3.4.3.1 *Personnel Door Structure*—The Personnel Door, including its frame(s) and hardware, shall be capable of

supporting a 200 lb static load without damage or degradation to either the Type I CBC, or its Personnel Door, frame(s) and hardware. The load shall be applied parallel to the hinge line, along the door edge opposite the hinge, with the Personnel Door open to 90 degrees. The Personnel Door shall operate freely after application of the load.

3.4.3.2 *Door Stop*—The Personnel Door, including its frame(s) and hardware, shall withstand a wind gust of 60 mph in any direction when the door is secured by its door stop.

3.4.4 *Surface Impact Resistance*—The exterior surface of the Type I CBC’s roof shall be capable of withstanding a blow from a 30 lb steel cylinder, 3 inches in diameter with a hemispherical end, dropped from a height of 30 in., without structural degradation. All other exterior wall surfaces shall be capable of withstanding a blow from the same steel cylinder, dropped from a height of 16 in., without structural degradation.

3.5 *Transportability*—The Type I CBC/carrier combination shall be capable of meeting the requirements for transport in the following modes:

3.5.1 *Rail*—The Type I CBC/carrier combination with payload shall: (1) meet the Gabarit International de Chargement (GIC) equipment gauge envelope as defined in interface standard MIL-STD-1366, and (2) be capable of withstanding multiple rail impacts without damage or degradation to either the Type I CBC or its carrier and without damage to the tiedown cables, or blocking or bracing.

3.5.2 *Fixed Wing*—The Type I CBC/carrier combination shall be transportable in C-130 and larger Air Mobility Command (AMC) aircraft. The combination shall also be capable of roll-on/roll-off loading at ramp angles of 15 degrees on the C-130 and larger AMC aircraft without special handling procedures or equipment.

3.5.3 *Helicopter Sling Load (HSL)*—The Type I CBC mounted on its carrier, in all its payload configurations, shall be capable of being externally transported by CH-47 or larger rotary wing aircraft in the single point, dual point and tandem configurations without damage or degradation to either the Type I CBC or the HMMWV. The M998 series HMMWV’s shall be equipped with a rear bumper (that is, airlift crossmember). The Type I CBC/carrier combination shall be structurally capable of meeting the requirements of interface standard MIL-STD-209 and MIL-STD-913 and shall show no signs of damage or degradation as a result of being flown.

3.5.4 *Ground Mobility*—The Type I CBC/carrier combination, shall be capable of meeting the requirements of SAE AS8090 for Type V mobility without damage or degradation to either the Type I CBC or its carrier. The Type I CBC/carrier combination shall meet U.S. and NATO countries’ highway legal limits.

3.5.5 *Lifting Provisions*—The Type I CBC shall be equipped with lift provisions to enable it, with its payload, to be lifted on and off its carrier without damage or degradation to either the Type I CBC or its lift provisions. The Type I CBC’s lift provisions shall conform to the crane lift requirements of interface standard MIL-STD-209.

3.6 *Finish and Marking:*