

METRIC
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A-A-52430(AT)  
February 15, 1993  
 SUPERSEDING  
 MIL-P-14401B(AT)  
 6 May 1980

COMMERCIAL ITEM DESCRIPTION

PADS, CUSHIONING: PERSONNEL-PROTECTION,  
 VEHICULAR (METRIC)

The General Service Administration has authorized the use of this Commercial Item Description as a replacement for MIL-P-14401B(AT), which is canceled.

1.0 Abstract. This commercial item description (CID) covers pads for cushioning interior surfaces of military vehicles to protect personnel from injury when vehicle is traversing over rough terrain and to absorb shock and reduce rebound of articles which may be thrown against interior surfaces of the vehicle. The pads are constructed of cushioning materials with a surface coating. They may or may not have metal inserts and are of various shapes and sizes as determined by the applicable drawings.

1.1 Classification. The pads shall be of the following types and classes as specified (see 5.2):

Type I	- Facial contact.
Class CS	- Closed cell, expanded rubber.
Class VS	- Cellular vinyl elastomer.
Class FR	- Foam rubber.
Type II	- Head and body contact.
Class CS	- Closed cell, expanded rubber.
Class VS	- Cellular vinyl elastomer.
Class WF	- Wool felt.

Beneficial comments, recommendations, additions, deletions clarifications, etc. and any other data which may improve this document should be sent by letter to: U.S. Army Tank-Automotive Command, ATTN: AMSTA-GDS, Warren, MI 48397-5000.
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AMSC N/A

FSC 2590

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

## A-A-52430(AT)

## 2.0 Salient characteristics.

2.1 Materials. Materials shall be as specified in applicable drawings and shall meet the requirements specified herein. They shall be free of defects which adversely affect performance, serviceability, or durability of the finished product. The use of recovered materials made in compliance with regulatory requirements is acceptable providing that all requirements of this CID are met (see 5.4).

2.1.1 Hazardous material. The pads shall not contain any hazardous materials as defined in FED-STD-313 which may be toxic or harmful to personnel when used for their intended purpose. In addition, the pads shall not give off toxic fumes injurious to personnel in confined enclosures when ignited.

2.1.2 Type I class CS pads. Base material shall be of closed-cell rubber conforming to grade 2A1 of ASTM D1056.

2.1.3 Type I class VS pads. Base material shall be of cellular expanded polyvinyl chloride of density equivalent to grade 2A1 of ASTM D1056.

2.1.4 Type I class FR pads. Base material shall be of foam rubber conforming to grade 1C1 of ASTM D1056.

2.1.5 Type II class CS and VS pads. Base material shall be as specified in 2.1.2 and 2.1.3, respectively.

2.1.6 Type II class WF pads. Base material shall be a firm pad mechanical-roll wool felt. The wool felt shall be mildew and moisture resistant in accordance with accepted commercial treatment procedures.

2.2 Design and construction. The cushioning pad shall be an assembly consisting of cushioning material which shall meet the requirements specified herein and shall have a smooth, tough surface coating. Metal inserts, when specified, shall be zinc and dichromate plated mild steel or alodine clad aluminum and shall be securely attached as shown in applicable drawings (see 5.2). Pads shall be designed for application by cementing to painted or unpainted surfaces, or in the case of metal backed pads, by welding, riveting, or bolting as specified in applicable drawings.

2.2.1 Welding, riveting, or bolting. Pads intended to be bolted, riveted, or welded in place shall include provisions for such attachments as shown in applicable drawings (see 5.2). Welding tabs shall extend 3/4 inch beyond pads as shown in applicable drawings. Welding tabs shall not be plated.

2.2.2 Type I pads. When specified in applicable drawing (see 5.2), reinforcement shall be firmly bonded to metal insert with Polychloroprene rubber base oil resistant type general purpose adhesive. Reinforcement shall consist of woven nylon or dacron cloth netting and shall be securely cemented, as specified, over back of backing plate for 13 millimeters (mm) and up the edge of the pad for 13 mm. In no case shall reinforcement come to full height of pad. Surface coating of Polychloroprene not less than 0.5 mm thick shall smoothly cover entire assembly, except attaching lugs, as shown in applicable drawing (see 5.2).

2.2.3 Type II pads. Construction shall be as specified in 2.2.2 except that plain or flat knit cotton surgical stockinet or nylon or dacron cloth netting shall be securely cemented, as specified, over back of backing plate for 13 mm (classes CS and VS). Polychloroprene coating shall be not less than 0.8 mm thick.

## A-A-52430(AT)

2.2.4 Alternate coating and reinforcement. Unless otherwise specified (see 5.2), coating shall be of sprayable, strippable vinyl material for external pads only. Coating shall be not less than 0.5 mm thick for type I pads and not less than 0.8 mm thick for type II pads. As an alternate reinforcement for type II, class CS and VS pads, pressure sensitive thermosetting adhesive type electrical insulation tape with cotton fabric backing shall be used. Surface coating as specified in 2.2.2 shall be applied.

2.2.5 Dimensions. Pad dimensions shall conform to applicable drawings (see 5.2). Except in restricted locations, minimal thickness of 19 mm shall be maintained.

2.3 Performance.

2.3.1 Bonding. Pads bonded to metal inserts shall withstand temperature range of minus  $40 \pm 2$  degrees Celsius ( $^{\circ}\text{C}$ ) to plus  $70 \pm 1^{\circ}\text{C}$  without bonding separation, embrittlement, or cracking. Force required to separate plies or coatings shall be not less than 2.3 kg per 25.4 mm of width.

2.3.2 Softness. Pads shall conform to softness range specified in table I. Tests shall be made on finished pad at locations that assure uniformity near edges, as well as at any location of pad, provided periphery of indenter does not extend beyond apex of curvature at edges of pad surfaces.

TABLE I. Loads on 25.4 mm ball to cause indentation of 1/4 of pad thickness

Type	Temperature ( $^{\circ}\text{C}$ )	Test weight (kg)
I Facial	+21 to +24	2.3
II Body	+21 to +24	4.5
I Facial	-40 to -43	13.6
II Body	-40 to -43	15.9

2.3.3 Resistance to extreme temperature. Pads shall evidence no cracks, delaminations, or adhesive failure after 72 hours exposure at  $70^{\circ}\text{C}$  and 72 hours at  $-40^{\circ}\text{C}$ .

2.3.4 Fire resistance. Finished pads shall not flame or glow for more than 30 seconds after being subjected to a fire resistance test in accordance with method 5903 of FED-STD-191. Flame and glow time shall be combined to determine conformance to the requirement.

2.3.5 Water absorption. Complete pads shall show no water absorption exceeding 0.5 percent by weigh of finished pad, excluding weight of metal parts. To determine water absorption, three finished pads shall be weighed and immersed in water at  $24 \pm 3^{\circ}\text{C}$  with upper surface of each pad approximately 51 mm below surface of water. After 24 hours of immersion, each sample shall be removed, surface dried, and then reweighed. Percentage increase in weight shall be calculated to determine conformance to requirement.

## A-A-52430(AT)

2.3.6 Flexibility. Pads shall not become hard or inflexible due to absorption of sealer, adhesive, or coating and shall evidence no cracking or bond separation. To determine conformance to the requirement, a pad without metal backing shall be bent 60 degrees back and forth around a 25 mm mandrel, completing one cycle in 10 seconds.

2.4 Material safety data sheet (MSDS). A MSDS shall be prepared in accordance with FED-STD-313 (see 5.2 and 5.5).

2.5 Color. Color of exterior surfaces of pads for use inside vehicle shall be black, and finish shall be acceptable from gloss to lusterless. Hatch opening pads and others exposed to exterior view shall be forest green.

2.6 Identification. Identification and marking of finished pads shall be permanent and legible and shall include as a minimum, the manufacturer's identification code (CAGE), the contract number, the engineering drawing part number (see 5.2), and the national stock number (NSN).

2.7 Workmanship. Workmanship shall be such as to produce finished pads that are free of cracks or porosity in outer coating. Surfaces of outer face and sides shall be smooth and free of bumps, blisters, and abrasions.

3.0 Quality assurance provisions.

3.1 Responsibility for inspection. The contractor is responsible for the performance of all inspections (examinations and tests).

3.2 Contractor certification. The contractor shall certify and maintain substantiating evidence that the product offered meets the salient characteristics of this commercial item description and that the product conforms to the contractor's own drawings, specifications, standards, and quality assurance practices. Items with known defects shall not be submitted for Government acceptance. The Government reserves the right to require proof of such conformance prior to the first delivery and thereafter as may be otherwise provided for under the provisions of the contract.

4.0 Preservation, packaging, packing, labeling, and marking. Preservation, packaging, packing, labeling, and marking for the desired level shall be as specified in the contract (see 5.2).

5.0 Notes.

(This section contains information of a general or explanatory nature that may be helpful but is not mandatory.)

5.1 Address for obtaining copies of referenced documents.

5.1.1 Government specifications and standards. FED-STD-191 "Textile Test Methods" and FED-STD-313 "Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities" are available from the Navy Publications and Printing Service Office, Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

5.1.2 Non-Government publications. ASTM D1056-91 "Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber" is available from the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103.

A-A-52430(AT)

5.2 Ordering data. Acquisition documents must specify the following:

- a. Title, number, and date of this commercial item description.
- b. Issue of the DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 5.1).
- c. Title, number, and revision letter of the applicable engineering drawing.
- d. Type and class of pad (see 1.1).
- e. Alternate coating and reinforcement (see 2.2.4).
- f. Engineering drawing part number (see 2.6).
- g. Identify activities requiring copies of completed MSDS and specify where the MSDS will be inspected (see 2.4 and 5.5).
- h. Color of exterior surfaces of pads, if other than specified (see 2.5).
- i. Selection of applicable level and packaging requirements (see 4.0).

5.3 Cross-reference data. Pads conforming to this CID are interchangeable/substitutable with pads conforming to MIL-P-14401B(AT), dated 6 May 1980.

5.4 Regulatory requirements. The offeror/contractor is encouraged to use recovered materials in accordance with Public Law 94-580 to the maximum extent practicable.

5.5 MSDS. The contracting officer should identify those activities requiring copies of the completed MSDS prepared in accordance with FED-STD-313 (see 2.4 and 5.2).

Custodian:

Army - AT

Review activity:

DLA - CS

Preparing activity:

Army - AT

(Project 2590-0223)