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[METRIC]
A-A-52169B
February 9, 1995
SUPERSEDING
A-A-52169A(AT)
February 19, 1993
(see 5.4)

COMMERCIAL ITEM DESCRIPTION

INSULATION; SOUND, VIBRATION, AND THERMAL

The General Services Administration has authorized the use of this commercial item description (CID) for all federal agencies.

1. SCOPE. This CID covers the physical, chemical, and performance characteristics of the composite material used to make insulating pads for use on the High Mobility Multipurpose Wheeled Vehicle (HMMWV) series of vehicles and for other similar applications. The insulating pads are used as a thermal, sound, and vibration barrier. The insulating pad is made of five layers of material consisting of the following components: a deep twist outer vinyl wear surface with a cloth reinforcement backing; a sound barrier layer; a closed cell acoustical and thermal foam insulation layer; a high temperature needle mat thermal blanket layer; and a fiberglass cloth reinforced vinyl and mylar backing (see figure 1).

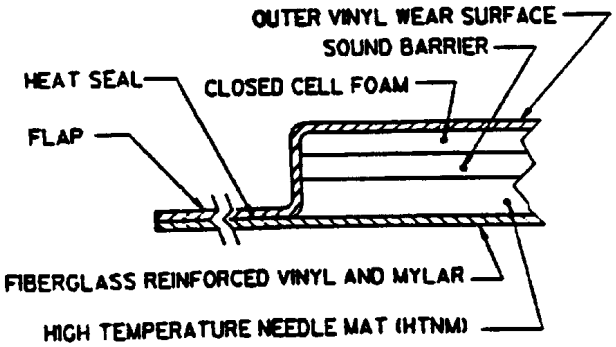

FIGURE 1. Composite cross-section of insulation pad material.

Beneficial comments, recommendations, additions, deletions clarifications, etc. and any other data which may improve this document should be sent by letter to: U.S. Amy Tank-automotive and Armaments Command, ATTN: AMSTA-TR-T, Warren, MI 48397-5000.

FSC 5640

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2. SALIENT CHARACTERISTICS.

2.1 Materials. Unless otherwise specified herein or in the applicable engineering drawing (AED), the materials used shall be in accordance with the manufacturer's material specification/drawings. The use of recovered material made in compliance with regulatory requirements is acceptable providing all requirements of this CID are met (see 5.5).

2.2 Design and construction. The five components of the insulating pad composite material shall be designed and constructed to requirements specified herein.

2.2.1 Vinyl wear surface (outer). The deep twist outer vinyl wear surface component shall have a cloth reinforcement backing and shall conform to table I.

TABLE I. Vinyl wear surface (outer) component.

Characteristic	Requirement
Color	Green 383, color no. 34094 per FED-STD-595.
Thickness	1.02 to 1.14 millimeter (mm).
Temperature limits	-46 to +121 degrees Celsius (°C).
Tensile strength	32 x 14 kilogram (kg) minimum.
Tear strength	7 x 8 kg minimum.
Weatherometer	ASTM D-1499, 200 hour test (slight loss of gloss permitted)
Abrasion resistance	Less than 0.25% weight loss at 500 G/GS - 17/1,000 cycles, using a Taber Abrader, in accordance with ASTM D3389.

2.2.2 Sound barrier. The sound barrier component shall conform to table II.

TABLE II. Sound barrier component.

Characteristic	Requirement
Color	Black.
Temperature	-46 to +121°C
Mass	3.90 to 4.88 kg/square meter (m^2).
Flammability	5 cm/minute, maximum in accordance with SAE J369

2.2.3 Closed cell foam. The acoustical and thermal insulation component shall be closed cell foam (such as Ensolite) and shall conform to table III.

2.2.4 High temperature needle mat (HTNM). Except as otherwise specified in table IV, the HTNM component shall conform to MIL-I-16411.

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2.2.5 Fiberglass reinforced vinyl and mylar. The backing component shall be made of a fiberglass cloth reinforced vinyl and mylar material and shall conform to table V.

TABLE III. Closed cell foam component.

Characteristic	Requirement
Color	Black.
Thickness	6.35 mm.
Temperature limits	-46 to 121ºC
Tensile strength	2.82 kg/sq.cm.
Density	48 to 80 kg/cu m
Thermal conductivity	0.04 watts/m.°C.

TABLE IV. HTNM component.

Characteristic	Requirement
Color	White.
Thickness	1.27 ± 0.32 cm.
Temperature limits	-46 to +650 °C.
Mass	1.83 ± 0.18 kg/sq. m.
Thermal conductivity	K factor: 0.40 at 150 °C.
Sound absorption	Noise reduction coefficient (NRC): 0.50.
Chemical resistance	Excellent for acids, oils, and alkalis.

TABLE V. Fiberglass cloth reinforced vinyl and mylar component.

Characteristic	Requirement
Color	Black or Green 383, color no. 34094 per FED-STD-595.
Thickness	12.7 micrometer mylar and 76.2 micrometer vinyl.
Temperature limits	-46 to +177 °C

2.3 Composite requirements. The composite requirements for the insulating pad shall conform to table VI. The insulating pad composite shall be made by encapsulating the insulating materials (see 2.2.2, 2.2.3, and 2.2.4) with the wear surface (see 2.2.1) and the backing (see 2.2.5) materials. The wear surface and backing shall then be bonded together using a plastisol heat seal to form a waterproof joint around the periphery of the insulating pad (see figure 1).

NOTE: Refer to the AED for the design, configuration, and finish dimensions of the part made from this composite material (see 5.2).

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TABLE VI. Insulating pad composite.

Characteristic	Requirement
Flammability	See table II.
Temperature reduction	177 °C to 60 °C.
Tensile strength	20 kg/sq. cm minimm.
Tear strength	71 kg/mm thickness.
Cold crack	Good to -46 °C minimum when bent 180 ° around a 25 mm mandrel.
Composite thickness	consistent within ± 3 mm.

2.4 Identification. Identification and marking of parts made from this insulating pad composite material shall be permanent and legible and shall include as a minimum the following:

a. Name and address of part manufacturer.
b. Contract number.
c. Date of manufacture.
d. Part or identification number (PIN) (see 5.2 and 5.3).

3. 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 meats the salient characteristics of this commercial item description, and that the product conforms to the producer's own drawings, specifications, workmanship 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. 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. 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. Copies of FED-STD-595 “Colors Used in Government Procurement” and MIL-I-16411 “Insulation Felt, Thermal, Glass Fiber”; are available from the Defense Printing Service Detachment Office, Bldg. 4D (Customer Service), 700 Robbins Avenue, Philadelphia, Pennsylvania 19111-5094.

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5.1.2 Non-Government publications. ASTM D1499 "Standard Practice for Operating Light- and Water-Exposure Apparatus (Carbon Arc Type) for Exposure of Plastics" and ASTM D3389-87 "Standard Test Method, Coated Fabrics Abrasion Resistance (Rotary Platform, Double- Head Abrader)" are available from the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, Pennsylvania 19103. SAE J369-89 "Flammability of Polymeric Interior Materials - Horizontal Test Method, Standard" is available from the Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, Pennsylvania 15096.

5.2 Ordering data. Acquisition documents must specify the following:

a. Title, number and date of this CID.
b. Issue of the DODISS to be cited in the solicitation and, if required, the specific issue of individual documents referenced.
c. Title, number, and revision letter of the AED.
d. Part or identification number (PIN).
e. Selection of applicable level and packaging requirements.

5.3 Part or identification number (PIN). The PINs to be used for insulating pads made from the composite material acquired to this CID are created as follows:

XXXXXXXX - X

Dash number assigned to the part (when applicable).

Engineering drawing number.

5.4 Supersession data. This CID supersedes AM General Corporation Specification Number AMG 225, revision A, dated 9 July 1985.

5.5 Regulatory requirements. The offeror/contractor is encouraged to use recovered materials in accordance with public law 94-580 to the maximum extent practicable.

MILITARY INTERESTS:

Custodian:
Army - AT

CIVIL AGENCY COORDINATING ACTIVITY:
GSA-FSS

PREPARING ACTIVITY:
Army - AT

(Project 5640-0583)