

[METRIC]  
A-A-52517  
September 5,1995  
SUPERSEDING  
ZZ-P-112D  
December 1, 1972

## COMMERCIAL ITEM DESCRIPTION

### PATCH, REPAIR, FOR INNER TUBES AND TUBELESS TIRE LINERS (METRIC)

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

1. Scope. This CID covers hot self-vulcanizing chemical units; chemical vulcanizing patch unit kits, and fluids for repairing rubber inner tubes of pneumatic tires and tubeless pneumatic tire liners. The patch units are used in repairing injuries caused by penetrating objects up to and including 3.2 millimeters (mm) in diameter in tubeless tires and injuries up to 19.1 mm in length (tears) in inner tubes.

1.1 Classification. Patch units shall be furnished in the following types and sizes, as specified.

Type I - Hot cure patch units.

- Sizes: 1 - Small round.  
2 - Small oval, oblong, or diamond.  
3 - Large round.  
4 - Large oval, oblong, or diamond.

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 and Armaments Command, ATTN: AMSTA-TR -E, Warren, MI 48397-5000.

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

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Type II - Chemical cure patch kits.

- Sizes: 1- Small round.  
 2- Medium round.  
 3- Large round.  
 4- Large oval.  
 5- Assorted sizes 1 through 4.

2.1 Materials. All materials shall be of a quality necessary to produce patch units which shall meet the requirements specified herein. The use of recovered material made in compliance with regulatory requirements is acceptable providing that all requirements of this CID are met (see 5.5).

2.2 Designs and construction.

2.2.1 Hot cure patch units, type I. Each patch unit shall be made up of a complete integral item consisting of the components specified in 2.2.1.1 through 2.2.1.5, and shall conform to the sizes specified in table I.

TABLE I. Dimensions of patch proper and of fuel pan (type I).

CID PIN Number	Size Number	Patch Proper			Fuel Pan	
		Minimum Width (mm)	Minimum Length (mm)	Thickness (mm)	Approximate Width (mm)	Approximate Length (mm)
A52517-1-1	1	32.5 dia.	---	1.40	44.5 dia.	---
A52517-1-2	2	22.2	46.8	1.40	34.9	58.7
A52517-1-3	3	60.3 dia.	---	1.40	76.2 dia.	---
A52517-1-4	4	30.2	82.6	1.40	44.5	92.1

2.2.1.1 Hot patch gum. The hot patch gum, as furnished for vulcanizing, shall be an uncured, soft and plastic rubber compound containing not less than 65 percent (%) natural or synthetic polyisoprene rubber having a covering on one side of white Holland cloth not less than 0.13 mm in thickness or plastic material not less than 0.089 mm in thickness, with the other side pressed against the bottom of a fuel pan (platen). Either covering shall be easily removable prior to application of the patch unit for repair.

2.2.1.2 Fuel pan. The fuel pan for patch units shall be low carbon steel of such quality to produce patch units which shall conform to the requirements of this CID.

2.2.1.3 Fuel disc. The fuel disc shall have a heat-generating capacity to provide a degree of vulcanization in the patch that will meet the requirements of 2.3.3.

2.2.1.4 Igniting fuse. An igniting fuse or other means of assuring easy lighting shall be integral with the fuel disc or of separate material attached securely to the disc.

2.2.1.5 Filler material.

2.2.1.5.1 Sizes 1 and 2. For size 1 and 2 patch units, there shall be a separate piece of uncured gum material (see 2.2.1.1) approximately 12.7 mm wide by 76.2 mm long and 1.40 mm thick packed with each 25 patch units in their unit container (see 4.).

2.2.1.5.2 Sizes 3 and 4. For size 3 and 4 patch units, there shall be a separate piece of uncured gum material (see 2.2.1.1) having a thickness of 1.40 mm. Its area shall be 645 mm<sup>2</sup>, inclusive, minimum with the shortest dimension not less than 19.1 mm.

2.2.2 Chemical cure patch kits, type II. Each chemical cure patch kit shall be made up of the components specified in 2.2.2.1 through 2.2.2.3.

2.2.2.1 Chemical cure patch units. Each patch shall be of a cured natural or synthetic rubber compound having a face gum of uncured natural rubber compound or equivalent and shall conform to the sizes specified in table II. The face gum shall exhibit no signs of premature curing at temperatures of 52°C.

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TABLE II. Dimensions of patch and thickness of cover (type II).

CID PIN Number	Size Number	Over-all Patch dimensions. Minus tolerances of 3.2 mm allowed.		Minimum Center thickness excluding cover film & backing (mm)	Minimum thickness Bottom surface cover (mm)	Minimum thickness Top surface cover (mm)
		Minimum Width (mm)	Minimum Length (mm)			
A52517-2-1	1	38.1 dia.	-	1.6	0.05	0.03
A52517-2-2	2	50.8 dia.	-	1.6	0.05	0.03
A52517-2-3	3	73.0 dia.	-	1.6	0.05	0.03
A52517-2-4	4	44.5	102	1.6	0.05	0.03

2.2.2.1.1 Sectional characteristics. The cross sectional view of a molded round patch shall be a spherical segment. The cross sectional views of an oval molded patch shall have a spherical segment across the narrow width with a thin rectangular section view consisting of spherical segment ends across the long length.

2.2.2.2 Vulcanizing fluid. The fluid shall be capable of curing the face gum on chemically curable patches at room temperatures of 21°C, promote excellent initial adhesion to all types of tires and tubes, and shall exhibit no evidence of coagulation at temperatures of -51 to 52°C. It shall be capable of withstanding an accelerated shelf storage temperature of 52°C for six months and temperatures up to 38°C for a minimum of three years in sealed containers.

2.2.2.3 Cleaning solvent (rubber buffer). The solvent shall be capable of removing any foreign material from rubber products as an aid to manual or mechanical buffing prior to repair. It shall dissipate within 5 minutes upon application, and have a flash point of 38°C or more in accordance with the Tag Closed method of ASTM D56. In addition, it shall be capable of withstanding shelf storage temperatures of 52°C for 6 months, and temperatures up to 38°C for a minimum of 3 years in sealed containers.

### 2.3 Performance, type I and II.

2.3.1 Physical properties. Each patch unit shall have a tensile strength of not less than 13790 kiloPascal (kPa) and an elongation of not less than 600%. Prior to the tensile exposure, type I patch units shall be cured for 8 minutes at 143°C. Type II patch units shall in addition have tensile stress at 200% elongation of not less than 1550 kPa. The durometer shore hardness shall range from 45 to 60, type AZ shore durometer.

2.3.2 Adhesion. The minimum tensile strength required to cause separation between patch and inner tube, or between patch and inner liner of tire, shall be not less than 2.3 kilogram (kg) per 25.4 mm.

2.3.3 Endurance. Each patch unit of applicable type shall be exposed to, and complete, not less than 8050 kilometers at a temperature of  $38 \pm 3^\circ\text{C}$ .

2.3.4 Storage life. Type I materials shall show no evidence of self-vulcanization after a period of 24 months from date of manufacture. Type II materials shall show no evidence of self-vulcanization after a period of 36 months from date of manufacture.

2.4 Instructions. Complete instructions for the application and use of patch units for both tubeless tires and inner tubes shall be furnished and legibly marked on wrappers, envelopes, containers or tags attached thereto.

2.5 Identification markings. Identification markings shall be placed on the outside of the sealing compound container and shall be permanent and legible and shall include, as a minimum, the manufacturer's identification code (CAGE), the contract number, the part or identification number (PIN) (see 5.3), and the national stock number (NSN).

## 3. QUALITY ASSURANCE PROVISIONS

3.1 Responsibility for inspections. 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 CID 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.

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**4. PRESERVATION, PACKAGING, PACKING, LABELING, AND MARKING.**

Preservation, packaging, packing, labeling, and marking shall be as specified in the contract or order (see 5.2).

**5. NOTES.**

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

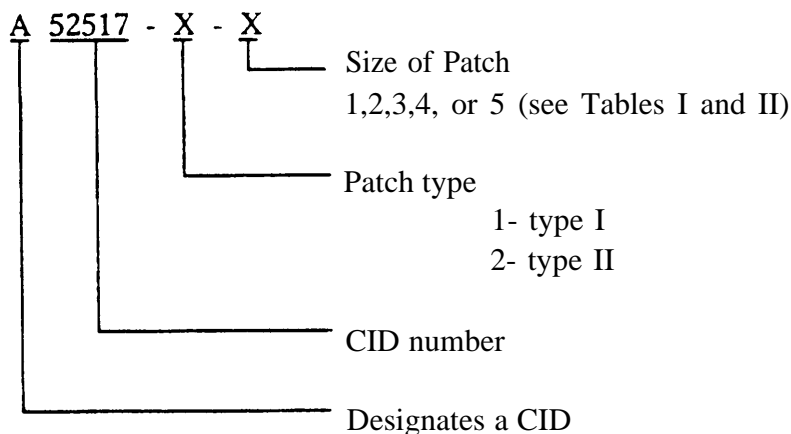
**5.1 Addresses for obtaining copies of referenced documents.**

5.1.1 Non-Government publications. Copies of ASTM D56 “Standard Test Method for Flash Point by Tag Closed Testing” are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

**5.2 Ordering data.** Acquisition documents must specify the following:

- a. Title, number, and date of this CID.
- b. Issue of DODISS to be cited in the solicitation and if required, the specific issue of the individual documents referenced.
- c. Type of repair patch, size of repair patch, and PIN number.
- d. Selection of appropriate and applicable hazardous material regulation(s), packaging, packing, marking, and labeling requirements.

5.3 Part or identification number (PIN). The PINs to be used for the materials, acquired to this CID, are created as follows:



5.4 Cross reference data. The repair patches conforming to this CID are interchangeable/substitutable with the repair patches conforming to ZZ-P-112D.

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:

Custodians:

Army - AT

Navy - YD-1

Air Force - 99

Review activities:

Army - AR

Air Force - 84

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing activity:

Army - AT

(Project 2640-0207)