

METRIC
--------

A-A-52175  
 28 May 1992  
 SUPERSEDING  
 (See 5.3)

## COMMERCIAL ITEM DESCRIPTION

### PISTONS, HYDRAULIC BRAKE, WHEEL CYLINDER: SINTERED IRON (METRIC)

The U.S. Department of Defense has authorized the use of this commercial item description as a replacement for MIL-P-62108A.

1. Abstract. This commercial item description (CID) covers the chemical, physical, and performance requirements of fluid impregnated sintered iron pistons used in hydraulic brake wheel cylinders.

2. Salient characteristics.

2.1 Description. The sintered iron pistons covered by this CID are intended for use in wheel cylinders of hydraulic brake systems using silicon brake fluid. The pistons are not to be procured as a separate item of supply but as a component of the brake wheel cylinder assembly.

2.2 Material. The piston shall be of sintered iron, lead-tin alloy manufactured from a powder material and shall satisfy the physical and performance characteristics of this CID. The pistons shall be impregnated with a water insoluble glycol-type synthetic lubricant. Additives as required to improve the viscosity-temperature characteristics, resistance to oxidation of the impregnate, and corrosion resistance of the finished product shall be used. All material used shall be compatible with silicon brake fluid. The use of recovered material made in compliance with regulatory requirements is acceptable providing that all requirements of this CID are met (see 5.4).

2.3 Design and construction. The piston shall be designed and constructed to conform to the particular wheel cylinder in which it is being used (see 5.2).

2.4 Physical properties. The physical properties of the impregnated piston, such as, hardness, density, porosity, and surface roughness shall be suited to satisfy the performance requirements specified herein. The flash point of the impregnate shall be above 216 degrees Celsius (°C).

Beneficial comments, recommendations, additions, deletions clarification, 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.
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

AMSC N/A

FSC 2530

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

## A-A-52175

2.5 Performance requirements. The performance requirements of the impregnated piston shall be verified at assembly in its associated brake wheel cylinder and using silicon brake fluid conforming to MIL-B-46176.

2.5.1 Pressure resistance. The piston shall be capable of withstanding an internal fluid pressure of 20,685 kilopascals (kPa) for 30 seconds without doming and an internal fluid pressure of 34,475 kPa or cylinder burst pressure (whichever is lower), for 30 seconds without puncturing, penetrating, or cracking the piston.

2.5.2 Crush resistance. The piston shall withstand a radial crush pressure of 34,475 kPa minimum applied at a rate of 900 kilograms (kg) per minute until failure or maximum crush load is observed. Crush resistance requirement is waived for insert type-shoe loaded sintered iron pistons.

2.5.3 Stroking (endurance). The piston shall show no signs of wear (less than .026 mm) and no scoring of the piston or cylinder wall after being subjected to 70,000 strokes under a pressure of 6,890 kPa at 120°C.

2.5.4 Corrosion resistance. The piston shall show no evidence of iron deposits after being immersed in the brake fluid solution for 14 days at 46°C and 95 percent relative humidity.

2.6 Workmanship. The pistons shall be uniform in composition and free from scratches, nicks, chips, burrs and other defects which would affect their serviceability.

### 3. Quality assurance provisions.

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

3.2 First article inspection. When required, arrangements for a first article inspection prior to quantity production shall be as specified in the contract/order (see 5.2).

3.3 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. Preservation, packaging, packing, labeling, and marking. Not applicable.

### 5. Notes.

5.1 Address for obtaining copies of referenced documents.

5.1.1 Government specifications and standards. Copies of federal and military specifications and standards are available from the Navy Publications and Printing Service Office, Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

A-A-52175

5.2 Ordering data. Acquisition documents must specify the following:

- a. Title, number, and date of this commercial item description.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 5.1).
- c. Brake wheel cylinder drawing number, revision letter and date (see 2.3).
- d. Arrangements for first article inspection when required (see 3.2).

5.3 Supersession and cross-reference data. This CID supersedes MIL-P-62108A, dated 25 May 1973. Pistons conforming to this CID are interchangeable/substitutable with pistons conforming to MIL-P-62108A.

5.4 Regulatory requirements. Recovered material is material made in conformance to section 402 of the Clean Air Act (33 U.S.C. 1342 et seq).

Custodians:

Army - AT  
Air Force - 99

Preparing activity:

Army - AT

(Project 2530-0342)

Review activity:

Air Force - 84  
DLA - CS



# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

### I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER  
A-A-52175

2. DOCUMENT DATE (YYMMDD)  
920528

### 3. DOCUMENT TITLE

Pistons, Hydraulic Brake, Wheel Cylinder: Sintered Iron (Metric)

### 4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

### 5. REASON FOR RECOMMENDATION

### 6. SUBMITTER

a. NAME (Last, First, Middle Initial)

c. ADDRESS (Include Zip Code)

### b. ORGANIZATION

d. TELEPHONE (Include Area Code)

(1) Commercial

(2) AUTOVON  
(if applicable)

e. DATE SUBMITTED

(YYMMDD)

### 8. PREPARING ACTIVITY

a. NAME

b. TELEPHONE (Include Area Code)

(1) Commercial

(2) AUTOVON

(313) 574-8774

786-8774

c. ADDRESS (Include Zip Code) COMMANDER  
U.S. ARMY TANK - AUTOMOTIVE COMMAND  
ATTN: AMSTA-GDS  
WARREN, MICH 48090-5000

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:  
Defense Quality and Standardization Office  
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466  
Telephone (703) 756-2340 AUTOVON 289-2340