MILITARY SPECIFICATION

GREASE, GUNMOUNT, AIRCRAFT

1. SCOPE

1.1 This specification covers one type of grease for heavily loaded sliding applications.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids form a part of this specification to the extent specified herein.

STANDARDS

Federal

Fed. Test Method Std. No. 791	Lubricants, Liquid Fuels and Related Products; Methods of Testing

Military

MIL-STD-290	Packaging, Packing and Marking of Petroleum and Related Products

(Copies of specifications, standards, drawings and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

AMERICAN SOCIETY FOR TESTING MATERIALS

ASTM Standards on Petroleum Products and Lubricants
ASTM Manual on Measurement and Sampling of Petroleum and Petroleum Products

(Copies of ASTM publications may be obtained from the American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.)

3. REQUIREMENTS

3.1 Materials. The grease shall be a mixture consisting essentially of a suitable liquid lubricant, a non-soap gelling agent and the necessary additives.

3.2 Penetration, unworked. The unworked penetration of the grease shall not be less than 280 nor more than 300 when tested as specified in 4.6.1.

3.3 Penetration, worked. The worked penetration of the grease shall not be more than 315 when tested as specified in 4.6.1.

3.4 Worked stability. The penetration of the grease after working 100,000 double strokes shall not be more than 375 when tested as specified in 4.6.1.

3.5 Evaporation. The grease shall not lose more than 5 percent of its weight after 72 hours at 350°F (177°C) when tested as specified in 4.6.1.

3.6 Oil separation. The grease shall not lose more than 5 percent of its weight in 30 hours at 350°F (177°C) when tested as specified in 4.6.1.

3.7 Load wear index. The load wear index value of the grease shall be not less than 60 when tested for load carrying capacity as specified in 4.6.1.

3.8 Steel on steel wear. When tested as specified in 4.6.1 the wear scar diameter shall not be greater than 1.3 mm.

3.9 Low temperature torque. A No. 204 open ball bearing lubricated with the grease shall give a starting torque of not more than 2,000 g-cm and a running torque of not more than 750 g-cm when tested as specified in 4.6.1.

3.10 Storage stability. After storing for 6 months as specified in 4.6.3 the worked penetration of the grease shall not have changed from the original worked penetration by more than 30 points. The unworked penetration shall not be less than 250.

3.11 Workmanship. The grease shall be a high quality, smooth, homogeneous product, free from abrasives and impurities when examined as specified in 4.6.2.

4. QUALITY ASSURANCE PROVISISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Inspection lot

4.2.1 Bulk lot. An infinite quantity of a homogeneous mixture of material offered for acceptance in a single isolated container; or manufactured by a single plant run (not exceeding 24 hours) through the same processing equipment, with no change in ingredient material.

4.2.2 Packaged lot. An indefinite number of 55 gallon drums or smaller unit packages of identical size and type, offered for acceptance, and filled with a homogeneous mixture of material manufactured by a single plant run (not exceeding 24 hours) through the same processing equipment, with no change in ingredient material.

4.3 Sampling. Sampling shall be in accordance with Method 8001 of Federal Test Method Standard No. 791.

4.4 Inspection. Inspection shall be in accordance with Method 9601 of Federal Test Method Standard No. 791.

4.5 Classification of tests. The inspection and testing of the grease shall be classified as follows:

a. Acceptance tests.

4.5.1 Acceptance tests. Tests for acceptance of individual bulk or packaged lots shall consist of tests for all requirements specified herein except storage stability.

4.6 Test methods

4.6.1 The tests of this specification shall be conducted in accordance with the applicable test method of Federal Test Method Standard No. 791 as listed in table I, and other methods as described in 4.6.2 and 4.6.3.

4.6.2 Examination of the product. The sample grease shall be inspected visually and a suitable portion shall be worked with a spatula on a glass surface. After working, the grease shall be spread with a straight edge and observed for uniformity as indicated by a smooth surface.

4.6.3 Storage stability. The penetration after storage shall be determined on a sample of grease which has been stored at a temperature of 100° ± 5°F (38° ± 3°C) in a 1-pound oiltight container for 6 months subsequent to the original determination of the penetration. The worked and unworked penetrations after storage shall be determined in accordance with Method 311 of Federal Test Method Standard No. 791.

Table I. Test Methods

TEST		Fed.Std.No.791 Method No. 1/	ASTM
Penetration		311.7	D217
Worked Stability		313.2	D217
Evaporation	2/	351.2	D972
Oil Separation	3/	321.2	
Load Wear Index			D2596
Steel On Steel Wear	4/		D2266
Low Temperature Torque	5/	334	D1478

1/ Where a corresponding ASTM number is listed, the ASTM method is to be used in conducting the test.

2/ The temperature shall be 350°F (177°C).

3/ The temperature shall be 350°F (177°C).

4/ The temperature shall be 167°F (75°C), the specimen material shall be AISI-C-52100 steel and the load shall be 75 kg.

5/ The temperature shall be -65°F (-54°C).

5. PREPARATION FOR DELIVERY

5.1 Packaging and packing. The grease shall be packaged and packed for the level specified (see 6.2) in accordance with MIL-STD-290. The type and size of containers shall be as specified by the procuring activity (see 6.2).

5.2 Markings. In addition to any special markings required by the contract or order, all containers shall be marked in accordance with MIL-STD-290. The marking nomenclature shall be as follows:

GREASE, GUNMOUNT, AIRCRAFT.

6. NOTES

6.1 Intended use. The grease covered by this specification is intended for use in aircraft gunmount shoulder bearings, and gunmount base and mating yokes.

6.2 Ordering data. Procurement documents shall specify the following:

a. Title, number, and date of this specification.

b. Quantity desired.

c. Applicable levels of packaging and packing (see 5.1).

d. Type and capacity of containers (see 5.1).

6.3 Source of apparatus

6.3.1 Shell four-ball wear testers. Shell four-ball wear testers may be obtained from the Precision Scientific Company, Chicago, Illinois 60600, Catalog No. 73603.

Custodian:
Air Force - 11

Reviewer activity:
Air Force - 68

Preparing activity:
Air Force - 11

PROJECT NUMBER: 9150-F393

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. 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. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?
   A. *GIVE PARAGRAPH NUMBER AND WORDING.*

   B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3. IS THE DOCUMENT RESTRICTIVE?

   ☐ YES ☐ NO *(If "Yes", in what way?)*

4. REMARKS

SUBMITTED BY *(Printed or typed name and address - Optional)*

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