NAVAL AIR ENGINEERING CENTER
PHILADELPHIA, PENNSYLVANIA 19112
AERONAUTICAL MATERIALS LABORATORY
MATERIALS APPLICATION AND ENGINEERING DIVISION

DATE 15 December 1966

REPORT NO. NAEC AML 2552

ORDTASK ORD 934-010/200-5/17250000
Assignment 65-55

Revision of NAVORD OD 3000
Lubrication of Ordnance Equipment

A. Object

To provide the technical information necessary for revising Ordnance Document NAVORD OD 3000 (Lubrication of Ordnance Equipment) for the purpose of providing naval operating forces with the latest information on lubricants, hydraulic fluids and preservative materials.

B. Details

NAVORD OD 3000 was examined in its entirety to determine the proper deletions, additions and revisions required to update the document technically. Comments and recommendations prepared by members of the American Ordnance Association were reviewed and utilized in preparing a first draft of changes proposed for inclusion in the revised document. The following is a summary of the proposed changes which have been compiled.

ocument is unlimited.

CLEARINGHOUSE
FOR FEDERAL SCIENTIFIC AND
TECHNICAL INFORMATION

Hardcopy	Microfiche		
$3.00	$.65	5 pp	as

1 ARCHIVE COPY

NAVAL AIR ENGINEERING CENTER
PHILADELPHIA, PENNSYLVANIA 19112
AERONAUTICAL MATERIALS LABORATORY
MATERIALS APPLICATION AND ENGINEERING DIVISION

DATE 15 December 1966

REPORT NO. NAEC AML 2552

ORDTASK ORD 934-010/200-5/17250000
Assignment 65-55

Revision of NAVORD OD 3000
Lubrication of Ordnance Equipment

Distribution of this document is unlimited.

A. Object

To provide the technical information necessary for revising Ordnance Document NAVORD OD 3000 (Lubrication of Ordnance Equipment) for the purpose of providing naval operating forces with the latest information on lubricants, hydraulic fluids and preservative materials.

B. Details

NAVORD OD 3000 was examined in its entirety to determine the proper deletions, additions and revisions required to update the document technically. Comments and recommendations prepared by members of the American Ordnance Association were reviewed and utilized in preparing a first draft of changes proposed for inclusion in the revised document. The following is a summary of the proposed changes which have been completed:

1. The introduction was revised to reflect changes in scope and to reference additional documents required by those changes.

2. A list of current specifications and stock numbers considered pertinent for inclusion in the revised OD 3000 was prepared and is given by Appendix A. The list includes multipurpose lubricants and bonded dry film lubricants. Tables and charts covering the characteristics and uses of the specified lubricants and related products were expanded to include the additional items.

3. Technical contents of the following chapters were updated: Lubrication and Corrosion Prevention, Fluids for Hydraulic Systems, Coolants and Antifreeze Compounds, Operations Under Extreme Climatic Conditions, and Storage of Lubricants and Related Materials.

4. The glossary was expanded to include lubrication terms resulting from advanced technology, and outdated pictorial illustrations have been replaced by those currently in use.

5. A list of military and NATO symbols appearing on lubrication charts has been added to this document in order to facilitate the identification of lubrication products procured under specifications of other NATO countries.

C. Conclusions

It is concluded that the work prepared under this assignment will provide the Engineering Standardization Office (WESO) with technical information necessary for the preparation of a draft revision that will provide guidance for naval operating forces in the selection, and application of current lubricants, hydraulic fluids and related products used in the maintenance of naval weapons systems.

D. Action

The assembled draft revision will be circulated to Naval Air Stations, the American Ordnance Association and other interested parties. Additional work generated by comments received will be conducted under a new assignment to be established by the Naval Ordnance Systems Command.

Prepared by: W. G. Brown
W. G. Brown
Project Engineer

Approved by: Leon Stallings
L. Stallings
Head, Experimental Lubricants Branch

Appendix A - Specifications Included in the Revision of OD 3000

SPECIFICATIONS INCLUDED IN THE REVISION OF OD 3000

Lubricating Oils

JJJ-C-86
VV-I-530
VV-L-751
VV-L-800
MIL-L-2105
MIL-L-3150
MIL-L-3503
MIL-L-3572
MIL-L-3918
MIL-O-6081
MIL-L-6082
MIL-L-6085
MIL-L-6086
MIL-L-07808
MIL-L-7870
MIL-L-9000
MIL-L-10324
MIL-L-11734
MIL-L-15016
MIL-L-15018

Solid Film Lubricants

MIL-L-8937
MIL-L-23398
MIL-L-81329

Antiseize Compounds

TT-A-580
MIL-A-907
MIL-T-5542
MIL-T-5544
MIL-T-22361
MIL-T-27730

Damping Fluids

MIL-F-16929
VV-D-1078

Coolants & Antifreeze Compounds

O-A-548
O-E-760
MIL-A-6091
MIL-A-8243
MIL-C-11755

Lubricating Oils

MIL-L-16785
MIL-L-16958
MIL-G-17745
MIL-L-18486
MIL-L-19224
MIL-L-22803
MIL-L-22851
MIL-L-23699
MIL-L-25681
MIL-G-26548
MIL-L-27694

Lubricating Greases

MIL-G-3545
MIL-G-4343
MIL-G-6032
MIL-G-7711
MIL-G-10924
MIL-L-15719
MIL-L-18458
MIL-G-18709
MIL-L-19701
MIL-G-21164
MIL-G-23549
MIL-G-23827
MIL-G-25013
MIL-G-25537
MIL-G-25760
MIL-G-27549
MIL-G-27617
MIL-G-38220
MIL-G-38277
MIL-G-81322

Hydraulic Fluids

MIL-H-5606
MIL-H-13866
MIL-F-1711
MIL-L-17672
MIL-H-81019
MIL-S-81087
MIL-H-22072

Specialty Compounds

MIL-G-6711
MIL-M-7866
MIL-S-8660
MIL-C-21567
MIL-G-26548

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Naval Air Engineering Center Aeronautical Materials Laboratory Philadelphia, Pa. 19112	2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED 2b. GROUP

3. REPORT TITLE

Revision of NAVORD OD 3000 - Lubrication of Ordnance Equipment

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

5. AUTHOR(S) (Last name, first name, initial)

Brown, [illegible]

6. REPORT DATE 15 Dec 1966	7a. TOTAL NO. OF PAGES 4	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. b. PROJECT NO. c. ORDTASK ORD 334-010/200-5/17250000 -ssignment [illegible] d.	9a. ORIGINATOR'S REPORT NUMBER(S) NAEC AML 2552 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	

10. AVAILABILITY/LIMITATION NOTICES

[illegible] this [illegible]

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY [illegible] Department of the Navy Washington, D. C. 20360

13. ABSTRACT

Technical information covering the latest lubricants, their stock numbers, characteristics, uses and methods used in the lubrication of Ordnance equipment was prepared.

DD FORM 1 JAN 64 1473

UNCLASSIFIED

Security Classification

14. KEY WORDS	LINK A ROLE	LINK A WT	LINK B ROLE	LINK B WT	LINK C ROLE	LINK C WT

INSTRUCTIONS

1. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization *(corporate author)* issuing the report.

2a. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.

2b. GROUP: Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.

3. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.

4. DESCRIPTIVE NOTES: If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.

5. AUTHOR(S): Enter the name(s) of author(s) as shown on or in the report. Enter last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.

6. REPORT DATE: Enter the date of the report as day, month, year; or month, year. If more than one date appears on the report, use date of publication.

7a. TOTAL NUMBER OF PAGES: The total page count should follow normal pagination procedures, i.e., enter the number of pages containing information.

7b. NUMBER OF REFERENCES: Enter the total number of references cited in the report.

8a. CONTRACT OR GRANT NUMBER: If appropriate, enter the applicable number of the contract or grant under which the report was written.

8b, 8c, & 8d. PROJECT NUMBER: Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.

9a. ORIGINATOR'S REPORT NUMBER(S): Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to this report.

9b. OTHER REPORT NUMBER(S): If the report has been assigned any other report numbers *(either by the originator or by the sponsor)*, also enter this number(s).

10. AVAILABILITY/LIMITATION NOTICES: Enter any limitations on further dissemination of the report, other than those imposed by security classification, using standard statements such as:

(1) "Qualified requesters may obtain copies of this report from DDC."

(2) "Foreign announcement and dissemination of this report by DDC is not authorized."

(3) "U. S. Government agencies may obtain copies of this report directly from DDC. Other qualified DDC users shall request through

_____."

(4) "U. S. military agencies may obtain copies of this report directly from DDC. Other qualified users shall request through

_____."

(5) "All distribution of this report is controlled. Qualified DDC users shall request through

_____."

If the report has been furnished to the Office of Technical Services, Department of Commerce, for sale to the public, indicate this fact and enter the price, if known.

11. SUPPLEMENTARY NOTES: Use for additional explanatory notes.

12. SPONSORING MILITARY ACTIVITY: Enter the name of the departmental project office or laboratory sponsoring *(paying for)* the research and development. Include address.

13. ABSTRACT: Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.

It is highly desirable that the abstract of classified reports be unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as *(TS)*, *(S)*, *(C)*, or *(U)*.

There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.

14. KEY WORDS: Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words must be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location, may be used as key words but will be followed by an indication of technical context. The assignment of links, roles, and weights is optional.