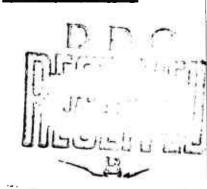
# NAVATAIR ENGINEERING CENTER PHILA: PHIA, PENNSYLVANIA 19112 AERONAUTICAL MATERIALS LABORATORY MATERIALS APPLICATION AND ENGINEERING DIVISION

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. Cbject

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. <u>Details</u>

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 accounted to the proposed changes and the proposed changes which have been accounted to the proposed changes and the proposed changes are the proposed changes are the proposed changes and the proposed changes are the proposed changes are the proposed changes and the proposed changes are the proposed change

CLEARINGHOUSE FOR PEDERAL SCIENTIFIC AND TECHNICAL INFORMATION								
Hardoopy 3.00	#iorofiche	5000						
/ ARCHIVE COPY								

xcument is unlimited.

# Distribution of this document is unlimited.

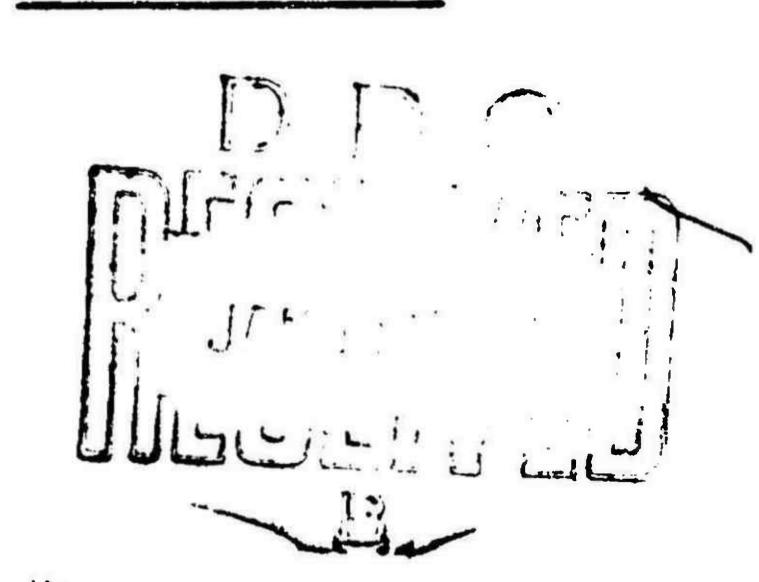
# NAVAL AIR ENGINEERING CENTER PHILADELPHIA, PENNSYLVANIA 19112 AERONAUTICAL MATERIALS LABORATORY MATERIALS APPLICATION AND ENGINEERING DIVISION

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. <u>Details</u>

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 Antifrecze 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:

H. A Brown.

W. G. Brown

Project Engineer

Approved by:

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	Lubricating Oils
JJJ-C-86	MIL-L-16785
VV-I-530	MIL-L-16958
VV-L-751	MI L-G-17745
VV-L-800	MI L-L-18486
MIL-L-2105	MI L-L-19224
MIL-L-3150	MI L-L-22803
MI L-L-3503	MI I-L-22851
MI L-L-3572	MI L-L-23699
MIL-L-3918	MI L-L-25681
MI L-0-6081	MI L-G-26548
MIL-L-6082	MIL-I-27694
MI L-L-6085	1112-X-27074
MIL-L-6086	Lubricating Greases
MIL-1-07808	Manticauting Of Cases
MI L-1-7870	·-MI L-G-3545
MIL-1-9000	MI L-G-4343
MI L-I-10324	
MIL-11734	MIL-G-6032 MIL-G-7711
MI L-15016	MI L-G-10924
MI L-L-15018	MI L-1-15719
MLD-1-17018	MI L-L-18458
Solid Film Jubmiconts	MI L-G-18709
Solid Film Lubricants	MIL-L-19701
MIL-L-8937	MIL-G-21164
MIL-L-23398	MI L-G-23549
MI L-L-81329	MI L-G-23827
Austria Compunda	MIL-G-25013
Antiseize Compounds	MIL-G-25537 MIL-G-25760
mm A 500	
TT-A-580 MII-A-907	MI 1-G-27549 MI 1-G-27617
MI I-T-5542	MI L-G-38220
MII-T-5544	MI L-G-38277
MII-T-22361	MIL-G-81322
MI 1.—T-27730	Budmanilda Plantda
Demains Florida	Hydraulic Fluids
Damping Fluids	MI L-H-5606
MI L-F~16929	MI L-H-13866
VV-P-1078	MI L-F-1711
44-L-10/8	MIL-L-17672
Contents & AntiPress Comm	
Coolants & Antifreeze Comp	MI L-S-81087
0 4 519	MIL-H-22072
0-A-548 0-E-760	WT 11-U-550 / 5
MI L-A-6091	Specialty Company
MI L-A-8243	Specialty Compounds
MI L-K-0245 MI L-C-11755	MIL-G-6711
MT 0-0-11/22	MI I-M-3866
	MI L-M-7866 MI L-S-8660 MI L-S-21567
	MĪ L-G-26548

Security Classification DOCUMENT CONTROL DATA - R&D (Security classification of title, body of abstract and industry amentation axes to entered when the everall regist to classified) ORIGINATING ACTIVITY (Commente author) 20. REPORT SECURITY CLASSIFICATION Naval Air Engineering Center UNCLASSIFI Aeronautical Materials Laboratory 25. GROUP Philadelphia, Pa. 19112 3. REPORT TITLE Revision of NAVORD OD 3000 - Lubrication of Ordnance Equipment 4. DESCRIPTIVE MOTES (Type of report and inclusive detec) S. AUTHOR(S) (Last name, Amt name, initial) Ernwn, w. .. 6. HEPORT DATE SO. TOTAL NO. OF PACES 75. NO. OF REFS 15 Dec 1966 Se. CONTRACT OR GRANT NO. Re. OMOMATOR'S REPORT NUMBER(S) & PROJECT NO. NAEC AML 2552 o. ORDTASK ORD 334-110/201-5/17250000 Sb. OTHER REPORT NO(S) (Any other members Get may be souldness -ssignment (F-" 16. A VAIL ABILITY/LIMITATION MOTICES t,his 12. SPONSORING MILITARY ACTIVITY 11. SUPPLEMENTARY NOTES المنا المن المنافعة المالا المناسلة Lepsrtment of the Nev Washington, L. U. 20300

### 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 ...... 1473

Security Classification

14. KEY WORDS			LINKA		LINK B		LINKC		
		a 8.71	ROLE	WŢ	ROLE	WT	ROLE	WT	
	<b>)</b>								
	•								

### 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 classificat. A 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, such roject 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 disagmination 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 inter the price, if known.

- 11. SUPPLEMENTARY NOTES: Use for additional explana-
- 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, rales, and weights is optional.