METRIC

MIL-L-6082E
1 December 1990
Superseding
MIL-L-6082D
21 October 1969

# MILITARY SPECIFICATION

# LUBRICATING OIL, AIRCRAFT PISTON ENGINE (NON-DISPERSANT MINERAL OIL)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

## 1. SCOPE

1.1 Scope. This specification establishes the requirements for non-dispersant, mineral lubricating oils to be used in four stroke cycle, reciprocating piston aircraft engines.

1.2 Classification. The lubricating oils shall be furnished in the following grades:

| SAE Grade | Military Grade | Commercial Grade | NATO Code Number |
|---|---|---|---|
| 30 | 1065 | 65 | O-113 |
| 40 | 1080 | 80 | none |
| 50 | 1100 | 100 | O-117 |
| 60 | 1120 | 120 | none |

Note: The Military Grade designations are being phased-out in favor of the NATO Code Numbers. Commercial Grade designations are being replaced by the SAE Grade classifications.

## 2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Naval Air Systems Command, AIR-5363, Washington, DC 20361-5360, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter

Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

MILITARY

| | |
|---|---|
| MIL-L-22851 | Lubricating Oil, Aircraft Piston Engine, Ashless Dispersant. |

STANDARDS

FEDERAL

| | |
|---|---|
| FED-STD-313 | Material Safety Data Sheets, Preparation and the Submission of. |
| FED-STD-791 | Lubricants, Liquid Fuels and Related Products; Methods of Testing. |

MILITARY

| | |
|---|---|
| MIL-STD-105 | Sampling procedures and Tables for Inspection by Attributes. |
| MIL-STD-290 | Packaging, Packing and Marking of Petroleum and Related Products. |

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg 4D, 700 Robins Avenue, Philadelphia, PA 19111-5094.)

(Copies of specifications, standards, other Government documents and publications required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Non-Government publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

| | | |
|---|---|---|
| ASTM D 92 | - | Flash and Fire Points by Cleveland Open Cup. |
| ASTM D 94 | - | Saponification Number of Petroleum Products. |
| ASTM D 97 | - | Pour Point of Petroleum Oils. |
| ASTM D 129 | - | Sulfur in Petroleum Products (General Bomb Method). |
| ASTM D 130 | - | Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test. |

| | | |
|---|---|---|
| ASTM D 189 | - | Conradson Carbon Residue of Petroleum Products. |
| ASTM D 287 | - | API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). |
| ASTM D 445 | - | Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity). |
| ASTM D 482 | - | Ash from Petroleum Products. |
| ASTM D 664 | - | Neutralization Number by Potentiometric Titration. |
| ASTM D 892 | - | Foaming Characteristics of Lubricating Oils |
| ASTM D 1552 | - | Sulfur in Petroleum Products (High-Temperature Method). |
| ASTM D 2270 | - | Calculating Viscosity Index from Kinematic Viscosity at 40 and 100°C. |
| ASTM D 2273 | - | Trace Sediment in Lubricating Oils. |
| ASTM D 2622 | - | Sulfur in Petroleum Products (X-Ray Spectrographic Method). |
| ASTM D 4057 | - | Manual Sampling of Petroleum and Petroleum Products |
| ASTM D 4177 | - | Automatic Sampling of Petroleum and Petroleum Products |
| ASTM D 4530 | - | Micro Carbon Residue of Petroleum Products. |
| ASTM D 4624 | - | Measuring Apparent Viscosity by Capillary Viscometer at High Temperature and High-Shear Rates. |
| ASTM D 4683 | - | Measuring Viscosity at High Temperature and High Shear Rate by Tapered Bearing Simulator. |
| ASTM D 4741 | - | Measuring Viscosity at High Temperature and High Shear Rate by Tapered-Plug Viscometer. |
| ASTM STP 509A | - | Single Cylinder Engine Tests, Part IV |

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

| | |
|---|---|
| ANSI Z129.1 | American National Standard for the Precautionary Labeling of Hazardous Industrial Chemicals. |

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC.

SAE Standard, "Engine Oil Viscosity Classification - SAE J300."

(Requests for copies should be addressed to the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

2.3 Order of Precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification takes precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Qualification. The lubricating oils furnished under this specification shall be products which are authorized by the qualifying activity for listing on the applicable qualified products list at the time for opening of bids (see 4.3 and 6.2.2). Detailed information on the procedures to be followed when submitting a candidate lubricating oil are available from the Naval Air Systems Command, AIR-53632, Washington DC 20361. Each qualification approval is effective for four years from the date on which it is originally granted. A four year extension of a qualification approval may be granted by the Naval Air Systems Command.

3.1.1 Read-Across Approvals. Complete chemical and physical property test results shall be submitted for each grade of oil for which qualification is requested. L-38 tests shall be performed on the lightest and heaviest single grade oils to be blended from the same basestock materials (neutral and bright stock). All single grade oils blended from the same basestock materials and meeting SAE viscosity classification standards between the two tested products will be granted qualification approval based on similarity. Read-across approvals will only be granted to different grades of oil which are composed of varying percentages of the same base stocks blended with identical additive packages (Variations in pour point depressant concentration will be permitted).

3.1.2 Requalification. Requalification shall be required in the event any change is made in the source or composition of the lubricant, the ingredients used, the manufacturing process, or the plant location. A change from one approved pour point depressant or antioxidant to another, listed on the applicable Qualified Products List, may be made without requalification, but only after notification and approval by the activity responsible for qualification.

3.2. Materials. The lubricating oil shall be a refined petroleum product and may contain pour point depressants up to a maximum amount of 1.0% by weight as well as an approved antioxidant in an amount not to exceed 0.5% by weight. Currently approved antioxidant additives and pour point depressants are listed in the applicable Qualified Products Lists. Silicone anti-foam additives may be used up to a maximum of 25 parts per million. Crude source(s) and the types of processing used in the manufacture of the base stocks shall be identified in accordance with Appendix A.

3.3. Chemical and physical properties. Chemical and physical properties of the blended base stocks without additives shall conform to the requirements of Table I. The finished lubricating oil shall conform to the physical and chemical property requirements specified in Table II.

3.4 Sulfur. The sulfur content of the oil shall not exceed the value shown for each grade in Table II. For quality conformance inspection, the sulfur content shall be within ±0.15% mass of the qualification value or within a 0.3% mass range selected by the manufacturer to bracket the qualification value.

TABLE I
CHEMICAL AND PHYSICAL PROPERTY REQUIREMENTS
FOR BLENDED BASE STOCK
(without additives)

| Characteristic | Limit | Test Method |
|---|---|---|
| SAE Grade | All Grades | |
| Viscosity Index, Min | 85 | ASTM D 2270 |
| Viscosity, cSt<br>@ 40°C<br>@ 100°C | <br>report<br>report | ASTM D 445 |
| Saponification Number, Max | 0.5 | ASTM D 94 |

3.5 API Gravity. The American Petroleum Institute (API) gravity of the oil shall be determined but not limited on qualification inspection. For quality conformance inspection, the gravity shall be within ±0.7 °API of the qualification value, or within a 1.4 °API range selected by the manufacturer to bracket the qualification value.

3.6 Carbon Residue. The carbon residue of the oil shall not exceed the limits specified in Table II. For quality conformance inspection, the carbon residue shall be within ±0.2% mass from the value determined on the qualification sample, or within a 0.4% mass range selected by the manufacturer to bracket the qualification value.

3.7 Workmanship. The lubricating oil shall be an uncloudy, homogeneous blend when examined visually by transmitted light. It shall exhibit no separation or fallout of the additives. Any jelly-like substance or very viscous material observed in the bottom of the container shall be considered evidence of additive fallout.

3.8 Bench performance requirements (L-38 engine test). The finished lubricating oil shall meet the requirements of Table III when tested in the L-38 engine in accordance with ASTM STP 509A, Part IV. The test shall be run with the oil gallery temperature controlled at 135 ±1°C (275 ±2°F).

3.9 Material Safety Data Sheets. When applying for qualification, the manufacturer shall submit to the qualifying activity Material Safety Data Sheets prepared in accordance with FED-STD-313 (see 6.5).

TABLE II
CHEMICAL AND PHYSICAL PROPERTY REQUIREMENTS
FOR FINISHED LUBRICANT

| Characteristic / SAE Grade | 30 | 40 | 50 | 60 | Test Method |
|---|---|---|---|---|---|
| Viscosity, cSt,<br>@ 100°C, Min<br>@ 100°C, Less than | <br>9.3<br>12.5 | <br>12.5<br>16.3 | <br>16.3<br>21.9 | <br>21.9<br>26.1 | ASTM D 445 |
| Flash Point, °C, Min | 220 | 225 | 243 | 243 | ASTM D 92 |
| Carbon Residue,<br>Mass %, Max | <br>0.6 | <br>0.6 | <br>1.2 | <br>1.2 | ASTM D 189,<br>ASTM D 4530 |
| Sulfur, Mass %, Max | 0.6 | 0.8 | 1.0 | 1.2 | ASTM D 129,<br>ASTM D 1552,<br>ASTM D 2622 |
| Pour Point, °C, Max | -18 | -15 | -12 | -9 | ASTM D 97 |
| | All Grades | | | | |
| Viscosity, High Temp.,<br>High Shear, at 150°C,<br>cP, Min | 3.3 | | | | ASTM D 4683,<br>ASTM D 4741,<br>ASTM D 4624 |
| Viscosity, cSt,<br>@ 40°C | Report | | | | ASTM D 445 |
| Total Acid Number,<br>mg KOH/g, Max 1/ | 0.10 | | | | ASTM D 664 |
| Density, °API | Report | | | | ASTM D 287 |
| Ash Content,<br>Mass %, Max | 0.006 | | | | ASTM D 482 |
| Trace Sediment,<br>ml/100ml Oil, Max | 0.005 | | | | ASTM D 2273 |
| Copper Strip Corrosion,<br>Max Rating<br>3 hrs @ 100°C<br>3 hrs @ 204°C | <br>1<br>3 | | | | ASTM D 130 |

TABLE II (continued)

| Characteristic | Limit | Test Method |
|---|---|---|
| | SAE Grade / All Grades | |
| Foaming Tendency/Stability | | ASTM D 892 |
| Seq. I | | |
| Aerated Vol., ml, Max | 50 | |
| Vol. after 10 min, ml, Max | 0 | |
| Seq. II | | |
| Aerated Vol., ml, Max | 50 | |
| Vol. after 10 min, ml, Max | 0 | |
| Seq. III | | |
| Aerated Vol., ml, Max | 50 | |
| Vol. after 10 min, ml, Max | 0 | |
| Compatibility with other oils 2/ | pass | FTM 791 Method 3403 |

Notes: 1/ Titrate to a pH 11 end point.
2/ Only required for qualification of additives.

TABLE III
L-38 ENGINE TEST REQUIREMENTS 1/

| Characteristic | Limit | Test Method |
|---|---|---|
| BEARING | | |
| Bearing Weight Loss, Total, mg, Max | 500 | 2/ |
| USED OIL | | |
| Viscosity, Stripped, % Change, Max, @ 40°C | -5 to +10 | ASTM D 445 |
| Total Acid Number, Change, Max 3/ | 2.0 | ASTM D 664 |

Note: 1/ L-38 engine test is to be run in accordance with ASTM STP 509A, Part IV with an oil gallery temperature of 135 ±1°C (275 ±2°F).
2/ ASTM STP 509A, Part IV.
3/ Titrate to a pH 11 end point.

# 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facility 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.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. Qualification inspection (see 4.3).

b. Quality conformance inspection (see 4.4).

4.3 Qualification inspection. The qualification inspection shall consist of a review and acceptance of the manufacturer's test results (see 4.3.2) by the Naval Air Systems Command and its field activity, the Naval Air Propulsion Center (NAPC). Additional testing of the qualification inspection sample by the Naval Air Propulsion Center (NAPC) shall be performed to confirm compliance with the requirements of Tables I and II.

4.3.1 Qualification inspection sample. All qualification and NAPC testing shall be conducted on the same homogeneous batch of oil. The qualification inspection test samples to be tested by NAPC shall consist of a one gallon sample of each grade of blended base oil without additives and a ten gallon sample of each grade of the finished oil for which qualification approval is sought. Material Safety Data Sheets completed in accordance with FED-STD-313 shall also be included with the test samples. At the direction of the Naval Air Systems Command, AIR-5363, these samples should be forwarded to the Naval Air Propulsion Center, (PE33), 1440 Parkway Ave., Trenton, NJ 08628, and should be plainly identified by a securely attached durable tag or label marked with the following information:

QUALIFICATION INSPECTION SAMPLE
LUBRICATING OIL, AIRCRAFT PISTON ENGINE,
(NONDISPERSANT MINERAL OIL)

Type of sample: *(basestock or finished oil)*
Name of manufacturer_____
Product code number_____
Batch number_____
Date of manufacture_____
Submitted by *(name)*_____on___
*(date)* for qualification inspection in accordance with MIL-L-6082 under authorization of ___
*(reference authorizing letter (see 6.3))*.

4.3.2 Test results. The manufacturer shall forward a certified copy of the test report to NAPC. The report shall contain complete test data showing the results of all tests required by this specification. Photographs of the test parts from the L-38 engine shall be included along with data on the test oil's viscosity, and TAN at 0, 10, 20, 30, and 40 hours into the test. The test report shall also include complete formulation data including the brand name and manufacturer of each of the additives used, the concentration of each additive in the finished oil, the percentages of neutral and bright stock used in the blending of the base stock, as well as the crude oil sources and type of processing used in the manufacture of these base stock components.

4.4 Quality Conformance Inspection. Quality conformance inspection shall consist of all the tests included in Table II of this specification with the exception of the compatibility test. Oil manufacturers shall also retain a copy of each batch test report in their files for at least three years. A copy of the test report on each batch of oil produced for the U.S. government shall be forwarded to Naval Air Propulsion Center, Code PE33, P.O. Box 7176, Trenton, NJ 08628.

4.4.1 Lot formation.

4.4.1.1 Bulk lot. A bulk lot is considered as an indefinite quantity of homogenous mixture of material 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.

4.4.1.2 Packaged lot. A packaged lot is considered as an indefinite number of 208 liter (55 gallon) drums or smaller unit packages of identical size and type 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.

4.4.2 Sampling.

4.4.2.1 Sampling for verification of product quality. Each bulk or packaged lot of material shall be sampled at random in accordance with ASTM D 4057 or ASTM D 4177 for verification of product quality as specified in 4.4.

4.4.2.2 Sampling for examination of filled containers. Each packaged lot of containers shall be sampled in accordance with MIL-STD-105, Inspection Level I, for leakage, fill, closure and preparation for shipment (packaging, packing, marking) in accordance with Section 5.

4.4.2.3 Sampling for examination of sedimentation of filled and sealed containers. Samples of filled and sealed 0.95 liter (one-quart) containers shall be taken at such periodic intervals as to be representative of each day of operation. The number of samples to be taken each day shall be in accordance with MIL-STD-105, Inspection Level S-2, when tested against the sedimentation requirement of Table II.

4.4.3 Inspection.

4.4.3.1 Inspection of material. Inspection shall be performed in accordance with Method 9601 of FED-STD-791.

4.4.3.2 Examination of filled containers. Examine samples taken in accordance with 4.4.2.2 for compliance with MIL-STD-290 with regard to fill, closure, sealing, leakage, packaging, packing, and marking requirements. Reject any container having one or more defects or under the required fill. If the number of defective or unfilled containers exceeds the acceptance number for the appropriate plan of MIL-STD-105, reject the lot represented by the sample.

4.5 Test methods. Tests shall be performed in accordance with the applicable methods of Tables I, II and III.

## 5. PACKAGING

5.1 Preservation and packing. The lubricating oil shall be preserved and packed in accordance with MIL-STD-290. The type and size of the containers and the level of preservation and packing shall be as specified by the acquiring activity.

5.2 Marking. All unit, intermediate, and shipping containers shall be marked in accordance with MIL-STD-290. All unit and intermediate packs of toxic and hazardous chemicals and materials shall also be labeled in accordance with the applicable laws, statutes, regulations or ordinances, including Federal, State, and Municipal requirements. In addition, unit or intermediate containers, including unit containers that serve as shipping containers, such as pails and drums, shall be marked with the applicable precautionary information detailed in ANSI Z129.1.

## 6. NOTES

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

6.1 Intended use. The lubricating oil covered by this specification is intended for use in four cycle piston aircraft engines where the dispersant additives found in MIL-L-22851 oil are not needed or desired.

6.2 Military Procurements.

6.2.1 Ordering data.

6.2.1.1 Acquisition requirements. Procurement documents should specify the following:

a. Title, number and date of this specification.

b. Grade of lubricating oil required (see 1.2).

c. Type and size of containers required (see 5.1).

d. Level of preservation and packing required (see 5.1).

e. Quantity desired.

f. Submittal of test results (see 4.4).

6.2.2 Qualification. With respect to products requiring qualification, awards shall be made only for the products, which are at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. The activity responsible for the Qualified Products List is Commander, Naval Air Systems Command, AIR-5363, Department of the Navy, Washington, DC 20361, and information pertaining to qualification of products may be obtained from that activity.

6.2.3 International standardization agreement. Certain provisions of this specification are the subject of an international standardization agreement with NATO (STANAG 1135). When amendment, revision, or cancellation of this specification is proposed which shall affect or violate the international agreement concerned, the preparing activity shall take appropriate reconciliation action through international standardization channels, including departmental standardization offices, if required.

6.3 Commercial products. Commercial products sold under this specification must meet all of the requirements of sections 3 and 4 of this document with the following exceptions:

a. Qualification samples and test results do not have to be submitted to NAPC.

b. Individual qualified products lists for commercial aviation piston engine oils shall be maintained by each of the original aircraft engine manufacturers.

In addition, the packaging requirements of section 5 above apply only to lubricants procured for use by the U.S. Military or other U.S. government agencies.

6.4 Marginal indicia. The margins of this specification have not been marked with asterisks due to the large number of changes.

6.5 Material Safety Data Sheets. Contracting officers will identify those activities requiring copies of completed Material Safety Data Sheets prepared in accordance with FED-STD-313. The pertinent Government mailing addresses for submission of data are listed in paragraph 4 of FED-STD-313.

# APPENDIX A

## BASE STOCK CRUDE OIL SOURCE AND PROCESSING DESCRIPTIONS

When applying for qualification, refiners shall provide the following information about the crude oil and the processing used in the manufacture of each base stock blended into their product:

a. Name of original base stock refiner or processor.

b. Location of refinery or processing plant, by city and state (U.S.), province (Canada), or country.

c. General crude source shall be identified as follows:

| | | |
|---|---|---|
| ACI | - | Alaskan Cook Inlet |
| ANS | - | Alaskan North Slope |
| DE | - | Diester (Including Manufacturing Source) |
| GE | - | Germany |
| MC | - | Mid Continent |
| ME | - | Middle East |
| MW | - | Mid West |
| MX | - | Mexican |
| NA | - | North Africa |
| NS | - | North Sea |
| PA | - | Pennsylvania |
| PAO | - | Polyalpha olefin (Including Manufacturing Source) |
| PE | - | Polyol Ester (Including Manufacturing Source) |
| VEN | - | Venezuelan |
| WC | - | West Coast |
| WCA | - | Western Canada |
| WT | - | West Texas |
| OC | - | Other (Please provide brief description) |

d. General crude refining processes (nonsynthetics only) shall be defined as follows:

| | | |
|---|---|---|
| SD | - | Straight Distillation |
| VD | - | Vacuum Distillation |
| SR | - | Solvent Refining |
| MH | - | Mild Hydrogenation |
| SH | - | Severe Hydrogenation |
| HP | - | Hydrocracked |
| OP | - | Other (Please provide brief description) |

## CONCLUDING MATERIAL

Custodians:
Army - MR
Air Force - 11

Review activities:
Army - AV, MR
DLA - PS

Preparing Activity:
Navy - AS

International interest:
(see 6.2.3)

# 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 | 2. DOCUMENT DATE (YYMMDD) |
|---|---|---|
| | MIL-L-6082E | 901201 |

3. DOCUMENT TITLE
LUBRICATING OIL, AIRCRAFT PISTON ENGINE (NON-DISPERSANT MINERAL OIL)

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*) | b. ORGANIZATION | |
|---|---|---|
| c. ADDRESS (*Include Zip Code*) | d. TELEPHONE (*Include Area Code*)<br>(1) Commercial<br>(2) AUTOVON<br>(*If applicable*) | 7. DATE SUBMITTED (YYMMDD) |

8. PREPARING ACTIVITY

| a. NAME | b. TELEPHONE (*Include Area Code*) | |
|---|---|---|
| Naval Air Systems Command AIR-53632 | (1) Commercial<br>202-692-2653 | (2) AUTOVON<br>222-2653 |
| c. ADDRESS (*Include Zip Code*)<br>Naval Air Systems Command<br>AIR-53632 | IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:<br>Defense Quality and Standardization Office<br>5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 | |