INCH POUND

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DETAIL SPECIFICATION

MIRROR, REARVIEW, NONMAGNETIC, GENERAL REQUIREMENTS FOR (FOR AERONAUTICAL USE)

Reactivated after 30 May 2007 and may be used for new and existing design and acquisitions.

This specification is approved for use by all departments and agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the general requirements for aircraft nonmagnetic rearview mirrors.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of the documents cited in sections 3 and 4 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to Defense Supply Center Richmond, ATTN: DSCR-VEB, 8000 Jefferson Davis Highway, Richmond, VA 23297-5616 or e-mailed to STDZNMGT@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST database at http://assist.daps.dla.mil.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see 6.2).

COMMERCIAL ITEM DESCRIPTIONS

A-A-113	- Tape, Pressure-sensitive Adhesive.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-31000	- Technical Data Packages.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-130	- Identification Marking of U.S. Military Property.
MIL-STD-810	- Environmental Engineering Considerations and Laboratory Tests.

(Copies of these documents are available online at http://assist.daps.dla.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other government documents, drawings, and publications. The following other government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see 6.2).

NAVAL AIR SYSTEMS COMMAND

SD-24	- General Specification for Design and Construction of Naval Aircraft.

(Copies of this document are available from Commander, Naval Air Systems Command, 47123 Buse Road, Air 4.1, Patuxent River, MD 20676.)

DRAWINGS

50B6219	- Mirror Assembly - Rear View, Nonmagnetic Type A-2.

(Copies of this drawing are available online at https://jedmics.robins.af.mil/ or from 542 MSUG/GBMU, 380 Richard Ray Blvd., Suite 104, Robins AFB, GA 31098.)

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

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.3.

3.1.1 Component parts. A rearview vision mirror shall consist of a mirror enclosed in a frame with a mounting bracket.

3.2 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements and promotes economically advantageous life cycle costs.

3.3 General requirements. The requirements for the rearview vision mirror shall be as specified herein and also as specified in SD-24 for Navy procurement and drawing 50B6219 for Air Force procurement.

3.4 Design and construction. The mirror assembly shall be built to withstand the strains, jars, vibrations, and other conditions incident to shipping, storage, installation, and service.

3.4.1 Mirror. The mirror shall be of the first-surface type. The reflecting surface shall be uniform in color and shall be free from stains and defects.

3.4.2 Demagnification. The reduction in image size of demagnification shall be as specified in the acquisition order (see 6.2).

3.4.3 Image. The image shall be sharp and uniform on all parts of the mirror. The image shall be free from any distortion noticeable to the unaided eye under normal daylight conditions.

3.4.4 Reflectivity. The 45-degree specular reflectivity of the mirror surface shall be 50 percent ± 3 percent of the total visible incident light.

3.4.5 Shatter resistance. The rearview mirror shall be provided with a shatter-resistant backing. The border clinched over the reflecting surface shall not exceed 3/32 inch in width.

3.4.6 Mounting bracket. The portion of the mounting bracket integral or attached to the mirror shall be sufficiently rigid to preclude mirror vibration when the aircraft is in flight.

3.4.7 Corrosion. The mirror surface shall not tarnish or discolor and the optical qualities shall not be impaired by continued exposure to service conditions.

3.4.8 Abrasion. The reflecting surface shall be sufficiently durable to withstand cleaning with solvents such as cleaning acetone, grain alcohol, an aqueous solution of 1 percent to 3 percent detergent such as Aerosol OT, or Orvus paste (or equivalent) followed by drying with a soft cloth.

3.4.9 Humidity. The clarity of the image shall not be affected, the specular reflectivity reduced, or the shatter-resistant backing separated when subjected to the humidity test.

3.4.10 Adhesion of reflecting film. The reflecting film shall not separate from the supporting medium.

3.5 Interchangeability. All parts having the same manufacturer's part number shall be directly and completely interchangeable with each other with respect to installation and performance. Changes in manufacturer's part numbers shall be governed by the drawing number requirements of MIL-DTL-31000.

3.6 Weight. The weight of the mirror assembly shall not exceed 0.65 ounce per square inch of reflecting surface.

3.7 Performance. The mirror shall meet the performance requirements specified in section 4 when subjected to the applicable tests.

3.8 Identification of product. The mirror assembly shall be marked in accordance with MIL-STD-130.

3.9 Workmanship. The mirror, including all parts and accessories, shall be constructed and finished in a thoroughly workmanlike manner. Particular attention shall be given to neatness and freedom of parts from burrs and sharp edges.

4. VERIFICATION

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

a. First article inspection (see 4.3).
b. Conformance inspection (see 4.4).

4.2 Inspection conditions. Unless otherwise specified herein, the temperature and pressure at the time of the test shall be ambient room temperature and pressure.

4.3 First article inspection. When first article inspection is required (see 3.1), the number of mirrors to be submitted for first article testing shall be as specified (see 6.2). This inspection shall include the examination of 4.5 and the tests of 4.6.1 through 4.6.9.

4.4 Conformance inspection. Conformance inspection shall include the examination of 4.5 and the tests of 4.6.7, 4.6.8, and 4.6.9.

4.5 Examination. Each mirror shall be examined for compliance with the requirements specified in 3.3 through 3.9.

4.6 Tests.

4.6.1 Abrasion. A soft unbleached flannel cloth shall be dusted on the nap side with dry soil that has passed through a 200-mesh sieve. The entire reflecting surface of the mirror shall be rubbed lightly with this cloth for 30 seconds using a rotary motion. This rubbing cycle shall be repeated 30 times. The reflectivity of the mirror shall not be reduced more than 2 percent as determined by the test of 4.6.9.

4.6.2 Temperature shock. The mirror shall be subjected to the temperature shock test of MIL-STD-810, Method 503. There shall be no separation of the reflecting film from the supporting medium or other detrimental effects on the serviceability of the mirror.

4.6.3 Humidity. The mirror shall be subjected to the humidity test of MIL-STD 810, Method 507. The clarity of the image shall not be affected and the specular reflectivity shall not be reduced when tested in accordance with paragraphs 4.6.8 and 4.6.9.

4.6.4 Salt fog. The mirror shall be subjected to the salt fog test of MIL-STD-810, Method 509 except the spray shall be for a continuous 50 hours. There shall be no reduction in clarity when subjected to the test of 4.6.8. The reflectivity shall not be reduced more than 2 percent as determined by the test of 4.6.9. The residue remaining on the mirror after completion of the tests shall be removed by cleaning with a soft unbleached Canton flannel cloth before the results of the tests are determined.

4.6.5 Vibration. The mirror shall be subjected to the vibration test of MIL-STD-810, Method 514, "General Vibration", procedure. There shall be no detrimental effect on the serviceability of the mirror assembly.

4.6.6 Adhesion of reflecting surface. At the completion of the temperature shock test of 4.6.2, tape conforming to A-A-113, one inch wide, shall be applied firmly to the reflecting surface and stripped off quickly at room temperature. The mirror shall be examined for detachment of the reflective cologne.

4.6.7 Demagnification. The radius of curvature shall be determined by one of the following options:

a. With a dial-type gage with the plunger near the center of the mirror.
b. By three fixed legs that need not be equispread.
c. With an accurately formed template.
d. With any other means acceptable to the inspector.

4.6.8 Image. Clarity of image shall be determined by viewing with the naked eye the reflection of an object in the mirror. Examination for noticeable distortion of the image shall be made as the mirror is rotated 45 degrees both to the right and left of the line of sight.

4.6.9 Reflectivity. The specular reflectivity shall be determined by directing a substantially collimated beam of incandescent light at approximately 45 degrees onto the mirror and directing the fraction of this beam specularly reflected into a receptor that shall have a spectral sensitivity approximating the luminosity function of the standard observer of the International Commission on Illumination. The fraction of the beam specularly reflected shall be determined either by actual measurement of the incident and reflected beams or by comparison of the beams reflected by the test mirror and with that from a suitable calibrated standard mirror.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the inventory control point's packaging activities within the military service or defense agency, or within the military service's system command. Packaging data retrieval is available from the managing military department's or defense agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

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 mirrors covered by this specification are intended for use in aircraft for rear vision purposes.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.
b. The specific issue of individual documents referenced (see 2.2.1 and 2.2.2).
c. First article sample required (see 3.1).
d. Demagnification requirements (see 3.4.2).
e. First article sample size (see 4.3).
f. Packaging requirements (see 5.1).

6.3 Subject term (key word) listing.

demagnification
image
reflectivity

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:
Army - AV
Navy - AS
Air Force - 99

Preparing Activity:
DLA - GS1

(Project 1680-2006-003)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST database at http://assist.daps.dla.mil.