INCH-POUND
MIL-PRF-17850B
8 February 2000
SUPERSEDING
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29 March 1983

PERFORMANCE SPECIFICATION

COMPASS, MAGNETIC, POCKET

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

1. SCOPE

1.1 Scope. This specification covers a compass, magnetic, pocket for emergency use.

2. APPLICABLE DOCUMENTS

2.1 General. The document listed in this section is 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 documents cited in section 3 and 4 of this specification, whether or not they are listed.

2.2 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents are not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

American Society for Quality (ASQ)

ASQC Z1.4 Sampling Procedures and Tables for Inspections by Attributes

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Defense Supply Center Richmond, ATTN: DSCR-VBD, 8000 Jefferson Davis Highway, Richmond VA 23297-5610, by using the Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 6605

(Application for copies should be addressed to the American Society for Quality (ASQ), 641 East Wisconsin Ave., Milwaukee, WI 53201-3005.)

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 4.2.

3.2 Material. The material used in the compass shall be resistant to corrosion and to a build up of a static charge. The clear portion of the case shall be transparent, scratch resistant, and free from flaws which will affect the reading of the compass under normal operating conditions. The materials selected shall be capable of meeting all of the operational and environmental requirements for the intended use specified herein. This environment shall include exposure to a salt fog or spray environment.

3.3 Design. The design, materials, construction, and accessories shall represent the current start-of-the-art practices for functionality and durability. To include card or dial damping.

3.3.1 Graduations and markings. The compass shall be graduated in increments of 2.5 degrees or less with major markings or numbers at the 30 degree points and the letters N, E, S, and W at the cardinal points.

3.3.2 Dimensions and weight. The compass shall not exceed 1.5 inches in thickness and 3 inches in diameter or 3 inches square and the weight shall not exceed 3 ounces.

3.3.3 Lanyard. The compass shall be furnished with a lanyard.

3.3.4 Lubber line. The compass shall be marked with a lubber line.

3.3.5 Sighting slot. The compass shall be furnished with V-shaped sighting slots at the top of the case, that are aligned with the lubber line.

3.3.6 Color. The compass card background shall be lusterless black. The degree graduations, letters, numerals and arrow shall be lusterless white. If compass is of aluminum composite, then it shall be photo etched to expose lusterless aluminum markings.

3.4 Performance characteristics.

3.4.1 Compass accuracy. The compass shall be accurate within 2 degrees at any heading.

3.4.2 Freedom of rotation. The compass shall rotate freely when operated from a level position to a tilted position of 15 degrees from the horizontal axis.

3.5 Environmental conditions.

3.5.1 Waterproof. The compass shall be waterproof when submerged 3 feet below the surface of the water.

3.5.2 Floatation. The compass shall float in water.

3.5.3 Shock resistance. The accuracy and operation shall not be impaired by shock when dropped at a distance of five feet on a hard surface on the back, face, and side of the compass.

3.5.4 Temperature. The compass shall not be adversely affected by temperature within the range of -40 °F to +140 °F.

3.5.5 Condensation and frost. The inside of the compass shall be free of condensation and frost within the temperature range specified in 3.5.4.

3.5.6 Altitude. The compass shall maintain structural integrity when exposed to altitude of 70,000 feet and returned to sea level.

3.6 Workmanship. The compass shall not contain any foreign matter, such as dust, dirt, or fingerprints that can be detected by visual examination.

3.7 Marking. Unless otherwise specified (see 6.2), the compass shall be legibly and permanently marked with the following information:

Manufacturer’s part number
Manufacturer’s name or trademark

3.8 Operating instruction. Instructions for operation shall be furnished with each compass. The instructions shall be written in the English language. Each compass’ operating instructions shall be packaged in a waterproof container.

4. VERIFICATION

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

a. First article inspection (see 4.2)
b. Conformance inspection (see 4.3)

4.2 First article inspection. First article inspection shall be performed on one compass when a first article is required (see 3.1). The inspection shall include the visual examination of 4.4, an inspection of the compass dimensions and weight to determine conformance of 4.5, and the performance and environmental tests of 4.6 (see Table 1).

TABLE 1. Verification methods.

Title	Requirement (paragraph)	Verification (paragraph)
Examination	3.2, 3.3, 3.3.1 through 3.3.6	4.4
Resistance to static charge	3.2	4.6.7
Dimensions and weight	3.3.2	4.5
Accuracy test	3.4.1	4.6.1
Freedom of rotation	3.4.2	4.6.2
Leakage test	3.5.1	4.6.3
Floatation	3.5.2	4.6.4
Drop test	3.5.3	4.6.5
Temp. operation test	3.5.5	4.6.6

4.3 Conformance inspection. Sampling for inspection shall be performed in accordance with ASQC Z1.4. The inspection level shall be II; a sample unit shall be one compass. The sample shall be inspected to the requirements of 4.4, 4.5, 4.6.1, and 4.6.3.

4.4 Visual Examination. The first article and each compass selected for conformance inspection shall be visually inspected to determine conformance with 3.2, 3.3, 3.3.1 through 3.3.6, and 3.6 through 3.8.

4.5 Dimensions and weight. Examination of the compass shall be made for compliance with 3.3.2 and to the manufacturer's own design requirements. Compliance shall constitute acceptance. Sampling shall be in accordance with ASQC Z1.4, inspection level S-3.

4.6 Performance and Environmental test.

4.6.1 Compass accuracy test. The accuracy of the compass shall be checked at 0, 90, 180, and 270 degrees magnetic. The compass error shall not be greater than 2 degrees when tested against known surveyed targets. Any error 2 degrees or less shall constitute acceptance of the test.

4.6.2 Freedom of rotation test. The compass shall be placed in a level position and rotated 360 degrees and then tilted 15 degrees and totaled 360 degrees. The compass shall rotate and operate freely in all positions. If there is no binding of the compass after this test, this shall constitute acceptance.

4.6.3 Leakage test. The compass shall be submerged below the surface of the water for period of 30 minutes. After 30 minutes, remove the compass from the water and inspect. If there are no signs of leakage after this test, this shall constitute acceptance.

4.6.4 Floatation test. The compass shall be placed in distilled water at a temperature of 65 °F to 85 °F. If any portion of the compass remains above the surface of the water for greater than 1 minute, this shall constitute acceptance.

4.6.5 Drop test. The compass shall be dropped a distance of five feet onto a hard surface on the back, face, and side. The compass shall then be visually inspected for damage. If there is no evidence of damage this shall constitute acceptance of the compass. Tests 4.6.1 through 4.6.3 and 4.6.7 shall be accomplished after this test.

4.6.6 High and low temperature operation test. The compass shall be raised to a temperature of +140 °F for a period of 4 hours. The compass shall then be stabilized at ambient temperature and then lowered to -40 °F for a period of 4 hours. Throughout the range from -40 °F to +140 °F, the compass shall remain in conformance with 3.4.2 and 3.5.5. Conformance with 3.4.2 and 3.5.5, shall constitute acceptance of the compass. Tests 4.6.1 through 4.6.5 and 4.6.7 shall be accomplished after this test.

4.6.7 Resistance to static charge test. Secure the compass on a horizontal surface with the compass aligned with the north-south axis. Briskly rub the surface of the compass with a clean, dry cotton rag for a period of 15 seconds. If the compass reads within 2 degrees of north within 15 seconds after the rubbing operations is completed this shall constitute acceptance of the compass to meet the static charge requirements of 3.2.

4.6.8 Altitude. The compass shall be taken from sea level to 70,000 feet back to sea level within 60 minutes, by means of an altitude chamber. The compass shall maintain structural integrity. The compass shall then be subjected to tests 4.6.1 and 4.6.3.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department'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 compass is intended for use in survival kits on life rafts or in remote climatic land and water environments. There is no commercially available compass which will meet the requirement of being taken from sea level pressure to 70,000 feet and returned to sea level and maintain watertight integrity as is required by this military unique compass.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.
b. Issue of DoDISS applicable to the acquisition (see 2.1).
c. If first article inspection is required (see 3.1, 4.2, and 6.2).
d. Marking, if different (3.7).
e. Packaging requirements (see 5.1).

6.3 Subject term (Key word) listing.

Emergency
Survival
Survival Kits
Navigation

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-GL
Navy-SH
Air Force-99

Preparing Activity:
DLA-GS
(Project No: 6605-0102)

Reviewers:
Army-AV
Air Force-71

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, and send to preparing activity.

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** MIL-PRF-17850B	**2. DOCUMENT DATE (YYYYMMDD)** 20000208

3. DOCUMENT TITLE **COMPASS, MAGNETIC, POCKET**

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) (1) Commercial (2) AUTOVON *(if applicable)*	**7.DATE SUBMITTED** (YYYYMMDD)

8. PREPARING ACTIVITY

a. NAME DSCR-VBD	b. TELEPHONE *Include Area Code)* (1) Commercial (804) 279-5019 (2) AUTOVON 695-5019
c. ADDRESS *(Include Zip Code)* DEFENSE SUPPLY CENTER RICHMOND, ATTN: DSCR-VBD, 8000 JEFFERSON DAVIS HIGHWAY, RICHMOND, VA 23297-5610	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman road, Suite 2533, Ft. Belvoir, VA 22060-2533 Telephone (703) 767-6888 AUTOVON 427-6888