



Technical Standard Order

**Subject: TSO-C7d, DIRECTION INSTRUMENT, MAGNETIC
NON-STABILIZED TYPE (MAGNETIC COMPASS)**

a. Applicability.

(1) Minimum Performance Standard. This technical standard order (TSO) prescribes the minimum performance standard that direction instruments, magnetic non-stabilized type (magnetic compass) must meet in order to be identified with the applicable TSO marking. New models of direction instruments, magnetic non-stabilized type (magnetic compass) that are to be so identified and that are manufactured on or after the date of this TSO must meet the standards set forth in the Society of Automotive Engineers, Inc., (SAE) Aerospace Standard (AS) 398A, "Direction Instrument, Magnetic Non-Stabilized Type (Magnetic Compass)," dated reaffirmed October 1984, except as noted below:

(i) Sections 3.1, 3.1.1, 3.1.2, and 3.2 of AS 398A are excluded from this TSO.

(ii) Substitute the following for section 7 of AS 398A: "Performance tests: The following test, in addition to any other deemed necessary by the manufacturers, shall be the basis for determining compliance with the performance requirements of this standard."

(2) Environmental Standard. The environmental conditions and test procedures prescribed in SAE AS 398A are to be used.

b. Marking. Marking must be legible and permanent on the major equipment component as specified in Federal Aviation Regulation (FAR) section 21.607(d).

c. Data Requirements.

(1) In addition to FAR section 21.605, the manufacturer must furnish the Manager, Aircraft Certification Office (ACO), Federal Aviation Administration, having purview of the manufacturer's facilities, one copy each of the following technical data:

(i) Operating instructions.

- (ii) Equipment limitations.
- (iii) Installation procedures and limitations.
- (iv) Schematic drawings as applicable to the installation procedures.
- (v) Wiring diagrams as applicable to the installation procedures.
- (vi) Specifications.
- (vii) List of the major components (by part number) that make up the equipment system complying with the standards prescribed in this TSO.
- (viii) Manufacturer's TSO qualification test report.
- (ix) Nameplate drawing.

(2) In addition to those data requirements that are to be furnished directly to the FAA, each manufacturer must have available for review by the Manager, ACO having purview of the manufacturer's facilities, the following technical data:

- (i) A drawing list, enumerating all of the drawings and processes that are necessary to define the article's design.
- (ii) The functional test specification to be used to test each production article to ensure compliance with this TSO.
- (iii) Equipment calibration procedures.
- (iv) Corrective maintenance procedures (within 12 months after TSO authorization).
- (v) Schematic drawings.
- (vi) Wiring diagrams.

d. Data to be furnished with manufactured units. One copy of the data and information specified in paragraphs (c)(1)(i) through (viii) of this TSO, and instructions for periodic maintenance and calibration which are necessary for continued airworthiness must go to each person receiving for use one or more articles manufactured under this TSO.

e. Availability of Reference Documents.

(1) Copies of SAE AS 398A may be purchased from the Society of Automotive Engineers Inc., Department 331, 400 Commonwealth Drive, Warrendale Pennsylvania 15096.

(2) Federal Aviation Regulations Part 21, Subpart O, and Advisory Circular 20-110E, "Index of Aviation Technical Standard Orders," may be reviewed at the FAA Headquarters in the Aircraft Certification Service, Aircraft Engineering Division (AIR-120), and at all regional ACO's.

/S/ William J. Sullivan
Assistant Director, Aircraft
Certification Service