

Submitted for recognition as an American National Standard

Pressure Relief for Cooling System

Foreword—This Document has also changed to comply with the new SAE Technical Standards Board Format. Definitions have changed to Section 3. All other section numbers have changed accordingly.

1. **Scope**—This SAE Recommended Practice specifies requirements for pressure relief means and pressure relief rating identification for cooling systems of liquid-cooled engines to reduce the possibility of injuries during opening of the cooling system.
2. **References**
 - 2.1 **Applicable Publication**—The following publication forms a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.
 - 2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J164—Radiator Caps and Filler Necks
3. **Definitions**
 - 3.1 **Cooling System Cap**—Herein referred to as cap, means a device which closes the opening used to add coolant to the pressure section of the engine cooling system.
 - 3.2 **Pressure Release Mechanism**—Means a device which, when activated, allows the pressure in a cooling system to be released.
 - 3.3 **Legible**—Means readable under daylight lighting conditions by an observer having 20/20 vision (Snellen) whose eyepoint is located in proximity to the marked surface.
4. **Application**—This document applies to passenger cars, multipurpose passenger vehicles, trucks, chassis cabs, buses, construction vehicles, and to equipment produced for motor vehicles manufactured after the effective date of this document.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-8512 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER; (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS <http://www.sae.org>

5. Requirements

- 5.1** Pressure relief which is actuated without operator action for the purpose of limiting peak pressures in the cooling system should be accomplished in a manner which limits, to the extent practicable, the risk of injury. Pressure relief which is actuated by the operator for the purpose of safe removal of the cap must conform to 5.2 or 5.3, except as provided in 5.4.
- 5.2** Pressure release mechanism incorporated in the cap and/or filler neck shall conform to one of the following:
- 5.2.1** If pressure relief can be accomplished by cap rotation, one of the following mechanisms must be incorporated to prevent cap removal prior to pressure relief.
- 5.2.1.1** Either mechanical stop that prevents cap removal by rotation only, requiring the cap to be moved axially and further rotated, for removal.
- 5.2.1.2** Or a design which requires that the cap be rotated at least 1 and 1/2 turns after pressure relief before the cap can be removed.
- 5.2.2** If pressure relief is accomplished through other than cap rotation, a means shall be provided to prevent removal of the cap before the pressure relief is actuated.
- 5.3** Pressure release mechanism not incorporated in the cap and/or filler neck shall have legibly and permanently marked on or adjacent to the cap instructions for relief of system pressure prior to cap removal.
- 5.4** "Sealed cooling system" which the manufacturer recommends servicing at stated intervals and which does not meet the requirements of 5.2 and 5.3 shall require use of a tool to accomplish cap removal. The words "Do Not Remove—See Manufacturer's Instructions" shall be legibly and durably marked on or immediately adjacent to the cap.
- 6.** The cap or pressure relief valve assembly shall be legibly and durably marked with its normal pressure rating and notation "Warning Do Not Remove Hot." Other notations commonly used are: Caution-Remove Slowly, Caution-Pressure Remove Slowly, Never Open Hot, Do Not Open When Hot, Keep Tight-Do Not Open Hot, and Pressurized-Open Slowly.
- 7. Notes**
- 7.1 Marginal Indicia**—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE COOLING SYSTEMS STANDARDS COMMITTEE 3