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John C. Stennis Space Center
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April 2014

COMPLIANCE IS MANDATORY

John C. Stennis Space Center Relief Devices – Inspection and Recertification

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Document History Log

Revision Change	Date	Originator/ Phone	Description
Basic	8/11/03	D. Dike Ext. 8-2803	Initial release - supersedes SSC STD 97-008 Rev. C, with the following changes: New document number and format per SPG 1400.1; Reorganized and edited for continuity; 1.0: title changed from “Scope” to “Purpose and Applicability”; para. 2 moved to 4.0 para. 2 “NOTE”; added exception for reseal pressure of field-tested items; 6.2-c-1: change “actual” to “system design”; 6.2-d: add new for recording of actual relief pressure on form SSC-368, ref STD 99-011; 8.0: change term “media” to “systems” in both definitions for “relief devices”; Table1 add hydrogen peroxide (H ₂ O ₂).
A	4/17/09	D. Dike Ext. 8-2803	Updated referenced documents throughout. Formatted in accordance with SPR 1400.1. Section 4.2: Revised verbiage for clarity. Section 4.2.1 (c): Changed “actual relief” to “set” and changed “fizz” to “simmer.” Section 4.2.1 (h): Changed “reworked” to “repaired.” Updated Table 1.
A-1 Issued CEF 07/14/09	07/14/09	N. Wells Ext. 8-2765	Administrative change in Section 6.1.b to clarify testing and recertification intervals shall be in accordance with Tables 1 and 2.
B	1/17/2013	S. Le Ext. 8-3816	Updated paragraph 4.2.1.f.1 to ±2 from +2. Updated paragraph 4.2.1.f.2 to ±3% from +3%. Replaced referenced standard SSTD-8070-0089 with RPTSTD-8070-0001. Revised paragraph 6.1.a- deleted “for actual relief pressure”. Added 4.2.1.g: End-users shall be responsible for specifying set and reseal pressure and their tolerances in work orders/requests if they differ from those stated in 4.2.1.f. Added 4.2.1.h: Set pressures shall be within tolerances stated in 4.2.1.f.1 and 4.2.1.f.2. <i>However, more stringent tolerances are permitted.</i> and CAUTION after paragraph 4.2.1.h.
C	4/29/14	S. Le Ext. 8-3816	Deleted measurement of reseal pressure from Section 1.0 Added paragraph 4.1.f

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		Added notes to paragraphs 4.2.1.c and 4.21.d. Added note to paragraph 4.2 Changed “fizzed” to “simmered” in paragraph 4.2.1 (l) Paragraph 4.2.3, original paragraph moved to 4.2.3.a Revised Paragraph 4.2.3 with added note and guidance on rupture disk calibration interval Added paragraph 4.2.4 Paragraph 4.4, changed “valves” to “devices” Added paragraph 4.4.a Added paragraph 5.1 Added “MAXIMO” and “VR” to Appendix B Added Table 1 for hydrogen inline relief devices, RP-1, IPA, Tea-Teb and pressure vessels lift plates

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1.0 PURPOSE AND APPLICABILITY

This John C. Stennis Space Center (SSC) standard establishes requirements for the inspection, recertification, and recalibration of relief devices used at SSC. Proper calibration of these devices is necessary to maintain the safety and reliability of SSC pressure systems.

2.0 REFERENCES AND APPLICABLE DOCUMENTS

All documents are assumed to be the latest version unless otherwise specified.

API 527, *Seat Tightness of Pressure Relief Valves*

ASME Boiler and Pressure Vessel Code

NASA-STD-8719.17, *NASA Requirements for Ground-Based Pressure Vessels and Pressurized Systems (PVS)*

National Board Inspection Code (NBIC)

SPR 1440.1, *Records Management Program Requirements*

SSC-368, *Component Processing Control Sheet*

SSC Standard 45-001, *SSC Pressurization Standard in Support of the Recertification of Pressure Vessels and Pressure Systems*

SSTD-8070-0005-CONFIG, *Preparation, Review, Approval, and Release of SSC Standards*

SSTD-8070-0006-CONFIG, *Component Servicing Documentation*

RPTSTD-8070-0001, *Surface Cleanliness Standard of Fluid Systems for Rocket Engine Test Facilities of the NASA Rocket Propulsion Test Program*

3.0 RESPONSIBILITIES

This standard shall be used and maintained in accordance with the requirements of SSC Standard SSTD-8070-0005-CONFIG.

4.0 RECERTIFICATION

- Recertification of relief devices shall be performed according to Table 1 of this standard.
- Recertification of a valve shall include an inspection as well as recalibration. When only inspection of the valve is required, the valve does not require recalibrating.

NOTE: Upon inspection and/or recertification of specialty service relief devices, the date inspected, actual relief pressure, actual reseal pressure, and serial number of the device shall be recorded and maintained in a site-wide database which shall serve as a historical record of reliability and maintenance of every relief device used at SSC.

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4.1 INSPECTION

- a. For specialty service relief devices, inspection shall include review of the identification tag data and the manufacturer's nameplate to ensure agreement with schematic drawings, component specifications, and component database information.
- b. Any discrepancies shall be reconciled during the inspection process.
- c. Where there is no existing maintenance procedure or plan covering the relief device, inspection shall include as a minimum a visual inspection, to check the overall condition of the valve; a check for external leakage around the relief device with soap or leak detection fluid, for gas service relief devices; and an auditory check for hissing or vibration.
- d. For utility service relief devices, inspection shall also include requirements prescribed in Section 4.3.
- e. Recertification or replacement of the relief device shall be performed as soon as possible when an unsafe condition is discovered during the inspection process.
- f. For inline relief valve, the outlet shall be inspected to ensure there is no blockage or any situation that may prevent the relief valve from discharging properly.

4.2 RECALIBRATION

Recalibration of specialty service relief devices shall be performed according to Table 1, unless the valve is in storage. Section 5.0 prescribes recertification (recertification includes both inspection and recalibration) intervals of specialty service relief valves in storage. Recalibration is not required for relief devices used in utility service such as water and steam systems and boilers.

Note: Recalibration of relief valves shall be performed by organizations with a National Board VR stamp certification.

4.2.1 Specialty Service Media

- a. Recalibration of cryogenic and gas valves shall include a functional test using gaseous nitrogen, air, or helium as the test gas.
- b. For each functional test, the relief valve inlet shall be pressurized until the relief valve lifts open or until 110% of specified set pressure is attained.