

(3) After rebuilding, each inner containment vessel must be proof pressure tested at 2 times its service pressure. Each completed assembly must be leak-tested using a mass spectrometer detection system.

(f) *Reheat treatment.* (1) Prior to reheat treatment, each cylinder must be given a visual inspection, internally and externally, in accordance with § 180.205(f).

(2) Cylinders must be segregated in lots for reheat treatment. The reheat treatment and visual inspection must be performed in accordance with the specification for the cylinders except as provided in paragraph (f)(4) of this section.

(3) After reheat treatment, each cylinder in the lot must be subjected to a volumetric expansion test and meet the acceptance criteria in the applicable specification or be scrapped.

(4) After all welding and heat treatment, a test of the new weld must be performed as required by the original specification. The test results must be recorded in accordance with § 180.215.

[67 FR 51660, Aug. 8, 2002, as amended at 68 FR 24664, May 8, 2003; 68 FR 75764, Dec. 31, 2003; 71 FR 54398, Sept. 14, 2006]

**§ 180.212 Repair of seamless DOT 3-series specification cylinders and seamless UN pressure receptacles.**

(a) *General requirements for repair of DOT 3-series cylinders and UN pressure receptacles.* (1) No person may repair a DOT 3-series cylinder or a seamless UN pressure receptacle unless—

(i) The repair facility holds an approval issued under the provisions in § 107.805 of this chapter; and

(ii) Except as provided in paragraph (b) of this section, the repair and the inspection is performed under the provisions of an approval issued under subpart H of Part 107 of this chapter and conform to the applicable cylinder specification or ISO standard contained in part 178 of this chapter.

(2) The person performing the repair must prepare a report containing, at a minimum, the results prescribed in § 180.215.

(b) *Repairs not requiring prior approval.* Approval is not required for the following specific repairs:

(1) The removal and replacement of a neck ring or foot ring on a DOT 3A, 3AA or 3B cylinder or a UN pressure receptacle that does not affect a pressure part of the cylinder when the repair is performed by a repair facility or a cylinder manufacturer of these types of cylinders. The repair may be made by welding or brazing in conformance with the original specification. After removal and before replacement, the cylinder must be visually inspected and any defective cylinder must be rejected. The heat treatment, testing and inspection of the repair must be performed under the supervision of an inspector and must be performed in accordance with the original specification.

(2) External re-threading of DOT 3AX, 3AAX or 3T specification cylinders or a UN pressure receptacle mounted in a MEGC; or the internal re-threading of a DOT-3 series cylinder or a seamless UN pressure receptacle when performed by a cylinder manufacturer of these types of cylinders. The repair work must be performed under the supervision of an independent inspection agency. Upon completion of the re-threading, the threads must be gauged in accordance with Federal Standard H-28 or an equivalent standard containing the same specification limits. The re-threaded cylinder must be stamped clearly and legibly with the words "RETHREAD" on the shoulder, top head, or neck. No DOT specification cylinder or UN cylinder may be re-threaded more than one time without approval of the Associate Administrator.

[71 FR 33895, June 12, 2006, as amended at 71 FR 54398, Sept. 14, 2006; 72 FR 55697, Oct. 1, 2007]

**§ 180.213 Requalification markings.**

(a) *General.* Each cylinder or UN pressure receptacle requalified in accordance with this subpart with acceptable results must be marked as specified in this section. Required specification markings may not be altered or removed.

(b) *Placement of markings.* Each cylinder must be plainly and permanently marked on the metal of the cylinder as permitted by the applicable specification. Unless authorized by the cylinder

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specification, marking on the cylinder sidewall is prohibited.

(1) Requalification and required specification markings must be legible so as to be readily visible at all times. Illegible specification markings may be remarked on the cylinder as provided by the original specification. Requalification markings may be placed on any portion of the upper end of the cylinder excluding the sidewall, as provided in this section. Requalification and required specification markings that are illegible may be reproduced on a metal plate and attached as provided by the original specification.

(2) Previous requalification markings may not be obliterated, except that, when the space originally provided for requalification dates becomes filled, additional dates may be added as follows:

(i) All preceding requalification dates may be removed by peening provided that—

(A) Permission is obtained from the cylinder owner;

(B) The minimum wall thickness is maintained in accordance with manufacturing specifications for the cylinder; and

(C) The original manufacturing test date is not removed.

(ii) When the cylinder is fitted with a footring, additional dates may be marked on the external surface of the footring.

(c) *Requalification marking method.* The depth of requalification markings may not be greater than specified in the applicable specification. The markings must be made by stamping, engraving, scribing or other method that produces a legible, durable mark.

(1) A cylinder used as a fire extinguisher (§180.209(j)) may be marked by using a pressure sensitive label.

(2) For a DOT 3HT cylinder, the test date and RIN must be applied by low-stress steel stamps to a depth no greater than that prescribed at the time of manufacture. Stamping on the sidewall is not authorized.

(3) For a composite cylinder, the requalification markings must be applied on a pressure sensitive label, securely affixed in a manner prescribed by the cylinder manufacturer, near the original manufacturer's label. Stamping of

the composite surface is not authorized.

(d) *Requalification markings.* Each cylinder successfully passing requalification must be marked with the RIN set in a square pattern, between the month and year of the requalification date. The first character of the RIN must appear in the upper left corner of the square pattern; the second in the upper right; the third in the lower right; and the fourth in the lower left. Example: A cylinder requalified in September 2006, and approved by a person who has been issued RIN "A123", would be marked plainly and permanently into the metal of the cylinder in accordance with location requirements of the cylinder specification or on a metal plate permanently secured to the cylinder in accordance with paragraph (b) of this section. An example of the markings prescribed in this paragraph (d) is as follows:

	A1		
9		06	X
	32		

Where:

"9" is the month of requalification

"A123" is the RIN

"06" is the year of requalification, and

"X" represents the symbols described in paragraphs (f)(2) through (f)(8) of this section.

(1) Upon written request, variation from the marking requirement may be approved by the Associate Administrator.

(2) Exception. A cylinder subject to the requirements of §171.23(a)(4) of this subchapter may not be marked with a RIN.

(e) *Size of markings.* The size of the markings must be at least 6.35 mm (¼ in.) high, except RIN characters must be at least 3.18 mm (⅛ in.) high.

(f) *Marking illustrations.* Examples of required requalification markings for DOT specification and special permit cylinders are illustrated as follows:

(1) For designation of the 5-year volumetric expansion test, 10-year volumetric expansion test for UN cylinders and cylinders conforming to §180.209(f)

and (h), or 12-year volumetric expansion test for fire extinguishers conforming to §173.309(b) of this subchapter and cylinders conforming to §180.209(e) and 180.209(g), the marking is as illustrated in paragraph (d) of this section.

(2) For designation of the 10-year volumetric expansion test for cylinders conforming to §180.209(b), the marking is as illustrated in paragraph (d) of this section, except that the "X" is replaced with a five-point star.

(3) For designation of special filling limits up to 10% in excess of the marked service pressure for cylinders conforming to §173.302a(b) of this subchapter, the marking is as illustrated in paragraph (d) of this section, except that the "X" is replaced with a plus sign "+".

(4) For designation of the proof pressure test, the marking is as illustrated in paragraph (d) of this section, except that the "X" is replaced with the letter "S".

(5) For designation of the 5-year external visual inspection for cylinders conforming to §180.209(g), the marking is as illustrated in paragraph (d) of this section, except that the "X" is replaced with the letter "E".

(6) For designation of DOT 8 series cylinder shell requalification only, the marking is as illustrated in paragraph (d) of this section, except that the "X" is replaced with the letter "S".

(7) For designation of DOT 8 series and UN cylinder shell and porous filler requalification, the marking is as illustrated in paragraph (d) of this section, except that the "X" is replaced with the letters "FS."

(8) For designation of a non-destructive examination combined with a visual inspection, the marking is as illustrated in paragraph (d) of this section, except that the "X" is replaced with the type of test performed, for example the letters "AE" for acoustic emission or "UE" for ultrasonic examination.

(9) For designation of the eddy current examination combined with a visual inspection, the marking is as illustrated in paragraph (d) of this section,

except the "X" is replaced with the letters "VE."

[67 FR 51660, Aug. 8, 2002, as amended at 70 FR 73166, Dec. 9, 2005; 71 FR 33896, June 12, 2006; 71 FR 51128, Aug. 29, 2006; 71 FR 78635, Dec. 29, 2006; 75 FR 53597, Sept. 1, 2010]

#### § 180.215 Reporting and record retention requirements.

(a) *Facility records.* A person who requalifies, repairs or rebuilds cylinders must maintain the following records where the requalification is performed:

(1) Current RIN issuance letter;

(2) If the RIN has expired and renewal is pending, a copy of the renewal request;

(3) Copies of notifications to Associate Administrator required under §107.805 of this chapter;

(4) Current copies of those portions of this subchapter applicable to the cylinder requalification and marking activities at that location;

(5) Current copies of all special permits governing exemption cylinders requalified or marked by the requalifier at that location; and

(6) The information contained in each applicable CGA or ASTM standard incorporated by reference in §171.7 of this subchapter applicable to the requalifier's activities. This information must be the same as contained in the edition incorporated by reference in §171.7 of this subchapter.

(b) *Requalification records.* Daily records of visual inspection, pressure test, and ultrasonic examination if permitted under a special permit, as applicable, must be maintained by the person who performs the requalification until either the expiration of the requalification period or until the cylinder is again requalified, whichever occurs first. A single date may be used for each test sheet, provided each test on the sheet was conducted on that date. Ditto marks or a solid vertical line may be used to indicate repetition of the preceding entry for the following entries only: date; actual dimensions; manufacturer's name or symbol, if present; owner's name or symbol, if present; and test operator. Blank spaces may not be used to indicate repetition of a prior entry. The records must include the following information: